LIBRARIES
UNIVERSITY OF WISCONSIN–MADISON

Catalog, Announcement of courses. 1954-55/1955-56

[Madison, Wisconsin]: [The University], 1954-55/1955-56

https://digital.library.wisc.edu/1711.dl/WTMGUPBMKA52P9C

http://rightsstatements.org/vocab/InC/1.0/

The libraries provide public access to a wide range of material, including online exhibits, digitized collections, archival finding aids, our catalog, online articles, and a growing range of materials in many media.

When possible, we provide rights information in catalog records, finding aids, and other metadata that accompanies collections or items. However, it is always the user's obligation to evaluate copyright and rights issues in light of their own use.

728 State Street | Madison, Wisconsin 53706 | library.wisc.edu

M. Stitzer
204 Soils

BULLETIN

of the

UNIVERSITY of WISCONSIN



GENERAL ANNOUNCEMENT OF COURSES

1954-56

(CATALOG)

MADISON, WISCONSIN

AUGUST, 1955

Bulletin of the University of Wisconsin

Vol. 1955, No. 9 August, 1955

The Bulletin of the University of Wisconsin is published nine times annually: monthly January through June; twice in July; once in August; and is entered as second-class matter at the Post Office at Madison, Wisconsin, under the Act of Congress of August 12, 1912.

GENERAL ANNOUNCEMENT OF COURSES

1954-56

(CATALOG)

MADISON, WISCONSIN

TABLE OF CONTENTS

GENERAL INFORMATION

General Information 1
Student Life 1
Counseling and Student Services 2
Student Health Service 2
Instructional Organization 3
Degrees 4
General Regulations 5
Admissions 7
Methods of Admission 7
Admission Requirements 8
Registration Period 11
New Student Program 11
Advanced Credit 11
Foreign Languages 11
Auditors 12
Student Expense and Financial Aids 13
Fees and Tuition 13
Part-Time Student Employment 16
Loans 16
Scholarships, Fellowships, Assistantships 17
Housing and Meals 18
Women Students 18
University Residence Halls 18
Off-Campus Accommodations 20
Men Students 20
University Residence Halls 20
Off-Campus Accommodations 21
Married Couples and Families 21
Temporary Housing Projects 21
Apartments and Housekeeping Rooms 21
Meals 22

COLLEGE OF LETTERS AND SCIENCE

Faculty 23
Courses of Study Offered 31
General Regulations 31
The B. A. General Course 42
The B.S. General Course 45
Freshman Studies 47
Integrated Liberal Studies 48
Course in Applied Mathematics and Mechanics 49
Course in Chemistry 51
Courses in Humanities 53
Course in Medical Technology 54
Course in Naval Science 56
Course in Nursing 57
Courses in Physical Medicine 59
Special Majors 61
Transfer to the School of Commerce 81

Transfer to the School of Education 81
Transfer to the School of Journalism 82
Transfer to the School of Law 82
Transfer to the School of Medicine 83
Transfer to the School of Music 84
Transfer to the School of Pharmacy 84
School of Journalism 85
Library School 89
School of Music 90
School of Social Work 99
Departments of Instruction 100

COLLEGE OF AGRICULTURE

Faculty 250
Opportunities in Agriculture 257
Facilities and Staff 258
Campus Activities 258
General Information 258
The Long Course 259
The Middle Course 261
Pre-Forestry 262
Pre-Veterinary 263
Other Courses in the College of Agriculture 266
Departments of Instruction 267
Appendix 294
Majors in Agricultural Science 294

SCHOOL OF COMMERCE

Faculty 302
Student Expense 303
Placement Bureau 303
Bureau of Business Research and Service 304
General Information 304–307
Requirements for Admission 307
Requirements for Bachelor of Business Administration Degree 309
General Requirements 309
Requirements for the Degree of Bachelor of Science (Light Building Industry) 318
Masters' Degrees 319
Doctor of Philosophy Degree 321
Departments of Instruction 322

SCHOOL OF EDUCATION

Faculty 333
Wisconsin High School 337
Field Services 337
Educational Laboratories 337
Psycho-Educational Clinic 338
The Reading Clinic 338
Learning Laboratory 338
Statistical Laboratory 338
Bureau of Visual Instruction 338
The Education Library 338

Instructional Materials Center 339
Teacher Placement Bureau 339
Scheders 339
Honorary Professional Organizations 339
Foreign Students 340
Admission and Registration 340
Honors in Scholarship 341
Degrees 341
Requirements for Graduation and for the University Teachers' Certificate 342
Special Statutory Requirements 344
Regulations of Wisconsin Department of Public Instruction 344
Special Programs in Preparation for Teaching 345
Four-Year Courses in the School of Education 346
Courses in Art Education and Applied Art 346
Courses in Occupational Therapy 351
Course in Physical Education and Athletic Coaching for Men 352
Course in Physical Education for Women 354
Course in Recreation Leadership 359
Program for the Preparation of Elementary School Teachers 361
Program for the Preparation of Secondary School Teachers 362
Academic Teaching Majors and Minors 362
Program for Teachers of Agriculture and Home Economics 379
Course for Teachers of Business Education 382
Course for Teachers of Music 383
Minor in Health Education 385
Departments of Instruction 388

COLLEGE OF ENGINEERING

Faculty 408
General Information 411
Engineering Curricula 421
Aeronautical Engineering 421
Biochemical Engineering 422
Chemical Engineering 421
Civil Engineering 423
Electrical Engineering 427
Mechanical Engineering 429
Mining Engineering 430
Metallurgical Engineering 431
Departments of Instruction 432

HOME ECONOMICS

Faculty 453
Majors in Home Economics 455
General Information 456
Curricula in Home Economics 459
Minors in Home Economics 471
Graduate Work in Home Economics 471
Departments of Instruction 472

LAW SCHOOL

Faculty 477
Admission 478

Combined Course: Letters and Science and Law 479
Combined Course: Commerce and Law 479
Combined Course: Engineering and Law 479
Pre-Legal Studies 480
Requirements for Graduation 480
Admission to the Bar 481
Graduate Law Degrees 481
The S.J.D. Degree 481
Summer Session 482
Courses 483

MEDICAL SCHOOL

Faculty 490
Academic Staff 490
Associate Teaching Staff 494
Admission 497
Medical School Curricula 497
Preprofessional Requirements 497
Medical Courses 499
Degrees 503
Graduate and Postgraduate Instruction 503
Scientific Investigation 504
Laboratory and Hospital Facilities 504
Departments of Instruction 505
Awards, Student Loans, Lectureships 512
Course in Medical Technology 513
Course in X-Ray Technology 513
Course in Physical Medicine 513
Course in Occupational Therapy 513

SCHOOL OF NURSING

Faculty 514
History and Aims 515
Admission 516
Expense 516
Curricula 517
Public Health Nursing Major 519
Ward Management and Ward Teaching Major 520
Departments of Instruction 522

SCHOOL OF PHARMACY

Faculty 524
General Statement 525
American Council on Pharmaceutical Education 525
American Association of Colleges of Pharmacy 525
Student Expense 525
Self-Support 525
Requirements for Admission 526
Students Transferring to the University of Wisconsin 526
Graduate Study 526
Requirements for the Degree of Bachelor of Science in Pharmacy 527
Curriculum Leading to the Degree of Bachelor of Science (Pharmacy) 527
Departments of Instruction 528

EXTENSION DIVISION

Faculty 531
General Information 538–542
Correspondence Study 543
Locally Directed High-School Credit Courses 545
Correspondence-Study Courses 545
University Credit Courses 545
Business, Technical, Professional and Cultural Courses 548
High-School Courses 550

THE GRADUATE SCHOOL

Organization and Purposes 551
Admission 551
Registration 553
The Master's Degree 554
The Degree of Doctor of Philosophy 555
Fellowships—Scholarships—Assistantships 558
Loan Funds 558

SUMMER SESSION

General Information 559
Summer Session Fees 560

PHYSICAL EDUCATION

Medical and Physical Examinations 561
Physical Education Requirement—Men 561
Intercollegiate Athletics 562
Women's Department 562

MILITARY SCIENCE

Faculty 564
Units and Objects of Instruction 564
Basic Course 565
Advanced Course 565
Personnel and Equipment 566
Extracurricular Activities 566

NAVAL SCIENCE

Faculty 568
Object and Scope of Instruction 568
Departments of Instruction 568
Pay and Allowances 569
Uniforms 570
Summer Cruises 570
Personnel and Equipment 570

AIR SCIENCE

Faculty 571
Mission 571

General Information 571
Basic Course 571
Advanced Course 572
Extracurricular Activities 572
Uniforms and Pay 573

DIVISION OF SOCIAL EDUCATION

General Information 575

DIVISION OF RESIDENCE HALLS

General Information 576

DIVISION OF RADIO-TELEVISION EDUCATION

Course Instruction 577
Broadcast Training 580

ASSOCIATED SCIENTIFIC INSTITUTIONS

Forest Products Laboratory 582
Washburn Observatory 584
Wisconsin Geological and Natural History Survey 585
University Hospitals 586
Wisconsin Psychiatric Institute 586
State Historical Society 587
Wisconsin Academy of Sciences, Arts and Letters 588
Arboretum, Wildlife Refuge, and Forestry Preserve 589
Museums 589
State Laboratory of Hygiene 590

SUMMARIES

Faculty Summary 591
Summary of Students by Classes, Courses, and Sex 594–599
Summary of Degrees Granted 600
Index 609

OFFICERS OF THE UNIVERSITY

EDWIN B. FRED, President
IRA L. BALDWIN, Vice-President of Academic Affairs
ALFRED W. PETERSON, Vice-President of Business and Finance
KENNETH LITTLE, Vice-President of Student Affairs
LEROY E. LUBERG, Assistant to the President

THE REGENTS OF THE UNIVERSITY

R. G. ARVESON, Frederic 1955
CHARLES D. GELATT, La Crosse 1956
CARL E. STEIGER, Oshkosh 1957
JOHN D. JONES, JR., Racine 1958
MRS. MELVIN R. LAIRD, Marshfield 1959
WILBUR N. RENK, Sun Prairie 1960
OSCAR RENNEBOHM, Madison 1961
CHESTER O. WANVIG, Milwaukee 1962
A. MATT. WERNER, Sheboygan 1963
GEORGE E. WATSON, Madison ..... ex-officio

OFFICERS OF THE REGENTS

A. MATT. WERNER, President
OSCAR RENNEBOHM, Vice-President
WARREN R. SMITH, State Treasurer, ex-officio Treasurer
CLARKE SMITH, Secretary

THE BOARD OF VISITORS

Appointed by the Regents

A. J. GOEDJEN, Green Bay 1956
ARTHUR A. CIRILLI, Superior 1957
MRS. EMERY OWENS, Dousman 1958

Appointed by the Alumni

JOSEPH W. JACKSON, Madison 1955
MARC A. LAW, Chicago 1955
MRS. MARCUS HOBART, Evanston 1956
JOHN S. HOBBINS, Madison 1956
FRED W. GENRICH, JR., Wausau 1957
MISS MAXINE PLATE, Milwaukee 1958

Appointed by the Governor

MRS. GEORGE CHATTERTON, Madison 1955
HAROLD A. KONNACK, Racine 1957
SAM E. OGLE, Milwaukee 1958

ADMINISTRATIVE OFFICERS

PRESIDENT

EDWIN B. FRED, *President*
IRA L. BALDWIN, *Vice-President of Academic Affairs*
ALFRED W. PETERSON, *Vice-President of Business and Finance*
KENNETH LITTLE, *Vice-President of Student Affairs*
LEROY E. LUBERG, *Assistant to the President*

SECRETARY OF THE FACULTY

ALDEN W. WHITE, *Secretary*

DEAN OF MEN

THEODORE W. ZILLMAN, *Dean*

DEAN OF WOMEN

MRS. LOUISE TROXELL, *Associate Director and Dean*
HELEN KAYSER, *Assistant Dean*
EMILY CHERVENIK, *Assistant Dean*
MRS. RITA MEARS, *Assistant to the Dean*

DIRECTOR OF ADMISSIONS

PAUL L. TRUMP, *Director*

REGISTRATION AND RECORDS

W. J. HARRIS, *Director*

STUDENT PERSONNEL STATISTICS

L. J. LINS, *Director*

STUDENT SERVICES

COUNSELING—L. E. DRAKE, *Director*
EMPLOYMENT—MARION TORMEY, *Director*
HOUSING—MRS. BLANCHE STEMM, *Acting Director*
PLACEMENT—HENRY GOEHRING, *Director*

UNIVERSITY LIBRARY

GILBERT H. DOANE, *Director of University Libraries*
LOUIS KAPLAN, *Associate Director in charge of Public Services*
GERHARD B. NAESETH, *Associate Director in charge of Technical Services*

DEPARTMENT OF MILITARY SCIENCE

CHESTER F. ALLEN, *Colonel, U.S.A., Commandant*

DEPARTMENT OF AIR SCIENCE

EDWIN P. ARCHIBALD, *Colonel, U.S.A.F., Commandant*

DEPARTMENT OF NAVAL SCIENCE

DOUGLAS E. REEVE, *Colonel, U.S.M.C., Commandant*

DEPARTMENT OF STUDENT HEALTH

ARCHER P. CROSLEY, JR., *Director*

PHYSICAL EDUCATION

ARPAD L. MASLEY, *Director of Physical Education—Men*
MARIE L. CARNS, *Director of Physical Education—Women*

RESIDENCE HALLS—Newell Smith, *Director*
WISCONSIN UNION—Porter Butts, *Director*
RADIO STATION WHA—Harold B. McCarty, *Director*
COLLEGE OF LETTERS AND SCIENCE
Mark H. Ingraham, *Dean*
Chester H. Ruedisili, *Associate Dean*
Robert B. Doremus, *Associate Dean*
Victor C. Arnold, *Assistant Dean*
Mrs. Anna L. Owen, *Assistant Dean*
Sieghardt M. Riegel, *Assistant Dean*
F. Chandler Young, *Assistant Dean*
Course in Applied Mathematics and Mechanics—Rudolph E. Langer, *Chairman*
Course in Chemistry—Farrington Daniels, *Director*
Course in Humanities—Rudolph E. Langer, *Chairman*
SCHOOL OF JOURNALISM—Ralph O. Nafziger, *Director*
LIBRARY SCHOOL—Rachel K. Schenk, *Director*
SCHOOL OF MUSIC—S. T. Burns, *Chairman*
SCHOOL OF SOCIAL WORK—Arthur P. Miles, *Director*
COLLEGE OF ENGINEERING
Kurt F. Wendt, *Dean*
William R. Marshall, *Associate Dean*
Kenneth G. Shiels, *Assistant Dean*
Course in Chemical Engineering—Olaf A. Hougen, *Chairman*
Course in Civil Engineering—James G. Woodburn, *Chairman*
Course in Electrical Engineering—Harold A. Peterson, *Chairman*
Course in Mechanical Engineering—Ben G. Elliott, *Chairman*
Course in Mining and Metallurgy—E. R. Shorey, *Chairman*
COLLEGE OF AGRICULTURE
Rudolph K. Froker, *Dean*
Vincent E. Kivlin, *Associate Dean*
Course in Home Economics—Frances Zuill, *Associate Dean*
LAW SCHOOL
John Ritchie, *Dean*
Carlisle P. Runge, *Assistant Dean*
MEDICAL SCHOOL
John Z. Bowers, *Dean*
Otto A. Mortensen, *Associate Dean*
SCHOOL OF NURSING
Margery J. MacLachlan, *Director and Associate Dean*
SCHOOL OF EDUCATION
Joseph L. Stiles, *Dean*
Course in Art Education and in Applied Art—Frederick M. Logan, *Chairman*
Course in Physical Education and Athletic Coaching for Men—
Robert Nohr, *Director*
Course in Physical Education for Women—Marie L. Carns, *Director*
University High School—John J. Goldgruber, *Principal*
SCHOOL OF COMMERCE
Erwin A. Gaumnitz, *Dean*
SCHOOL OF PHARMACY
Arthur H. Uhl, *Director*
GRADUATE SCHOOL
C. A. Elvehjem, *Dean*
J. Homer Herriott, *Associate Dean*
W. J. Brogden, *Associate Dean*
EXTENSION DIVISION—Lorentz H. Adolfson, *Director*
SUMMER SESSION—Lorentz H. Adolfson, *Acting Director*

BUSINESS OFFICES

ALFRED W. PETERSON, *Vice-President of Business and Finance and Trust Officer*
NEIL G. CAFFERTY, *Controller*
HENRY M. SCHMELZER, *Administrative Assistant*
CLARKE SMITH, *Assistant to the Vice-President of Business and Finance and Assistant Trust Officer*
HENRY F. KROENING, *Assistant to the Vice-President of Business and Finance*
ROBERT E. HAMMES, *Director of Business Administration Research*
CLARENCE W. VAUGHN, *Personnel Officer*
CECIL B. HORSWILL, *Bursar*
LUTHER CLAYTON, *Purchasing Agent*
S. LEE BURNS, *Director of Residence Halls*
BLANCHE B. STEMM, *Acting Director of Housing Bureau*
WILLIAM H. NEGLEY, *Publications Supervisor*
OSCAR C. DAMMAN, *Student Loans*

PHYSICAL PLANT

ALVA F. AHEARN, *Superintendent of Buildings and Grounds*
RICHARD F. WOROCH, *Power Plant Engineer*

UNIVERSITY CALENDAR

Academic Year 1954-55	Academic Year 1955-56	Academic Year 1956-57	
			First Semester
Sept. 10 (F)	Sept. 9 (F)	Sept. 14 (F)	Last day for entrance examinations
Sept. 13–18 (M-S)	Sept. 12–17 (M-S)	Sept. 17–22 (M-S)	New Student Program and Registration
Sept. 20 (M)	Sept. 19 (M)	Sept. 24 (M)	Instruction begins
Sept. 21 (Tu)			Examinations for removal of conditions
Sept. 23 (Th)			Placement examinations for late entrants
Sept. 30 (Th)	Sept. 29 (Th)		Foreign language attainment examinations
Nov. 25, 26, 27 (T, F, S)	Nov. 24, 25, 26 (T, F, S)	Nov. 22, 23, 24 (T, F, S)	Thanksgiving recess
Dec. 4 (S)			Examinations for removal of conditions
Dec. 18 (S noon)	Dec. 17 (S noon)	Dec. 22 (S noon)	Christmas recess begins
Jan. 3 (M, 7:45 a.m.)	Jan. 3 (M, 7:45 a.m.)	Jan. 7 (M, 7:45 a.m.)	Classes resume
Jan. 15 (S)	Jan. 14 (S)		Foreign language attainment examinations
Jan. 20–29 (Th-S noon)	Jan. 19–28 (Th-S noon)	Jan. 24–Feb. 2 (Th-S noon)	Final examinations
			Second Semester
Jan. 28 (F)	Jan. 27 (F)	Feb. 1 (F)	Last day for entrance examinations
Feb. 2–5 (W-S)	Feb. 1–4 (W-S)	Feb. 6–9 (W-S)	Registration days
Feb. 7 (M)	Feb. 6 (M)	Feb. 11 (M)	Instruction begins
Feb. 12 (S)	Feb. 11 (S)		Placement examinations for late entrants
Feb. 26 (S)			Examinations for removal of conditions
April 8–17 (incl, F-S)	Mar. 30–Apr. 8 (incl, F-S)	Apr. 19–27 (incl, F-S)	Spring recess
April 30 (S)			Examinations for removal of conditions
May 7 (S)	May 5 (S)		Foreign language attainment examinations
May 30 (M)	May 30 (W)	May 30 (Th)	Memorial Day: legal holiday
June 4–13 (incl, S-M)	June 2–11 (incl, S-M)	June 8–17 (incl, S-M)	Final examinations
June 17 (F)	June 15 (F)	June 21 (F)	Commencement day
1955	1956	1957	
June 20 (M)	June 18 (M)	June 24 (M)	**Summer Session**
June 27 (M)	June 25 (M)	July 1 (M)	Law School classes begin
Aug. 20 (S)	Aug. 18 (S)	Aug. 24 (S)	Eight-week classes begin
Aug. 27 (S)	Aug. 25 (S)	Aug. 21 (S)	Eight-week classes end
			Law School Classes end

Part I -- General Information

STUDENT LIFE

A college education at the University of Wisconsin provides an opportunity for study in almost all major areas of endeavor—humanities, arts, sciences and social studies as well as preprofessional and professional areas in agriculture, engineering, commerce, education, medicine, law, pharmacy, and many allied fields.

In addition to the educational opportunities of the curriculum, the University encourages a student-operated program designed to provide the maximum educational value from student life outside the classroom. A student at Wisconsin is afforded an opportunity to participate in many types of professional, recreational and living unit groups. The University believes that extracurricular activity should be a part of the total educational experience of every student.

Life at Wisconsin also includes the experience of participating in a community where students share opportunities for group responsibility and individual self regulation. Students and faculty members together guide and direct the course of university policies which govern student life. This is one of the characteristics of our community. The particular role of the University is to foster the acceptance of appropriate standards of behavior and to establish the conditions which will make group and individual self-regulation effective in terms of such standards.

The social and cultural opportunities in the community are rich and varied. Much of the life and activity of students is centered in the Memorial Union, "the living room of the campus." This all-campus institution offers recreational and cultural events planned by student committees. In addition to its program of social education, the Union provides dining rooms, lounges, a library, art galleries, two theaters, halls for dancing, craft workshops, photography dark rooms, bowling alleys, billiard and table tennis rooms, lounges with kitchenettes, radio studio, and an outing headquarters. Because most programs and services are free, student recreation expense at Wisconsin is comparatively low.

Student participation in citizenship responsibility is brought to a focus in the Wisconsin Student Association. Each student is automatically a member and is represented on Student Senate, the legislative body of the Wisconsin Student Association. The Association provides a vehicle whereby students and faculty working together solve mutual problems. The Associated Women Students has responsibility in matters pertaining to the undergraduate women of the University. Every woman student is a member from the date of her matriculation.

The religious centers at the University play an important part in student life. These student religious organizations not only afford a student an increased understanding of his faith but provide a wide variety of cultural, intellectual, and recreational programs as well.

Many special-interest groups offer a wide variety of opportunities for valuable experience and training. These are music groups (band, orchestra, and chorus), debating societies, athletic groups, Orchesis—the dance group, Wisconsin Players— a dramatic group, language clubs, and professional organizations in many specialized fields.

Positions offering experience in publications are available on the *Daily Cardinal,* the student newspaper; the *Badger,* the school annual; and the *Octopus,* a humor magazine. *Country Magazine* and the *Wisconsin Engineer* are edited by students of the Colleges of Agriculture and Engineering, respectively. *The Law Review* is a professional legal publication issued by students in the Law School.

Facilities for athletic participation, both intramural and intercollegiate, are available to all students. Students are privileged to purchase coupon books for admission to home intercollegiate athletic events at reduced prices.

The privilege of living in dormitories, sororities, fraternities, or independently organized houses gives a student basic understandings in human relations and valuable training in

democratic principles and techniques at the group level. The social, recreational, and cultural programs promoted by such groups have for many years contributed to individual growth and are a significant part of what a student learns from his college experience.

A complete listing of student organizations and regulations and policies governing student life is included in the Student Handbook.

COUNSELING AND STUDENT SERVICES

In order to aid students to obtain the maximum educational benefit while at the University, counseling and other personnel services are available to every student. Among the services offered are educational and vocational advising, assistance on selective service matters and veteran benefits, job placement, reading and study aids, employment, personal and social counseling, and financial advice and assistance. Detailed information may be found in the Student Handbook.

Each student is assigned a faculty adviser when he enters the University. The adviser assists the student in the choice of his subjects, in the interpretation of course requirements, and in the election of a well-balanced program. A student should not expect an adviser to make his choices for him. He should study the bulletins, take stock of his own interests and abilities, and discuss his plans in detail with his adviser.

In addition to the regular advisory service, a special office is maintained, at present in Room 263 Bascom Hall, to assist in the counseling and orientation of foreign students.

A university Speech Clinic has facilities for helping students who have defective speech.

STUDENT HEALTH SERVICE

Objectives. The fundamental purpose of the Department of Preventive Medicine and Student Health is directed toward the maintenance and improvement of the health and well-being of all students of the University of Wisconsin in all aspects of university life. To this end, its major objectives are:

1. To prevent sickness or injury and promote better health and efficiency. Regular functions conducted for this purpose include the entrance physical examination, periodic chest x-rays, vaccinations against infectious diseases, isolation of patients with communicable diseases, and active interest in the many environmental circumstances which affect students attending the University.

2. To provide expert medical attention when students encounter sickness or injury while attending the University. The Department has office and hospital facilities for complete medical care.

3. To promote education in matters of health, both physical and mental. A clear understanding of fundamental facts affecting health is a key factor in the prevention of illness and the promotion of better health.

Eligibility. The services of the Department of Preventive Medicine and Student Health are available to undergraduate and graduate students who are regularly enrolled in the University of Wisconsin at Madison. Eligibility begins when registration is completed and extends for the duration of the semester, or to the date of withdrawal. Treatment is limited to conditions which arise while a student is attending the University. The medical management of certain chronic diseases may be continued when necessary to permit students to pursue their studies. No provision is made for treatment obtained elsewhere. The service does not extend to faculty members, to the dependents of students, those enrolled in the Extension Division for correspondence work, or at Extension centers located outside Madison.

The Entrance Physical Examination. A physical examination is required for each student who enters the University at Madison for the first time, including those who transfer from other institutions into undergraduate and graduate divisions. Relationships with other university activities are dependent upon completion of this physical check-up. Each student is responsible for fulfilling this requirement and serious inconvenience will result if it is overlooked.

Expense to the Student. With certain exceptions, all services of this Department, including Infirmary care, are provided without charge to the individual. Prescriptions supplied in the Student Clinic may be filled in any pharmacy and the cost of such medication is assumed by the individual. Student patients are expected to accept individual responsibility for the professional fee of a consultant for specialized treatment, for fees of surgeon and anesthetists for operations, and similar additional services. No provision is made for dental care or eye refractions. The Student Clinic and Infirmary building is a unit of the University Hospital Center. All medical care is provided by the departmental staff and consultants at the University Medical School. Special sections give attention to tuberculosis case-finding and to neuropsychiatric problems. A physician is available for emergencies at any hour.

INSTRUCTIONAL ORGANIZATION

The University of Wisconsin is organized for instruction into a number of colleges and schools which are in turn divided into departments. The scheme of organization is as follows:

COLLEGE OF LETTERS AND SCIENCE

Art History and Criticism
Astronomy
Botany
Chemistry
Classics (General, Latin and Greek)
Comparative Literature
Economics
English
French and Italian
Geography
Geology
German
History
History of Science
Integrated Liberal Studies
Journalism
Library Science
Linguistics
Mathematics
Meteorology
Music
Philosophy
Physics
Political Science
Psychology
Scandinavian Studies
Slavic Languages
Social Work
Sociology and Anthropology
Spanish and Portuguese
Speech
Zoology

COLLEGE OF ENGINEERING

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

COLLEGE OF AGRICULTURE

Agricultural Economics
Agricultural and Extension Education
Agricultural Engineering
Agricultural Journalism
Agronomy
Animal Husbandry
Bacteriology
Biochemistry
Dairy and Food Industries
Dairy Husbandry
Entomology
Forestry and Wildlife Management
Genetics
Horticulture
Plant Pathology
Poultry Husbandry
Rural Sociology
Soils
Veterinary Science

SCHOOL OF HOME ECONOMICS

Clothing and Textiles
Foods and Nutrition
Home Management and Family Living
Related Art

LAW SCHOOL

MEDICAL SCHOOL

Anatomy
History of Medicine
Hygiene
Medical Microbiology
Medicine
Neuropsychiatry
Obstetrics and Gynecology
Oncology
Pathology
Pharmacology and Toxicology
Physical Medicine
Physiological Chemistry
Physiology
Preventive Medicine and Student Health
Radiology
Surgery
Medical Technology

SCHOOL OF NURSING

Dietetics
Therapeutics
Medicine and Surgical Nursing
Maternal and Child Care
Mental Hygiene and Psychiatric Nursing
Public Health Nursing
Ward Management
Ward Teaching

SCHOOL OF EDUCATION

Education
Art Education and Applied Art
Physical Education for Men
Physical Education for Women
Occupational Therapy

SCHOOL OF COMMERCE

SCHOOL OF PHARMACY

DEPARTMENT OF AIR SCIENCE

DEPARTMENT OF MILITARY SCIENCE

DEPARTMENT OF NAVAL SCIENCE

DEPARTMENT OF PHYSICAL EDUCATION

In addition to the undergraduate and professional schools and colleges, there is a graduate school with advanced work leading to masters' and doctors' degrees, and a summer session offering academic and professional subjects for full credit toward all degrees.

Through the University of Wisconsin Extension Division, university work may be pursued at sites other than Madison. Freshman and sophomore instruction is offered at Extension Centers in Green Bay, Kenosha, Manitowoc, Marinette, Menasha, Milwaukee, Racine, Sheboygan, and Wausau. The Milwaukee program includes a two-year terminal course in commerce; graduate work in education, engineering, commerce, and social work; and a wide range of credit and non-credit evening classes. University work is also offered throughout the state by means of special classes and correspondence study.

The requirements for admission and regulations governing the conduct of Extension credit courses are the same as for courses offered in residence.

The University offers no curricula in dentistry, theology or architecture. However, the work of the freshman year in engineering is accepted by some colleges of architecture.

DEGREES

TITLES

GRADUATE IN AGRICULTURE—Two-Year Course in Agriculture
CERTIFICATE OF JUNIOR GRADUATE IN LIBERAL STUDIES—Two years in Liberal Studies

FIRST DEGREES

BACHELOR OF ARTS—Granted in General Course
BACHELOR OF ARTS (Humanities)
BACHELOR OF ARTS (Journalism)
BACHELOR OF ARTS (Medical Science)
BACHELOR OF BUSINESS ADMINISTRATION

BACHELOR OF LAWS
BACHELOR OF MUSIC
BACHELOR OF NAVAL SCIENCE
BACHELOR OF SCIENCE—Granted in General Course
BACHELOR OF SCIENCE (Applied Mathematics and Mechanics)
BACHELOR OF SCIENCE (Agriculture)
BACHELOR OF SCIENCE (Agriculture and Education)
BACHELOR OF SCIENCE (Agriculture and Naval Science)
BACHELOR OF SCIENCE (Applied Art)
BACHELOR OF SCIENCE (Art Education)
BACHELOR OF SCIENCE (Biochemical Engineering)
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 (Journalism)
BACHELOR OF SCIENCE (Light Building Industry)
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 (Naval Science)
BACHELOR OF SCIENCE (Nursing)
BACHELOR OF SCIENCE (Occupational Therapy)
BACHELOR OF SCIENCE (Pharmacy)
BACHELOR OF SCIENCE (Physical Education)
BACHELOR OF SCIENCE (Physical Medicine)

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 one year's additional study and a special thesis are required.

ADVANCED DEGREES IN THE GRADUATE AND AND PROFESSIONAL SCHOOLS

The University confers in course the following master's degrees: Master of Arts, Master of Laws, Master of Music, Master of Business Administration, and Master of Science. Candidates who have taken the Bachelor of Science degree in one of the engineering courses may also be granted the second degree of Civil Engineer, Mechanical Engineer, etc.

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

GENERAL REGULATIONS

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.

EXAMINATIONS. Each subject terminates in a two-hour written final examination at the close of the semester; these final examinations are regularly scheduled, and the times set

may not be changed without special faculty authorization. During the semester two or three one-hour written tests are ordinarily held in all but the most advanced courses. There are no exemptions from examinations because of high standings in class work.

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

GRADES AND POINTS. Semester grades are reported by letter only; the characterization of 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 9 points. The scale of grades and points follows:

Grade	Points per credit
A (Excellent)	4
B (Good)	3
C (Fair)	2
D (Poor)	1
F (Failure)	0

GRADE-POINT AVERAGE. The general quality of a student's work is expressed in terms of a grade-point average which is defined as the total number of grade-points earned divided by the total number of credits carried, whether passed or not, exclusive of credits reported as incomplete or progress. The highest possible quotient is 4.0 which represents a grade of *A* in every subject; the lowest possible quotient is 0.0.

Part II -- Admissions

METHODS OF ADMISSION

Students are admitted to undergraduate standing in the University by one of the following methods:

1. By certificate of graduation from an accredited high school with the recommendation of the principal thereof (see page 8).
2. By passing entrance examinations (see page 10).
3. By qualifying on the special basis of admission arranged for veterans of World War II and the Korean conflict (see page 10).
4. By qualifying as an adult special student (see page 10).
5. By submitting evidence of studies successfully pursued in another institution of higher learning (see Admission with Advanced Standing, page 10).

All applicants must submit credentials of all work taken in secondary schools of any type. Applicants who have taken work in colleges, regardless of the amount of such work, must submit complete credentials.

The student should obtain an application for admission blank from the appropriate office listed below. The completed application form and official school records are then sent to that office.

All Undergraduates and Law Students	—Office of Admissions, 166 Bascom Hall
Graduate School and Library School Students	—Dean, Graduate School, 150 Bascom Hall
Medical School Students	—Associate Dean, Medical School, 104 Service Memorial Institute

Summer Session. All applicants for the Summer Session who wish admission as candidates for a degree at the University of Wisconsin must file applications and credentials as above. This applies to all persons seeking admission to the Graduate School regardless of their intention of securing a degree.

All applicants for admission to the Law School Summer Session as degree candidates must file application and credentials, as above, with the Office of Admissions. Those who do not wish to qualify for the LL.B. at this University must submit *either* complete credentials as above *or* a statement of good standing with another accredited Law School.

All other Summer Session applicants who have not previously been degree candidates at the University of Wisconsin are required to furnish credentials in evidence of good standing. For a teacher, not a degree candidate, 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. A former student at the University of Wisconsin who has since attended another institution must file a statement of good standing. Application must be made in advance to the Office of Admissions, 166 Bascom Hall, so that necessary permits to register may be issued. Information concerning the Summer Session may be obtained from the Director of the Summer Session, 70 Education building.

Filing Dates. Applications will be received after the following dates:

For the semester beginning in September.....February 15
For the Semester beginning in February.....October 1
For the Summer Session.....February 15

Applicants for any term are advised to have completed the application for admission, including the submission of all required credentials covering completed work, by at least *six weeks prior* to the beginning of that term. Credentials covering any work still to be completed at the time of application should be submitted as promptly as possible upon completion. This applies particularly to students entering in February.

Principals of high schools in the State of Wisconsin will be able to tell their students whether they will qualify for regular admission. In the event of any question, the applicant is invited to write to the Office of Admissions.

ADMISSION REQUIREMENTS

University studies assume that the entering freshman has (a) competence in oral and written expression; (b) efficient reading and study skills; (c) for some courses the mathematical skill ordinarily gained in high-school algebra and plane geometry; (d) broad preparation in the fields of study which the University requires. (The first year of university work requires studies chosen largely from the fields of English, social studies, science, mathematics, and foreign languages.) The requirements for admission to the University are designed to provide (a) adequate preparation for studies required in the University, and (b) a desirable continuity in the student's educational experience. It is the policy of the University to maintain the fullest respect and protection of the Constitutional rights of all citizens and students regardless of race, color, sect, or creed. Accordingly, the University follows a policy of complete non-discrimination with respect to student admissions.

Nonresident Applicants. Applicants who are not residents of the state of Wisconsin are admitted on the same basis as are residents except as follows: Nonresident students admitted directly from high school must have ranked in the upper one-half of their graduating class. Nonresident students who have previously attended college must have earned grades equivalent to or better than grades of *B* on one-half the credits carried and grades of *C* on one-half the credits carried (on an *A, B, C, D, F,* grading scale). The University reserves the right to alter its policy as the enrollment situation requires.

1. For Admission by Certificate of Graduation

Graduates of accredited high schools will be admitted upon recommendation of the principals of their high schools, provided that they present 16 units* as follows:

English (or English and Speech)	3 Units
General Electives	7 Units
Elective Pattern (Two or more of the following):	6 Units
Mathematics	2 or 3 Units
A Foreign Language	2 or 3 Units
History and Social Studies	2 or 3 Units
Natural Science	2 or 3 Units
	16 Units

Mathematical Preparation. Mathematical preparation is essential for successful work in many fields of university instruction.

Minimum mathematical preparation is considered to be **1 unit of algebra and 1 unit of plane geometry.** To gain **full** admission to the **College of Engineering** or to **Agricultural Engineering** in the College of Agriculture, 1½ units of algebra and 1 unit of plane geometry are required. The additional ½ unit of algebra required may be absolved by completing one semester of college algebra without university credit.

* 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 are considered equivalent to one class period. In subjects not taught throughout the entire year, a unit may be constructed by adding each of two related subjects.

Students who do not have minimum mathematical preparation may enroll in the following curricula and majors:

American institutions	Hispanic studies
Applied art	History
Art education	Journalism
Art history and criticism	Men's physical education
Classics	Music
Comparative literature	Philosophy
English	Political science
Foreign languages	Recreation
Geography	Speech

Students who do not have minimum mathematical preparation may not enroll in any subjects in astronomy, mathematics, or physics, nor may they enroll in the following curricula and majors:

Agriculture	Mathematics
Bacteriology	Medical science
Biological aspects of conservation	Medical technology
Botany	Nursing
Chemistry	Occupational therapy
Commerce	Pharmacy
Economics	Physical medicine
Elementary education	Physics
Engineering	Psychology
Geology	Social work
Home economics	Sociology
Humanities	Women's physical education (including dance)
International relations	Zoology

If a student plans to major in one of these fields, he must obtain credit for the high-school mathematics before he will be accepted as a major student at the beginning of his junior year.

The University does not offer residence courses in elementary mathematics. Students admitted without mathematical preparation can become eligible for courses and majors requiring mathematical preparation only by earning the required units at an accredited school, by correspondence courses from the University Extension Division, or by passing an examination.

General Scholarship. Applicants who rank in the lower one-third of their graduating classes are advised that their chance of success in university studies is not good. Such applicants will be admitted only on probation. A student admitted to the University as a new freshman on probation shall not be admitted to the School of Education until he has demonstrated his proficiency as a university student.

Graduates of Wisconsin high schools who do not have the 9 academic units as stipulated above may be admitted if they rank in the upper one-tenth of the graduating classes of their high schools and their deficiency does not exceed 3 of the 9 units.

In order to offer wider course opportunities to superior students during their first year of residence, the upper group of entering freshmen in the College of Letters and Science and in the School of Home Economics may be permitted to elect in each semester of the first year one course which is now listed with the prerequisite of sophomore standing.

The eligible upper group shall consist of:

(1) those students who rank above the 92 percentile on the college aptitude test and who are in the highest quarter of their high-school class, OR

(2) those who, if their aptitude ranking is not available are certified as ranking in the upper 10 per cent of their high-school graduating class.

Special Deficiencies. Applicants who have failed to earn the total 16 units required, or have earned low grades, will be required to take entrance examinations.

Applicants Who Are Graduates of Nonaccredited High Schools. Graduates of nonaccredited Wisconsin high schools who have satisfied the full requirements for admission may be admitted on probation, without examination, upon recommendation of the principal.

Graduates of nonaccrediated high schools, *outside Wisconsin,* may be admitted when properly recommended and certified, provided the high school, on the basis of regular inspection, is accredited by universities who are members of the Association of American Universities, or by its state university if it maintains the same standard of admission requirements as institutions belonging to the Association of American Universities.

2. For Admission by Entrance Examination

These examinations are given (1) to applicants who may not have been graduated from secondary schools, but who wish by this means to establish their readiness for university studies; (2) to applicants who lack the units specified in the entrance requirements according to the certificate plan; and (3) to applicants having special deficiencies as described in Section 1 above.

Applicants who wish to qualify by entrance examinations should correspond or consult directly with the Office of Admissions about the character, time, place, and procedure of these examinations. Applicants are urged to take them as early as possible. They must be taken prior to four weeks before the beginning of the term the applicant wishes to enter. The College Entrance Board Examinations, the New York Regents' Examination, or the Canadian Matriculation Examinations are accepted in lieu of the entrance examination administered by the University of Wisconsin.

3. For Admission as a Veteran

United States armed service veterans for the period of World War II and the Korean conflict who do not possess all of the requirements for admission may be admitted to the University upon giving satisfactory evidence that they are prepared to take advantageously the subjects open to them. Candidates applying for admission on the War Veteran basis are required to present an official statement of their preparatory studies for evaluation and approval. They may also be asked to take entrance examinations and scholastic aptitude tests administered by the University. Students so admitted are subject to the regulations and requirements that apply to other students.

4. For Admission as an Adult Special

Citizens of Wisconsin, 21 years of age or over, who do not possess all 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 the subjects open to them. 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.

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.

5. For Admission With Advanced Standing

Students from accredited colleges and universities may be admitted on presentation of satisfactory records. In general, an honorable dismissal from the last school attended and an average of at least C on an A-B-C-D-Fail grading system (with emphasis on the work of the semester immediately preceding transfer) is required. This minimum standard of achievement is subject to any nonresident restrictions which may be in effect when the student applies for admission.

The senior year of work must be completed in residence at the University of Wisconsin.

Students who have completed work at other institutions of college level cannot be admitted as new freshmen without regard to their performance in college studies. Applicants for admission who have had any work whatsoever in other colleges, whether or not they wish to receive credit, must submit complete records of all high-school and college work. **Failure to submit such records may constitute sufficient cause for later dismissal.**

REGISTRATION PERIOD

A period of time is allotted each September, February, and June during which students accomplish their registration for the immediate following session. The calendar on the front pages of this bulletin lists dates for certain of these periods. During this time students secure their registration materials and directions for completing their registration.

To initiate registration the new student must have a Permit to Register.

During registration, the new student has a conference with his faculty adviser, decides on his program of studies, obtains any necessary special permissions (e.g., for reduced program, etc.), obtains assignment to classes by the Assignment Committee, makes arrangements for physical examination, completes and files his registration cards, and pays his university fees.

NEW STUDENT PROGRAM

In order to acquaint new students with educational, cultural, and recreational opportunities offered in the university community, a program for new students is planned in conjunction with the registration period prior to the opening of the September and February semesters. New freshmen are required to be in attendance throughout the program. New students transferring from other colleges are required to participate in some, but not all, of the activities. The program includes greetings from faculty and students, conferences with advisers, tours of the campus, assemblies for giving direction to the student's educational program, tests for the use of university counselors' and deans' offices, social events, and registration for classes.

ADVANCED CREDIT

Advanced credit for high-school work may be granted to students with satisfactory average standings who present more than 16 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 subject 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 6 units offered for admission, nor will advanced credit be given for less than three semester hours.

FOREIGN LANGUAGES

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

Students should also consult the college bulletin describing specific language requirements in the curriculum of their interest.

COLLEGE OF LETTERS AND SCIENCE

Course in Chemistry—2–4 units of German

Medical Science—2 units of Latin; language as needed for the B.A. or B.S. degree

Medical Technology—2–4 units of French or German

Course in Nursing—2 units of any foreign language

Physical Medicine—0–4 units

General Course leading to the Bachelor of Arts degree—2–4 units; Bachelor of Science degree—2 units

Course in Journalism—For the B.A. degree: 2–4 units; for the B.S. degree: 2 units

Course in Humanities—4 units of Latin, and 2–4 units of Greek, French, or German

Course in Music (Bachelor of Music degree)—0–4 units

COLLEGE OF AGRICULTURE

Home Economics—2–4 units in one language or 5 units in two. (See bulletin of the School of Home Economics for specific language requirements.)

SCHOOL OF EDUCATION

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

HIGH-SCHOOL FOREIGN LANGUAGE

High-school work in a foreign language is accepted in satisfaction of the foreign language requirements for the various degrees at the rate of 4 university credits for one unit, with a minimum of two units in one language (unless the language is continued in college) and a maximum of six units.

AUDITORS

Students may enroll in the University as auditors provided they obtain the written approval of the dean of the college in which they plan to take courses. Auditors are required to pay fees and to register in the same way as regular students.

Regular students may enter classes as auditors subject to approval by their adviser and the instructor.

Auditors are under no obligation of regular attendance, preparation, recitation or examination, and receive no credit toward graduation.

Part III - Student Expense and Financial Aids

There is considerable variation in student expenditures for room and board, books and supplies, laundry, recreation, and local transportation. An average expenditure for these items is estimated at $865 for the 38-week academic year. The actual expenditures of many students for these items may vary by as much as $350. These estimates do not include university fees, nonresident tuition, clothing, or transportation to and from Madison. More detailed information on the cost of board and room may be found in the section on housing.

FEES AND TUITION

The resident and nonresident semester fees listed below include, among other things, membership in the Memorial Union, Infirmary hospitalization privileges, and a laboratory-library charge. Any student not registered in the Law School who elects 8 or more credits per semester of Law School subjects will be assessed the Law School fee.

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

	Residents	Nonresidents
All Colleges and Schools except Law and Medicine	$ 90.00	$250.00
Law School	100.00	260.00
Medical School		
1st, 2nd, and 3rd years	170.00	330.00
4th year	125.00	285.00

Exceptions and Remissions. Following are the exceptions to and remissions of the above semester fees:

(a) War veterans who qualify under the G.I. Bill, Public 346, or the Veterans Rehabilitation Bill, Public 16, are entitled to have their fees paid by the Veterans Administration.

(b) The Wisconsin Union portion of the semester fees will be remitted for life members of the Wisconsin Union. Life members of the Memorial Union Building Association (starting January 1, 1952) are not eligible for any exemption on the semester fee.

(c) With the consent of the appropriate dean or director students may enroll in the University on a per-credit fee basis as follows:

	Residents	Nonresidents
All Colleges and Schools except Graduate, Law and Medicine, Per credit	$ 9.00	$32.00
Law School, Per credit	10.00	35.00
Graduate School, Per credit	15.00	42.00

The Medical School does not admit students on a per-credit basis.

Infirmary and Union privileges are excluded. No late registration fee will be charged.*

Students enrolling on the per credit fee basis will be permitted to pay an additional $7.50 per semester to obtain the privileges of the Wisconsin Union.

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

(e) Graduate students who are members of the teaching and research staff of the University, fellows and scholars, honorary fellows and honorary scholars, members of the State Geological and Natural History Survey, members of the technical staff of the Forest Product

* Subject to change.

Laboratory, staff members of the United States Department of Agriculture stationed at the University and engaged in research, technical experts employed in any department of the state government, and officers of the United States Army detailed as students by proper authority are entitled to *remission of the nonresident tuition fee.*

The general rules as to exemption from the nonresident 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 nonresident tuition.

(f) Honorary fellows are entitled to remission of the semester fee and to remission of the nonresident tuition fee. Honorary scholars are entitled to remission of the incidental portion of the semester fee and to remission of the nonresident tuition fee.

(g) Candidates for the master's or doctor's degree who are not enrolled at the time they present themselves for examination are required to pay a registration fee of $12.

Exemption From Nonresident Tuition. In addition to the general semester fee a nonresident tuition is charged to students who are nonresidents of the state, or who are not exempt from payment of nonresident tuition pursuant to the following excerpt from Section 36.16 of the Wisconsin Statutes:

"Any adult student who shall have been a resident of the state for one year next preceding his first admission to the University, or any minor student whose parents have been bona fide residents of the state for one year next preceding the beginning of any semester for which such student enters the University, or any minor student, whose natural parents are divorced or legally separated, and who has resided continuously for the preceding year with either his mother or father, provided that such mother or father has been a bona fide resident of the state for one year next preceding the beginning of any semester for which such student enters the University, or any minor student who is an orphan who has resided continuously for the preceding year with a grandparent or a legally appointed guardian, provided that such grandparent or guardian has been a bona fide resident of the state for one year next preceding the beginning of any semester for which such student enters the University, or any minor student who is under guardianship in this state pursuant to chs. 48 or 319, provided that the parental rights of the parents of such minor have been judicially terminated, and provided that, if the guardian of such minor is an individual, such individual has been a bona fide resident of the state for one year next preceding the beginning of any semester for which such student enters the University, shall, while he continues a resident of the state, be entitled to exemption from fees for nonresident tuition, but not from tuition, incidental or other fees in the University. Any student who shall not have been a resident of the state for one year next preceding his first admission to the University, except as above provided, shall not be exempt from the payment of the nonresident tuition fees until he shall have attended the University for four academic years; but if he shall have attended the University and thereafter shall continuously have been a resident of this state for a period of combined attendance at the University and subsequent residence in the state of not less than four years, he shall, while he continues a resident of the state, be entitled to exemption from payment of the nonresident tuition fees upon reentering the University."

The following types of students are in general exempt from the nonresident tuition:

I. Any adult student who has been a legal resident of the state for one year next preceding his first admission to the University, and as long as he continues to be a legal resident of the state, is not charged the nonresident tuition.

II. Any minor student whose parents have been bona-fide legal residents of this state for one year next preceding the beginning of any semester for which such student registers is not charged the nonresident tuition. The beginning of any such semester is consid-

ered to be the first day of instruction, and such student must be of minor age on that date.

III. Any adult student who has entered the University and been classified nonresident for tuition purposes for four academic years, consisting of fall and spring semesters, and has established legal residence in this state prior to the end of the fourth academic year, is not charged nonresident tuition thereafter as long as he continuously maintains legal residence in this state.

IV. Any adult student who has been classified nonresident for tuition purposes for one semester or more and thereafter shall continuously have been a resident of this state for a period of combined attendance at the University and subsequent residence in the state of not less than four calendar years, he shall, while he continues a resident of the state be entitled to exemption from payment of the nonresident tuition fees upon re-entering the University. Legal residence in Wisconsin of such students must have been established on or before the last day of attendance at the University.

V. Any adult student who is re-admitted to the University at least five calendar years subsequent to his first admission is eligible for exemption from the nonresident tuition provided he has maintained legal residence in this state for a minimum period of one year immediately preceding such re-admission.

NOTE 1. For the purpose of determining eligibility for exemption from the nonresident tuition classification, the date of first admission of an adult student is considered to be the date of the Registration Office stamp affixed to his fee card for the first regular semester, fall or spring, of attendance; and the date of first admission of a minor student is considered to be the first day of instruction for the first regular semester, fall or spring, of attendance.

NOTE 2. The determination of residence classification for tuition purposes is made by the Residence Examiners in the Office of Registration and Records, B-3 Bascom Hall. Appeals of students from nonresident classifications are to be made to the Secretary of the Regents, 171 Bascom Hall. Students having questions as to residence status should consult directly, either in person or by correspondence, with the Residence Examiners in the Office of Registration and Records. Any informal opinions or statements concerning residence status by other university personnel are not to be considered as being official.

Payment. Students are not officially registered until their tuition and fees are paid. All fees must be paid on or before Friday of the first week of instruction in each semester. Failure to pay fees by this date will result in cancellation of registration, and class attendance must be discontinued.

Students who register, or re-register, after the first week of instruction are subject to the following schedule of penalties:

Registration during the second and third week of instruction.....$ 5.00
Registration after the third week of instruction.....$10.00

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

No claim for refund or remission of nonresident tuition will be allowed unless such claim is made during the fiscal year to which the claim is applicable; and no claim for refund or remission of other fees will be allowed, except when specially authorized by the Regents, unless such claim is made within one year from the date of payment of the fee. No fees will be refunded to a student who has been suspended for disciplinary reasons.

PART-TIME STUDENT EMPLOYMENT

A recent study indicates that approximately one third of the men and one third of the women registered as undergraduates contribute to their own support by working part time while they are enrolled in the University. Since the employer usually requires a personal interview, the student should not expect to obtain a definite job before he arrives to stay. Help is often wanted on very short notice. It is then necessary to send a student who is available and ready for immediate work.

The departments of the University normally employ around two thousand students. Part-time technical and semi-professional positions in the University are usually filled by graduate students. However, many positions which do not require special training or experience are held by undergraduates.

The Student Employment Bureau is called upon to recommend students for housekeeping duties in private homes, as stenographers, baby sitters, clerks, typists, waiters and waitresses, dishwashers, cooks, janitors, bell boys, clothes pressers, musicians, repair men, window washers, house cleaners, tutors, skilled tradesmen, and technical workers. Much student employment is temporary in nature. When they have become established in the community, many students are able to obtain work which makes better use of their talents.

It is highly desirable for students entering the University to come with sufficient funds to finance at least their first semester. Part-time work schedules should be arranged with extreme caution. A student carrying a normal academic schedule should plan to study at least twenty-five hours per week—this is in addition to the usual fifteen or twenty class hours. Good health and reasonable scholastic ability are important considerations. If a heavy part-time employment schedule is necessary, the student should consult the office of the dean of his college about the advisability of a reduced academic program.

The Student Employment Bureau is often able to locate part-time work for those who want it but can give no guarantees. At present, competition is keen and there are more applicants than there are jobs available. Students are expected to be dependable and to consider a job as a business proposition. The University maintains the fullest respect and protection of the constitutional rights of all citizens and students, regardless of race, color, sect, or creed. Prospective employers listed by the University Employment Bureau are expected to abide by this policy of non-discrimination. The present minimum wage for part-time student work is 70¢ (except for baby-sitting which pays 45¢ per hour plus transportation) an hour. The office of the Student Employment Bureau is located at 435 N. Park Street.

LOANS

The State Legislature, the Regents, and friends of the University have made money available to be used to assist students of limited financial means and good character. The purpose of these funds is to aid as many deserving and worthy students as possible. In many cases, the donor himself has set certain qualifications which determine the successful applicant.

In general, loans are made for periods of less than a year, are limited in amount, and interest rates are variable though nominal. A limited number of loans may be arranged for larger amounts, for longer terms or to be repaid after graduation. In any case the total of loans outstanding to any one student at any time may not exceed $500. Loans are available only to students who have attended the University a minimum of one semester and have achieved a satisfactory scholastic average. A loan is granted for a definite period of time. Prompt payment is expected and student borrowers are encouraged to liquidate their obligations prior to the due date.

Various foundations and agencies which are not under university control have loan funds available to University of Wisconsin students. Some of these provide opportunities for loans in greater amounts and for longer terms than the Committee on Loans and Undergraduate Scholarships authorizes. Students may obtain information concerning loans from the Dean of Men, Bascom Hall; or in the office of the dean of their school or college. Women students may inquire in the office of the Dean of Women.

SCHOLARSHIPS, FELLOWSHIPS, ASSISTANTSHIPS

Scholarships for undergraduate students are awarded annually to applicants selected on the basis of financial need, academic record and future promise.

Announcements concerning scholarship competitions for entering freshmen are sent annually during January to high schools in Wisconsin and Illinois. Application forms for scholarship competitions are available from the office of the high-school principal or by writing to the Committee on Loans and Undergraduate Scholarships, 166 Bascom Hall.

The filing deadline date for applications from prospective new students is March 1 each year (December 1 for the second semester).

Announcements of actions on applications from prospective new students are made May 15. Applications filed later than March 1 will be given consideration when possible. Announcement dates are later if consideration is possible.

Scholarships to students in particular university departments are usually awarded to students at the University who are continuing their study in that department, usually in the junior or senior year.

The major scholarship opportunities for incoming freshman students include:

1. Knapp:* $400 per year for 4 years (55 new awards yearly to new freshmen from Illinois and Wisconsin high schools).
2. Kies:* $350 per year for 4 years (2 new awards yearly to new freshmen who are citizens of the United States). Vacancies are filled by upper-class students, new or continuing.
3. U. W. Freshman and High School Honor: $157 in fee remission to freshmen from the state (250 U. W. Freshman awards yearly; High School Honor awards are not made in competition but upon certification of the high-school principal after graduation and according to school quotas in Wisconsin).
4. Nonresident tuition: $320 in tuition remission for one year (about 160 yearly to all undergraduates).
5. General Motors: $200 to $2,000 per year for four years (5 new awards yearly to new freshmen who are citizens of the United States).

An application is considered for those listed above and for such others available for which the applicant can qualify.

Students entering with advanced standing may compete for No. 4. Students continuing at the University of Wisconsin compete annually for other available awards.

Graduate scholarships and fellowships are awarded to graduate students on the basis of academic record and future promise by the Committee on Scholarships and Fellowships of the Graduate School. Application blanks and information may be obtained from the Graduate Office, 150 Bascom Hall. Research, teaching, and industrial assistantships are awarded to graduate students by the departments concerned. Further information about scholarships, fellowships, and assistantships is available in the bulletin of the Graduate School.

Fellowships are also available in the Division of Residence Halls for men and women graduate students. These are staff positions as counselors for small groups of undergraduate students living in university residence halls. Students interested should write the Division of Residence Halls, Slichter Hall.

---

* Recipients of No. 1 and No. 2 receive No. 4 if they are subject to nonresident tuition.

Part IV - Housing and Meals

The University Housing Bureau, located at 434 Sterling Court, is the clearing center for all housing information. Initial requests for information on all types of student residences should be made through inquiry by mail or in person. Office hours are 8:00 a.m. to 4:30 p.m., Monday through Friday. The Bureau is closed weekends except the Saturday of registration and the two preceding Saturdays, when it is open from 8 a.m. to noon. It is also closed on the following holidays: New Years, Memorial Day, July 4th, Labor Day, Thanksgiving, and Christmas.

General information will be found on the following pages. Students who write to the Bureau stating the semester for which they plan to enroll will receive current, detailed information on housing and application procedures. Please note that applications and deposits cannot be accepted at the Bureau.

Prospective students should understand that acceptance for admission does not guarantee housing and that housing secured does not insure acceptance for admission. These arrangements must be made separately.

Unmarried men students (graduate and undergraduate) may not reside in houses accommodating unmarried women (students or non-students), nor may unmarried women students (graduate or undergraduate) reside in houses accommodating unmarried men (students or non-students), other than members of the resident family.

It is the policy of the University to maintain the fullest respect and protection of the constitutional rights of all students and citizens. Householders are free to select their tenants, but university policy requires that no students be excluded on the basis of race, color, sect, or creed. Alleged acts of discrimination should be brought to the attention of the University Student-Faculty Committee on Human Rights.

WOMEN STUDENTS

1. UNIVERSITY RESIDENCE HALLS

The University Halls are an integral part of the educational pattern of the University, and their operation is directed toward filling this role effectively. Students of all creeds, races, and backgrounds live together. A head resident of faculty rank and a house-fellow staff of outstanding young women bring to hall residents leadership and counsel, aid in fostering and promoting their welfare, and in providing a wealth of educational opportunities for them.

Recreational space for leisure-time activities is provided. Active student organizations govern the halls, giving to students the opportunity of enjoying and participating in a democratic type of group living. All students living in the halls belong to their hall associations and must pay the nominal fees assessed by such organizations to meet the costs of the social and cultural programs.

Rooms are comfortably and attractively furnished. Meals in all University Residence Halls are well balanced, nutritious, and skillfully prepared. A number of students work in the kitchens and dining rooms on a part-time basis. Applications for such work may be made at the Division of Residence Halls personnel office in Slichter Hall.

Barnard Hall, accommodating 156 residents in single and double rooms, is located on the main campus near the library, Union, and classroom buildings.

Chadbourne Hall will be available for 125 undergraduate women for the academic year 1955–56 because of the housing shortage for undergraduate women and the delay in the building program.

Elizabeth Waters Hall, accommodating 496 students in double rooms, is located on Observatory Hill overlooking a wooded slope and Lake Mendota.

Badger Club consists of three houses for 23 women each. Residents eat their meals in the Barnard Hall dining room.

Slichter Hall on the lakeshore, constructed in 1946 as a men's hall, will be assigned to women for the academic year 1955–56. It will accommodate 196 women in double rooms.

Rates, Applications, and Assignments (Applies to Both Men and Women)

Rates are based on a prediction of future costs, and the University reserves the right to make adjustments during the year if necessary. Rates for the 1954–55 academic year ranged from $635 to $710 for women, and from $595 to $695 for men, depending upon the room assigned. Charges for room and board are payable in advance by the quarter. Rooms are not rented without board.

Room Application. During the academic year assignment priority must be given to Wisconsin students for University owned residence halls. At the present time demands from Wisconsin students are such that applications for assignment during the academic year cannot be accepted from graduate or out-of-state students. To give equal opportunity to all applicants, the procedure for accepting room application for University Residence Halls is as follows:

March 1 is the first date on which applications may be made for the following academic year. Those applications postmarked March 1–10 inclusive are included in an impartial drawing held about March 15. This determines assignment and waiting-list order. Students who request roommates must submit their applications in the same envelope to assure being considered together at the drawing. Applicants are urged to submit applications by mail; no priority is given to applications submitted in person. Applications postmarked after March 10 will be numbered and processed in the order received and added to the proper waiting list. Students who have not applied by March 10 should not be discouraged from adding their applications to the waiting list; each year more applications are accepted than there are accommodations available, so those on the waiting list may have an opportunity for assignment when cancellations are received.

Applications for the second semester are accepted beginning June 1; for the eight-week summer session beginning January 2. No deposit is required for summer session.

Room deposits of residents are not applied on room and board accounts. If after a student makes application and files a $10.00 deposit he finds he cannot attend the University, the deposit is refunded, provided the student gives required notice concerning cancellation of contract to the Residence Halls Assignment Office.

Rooms are rented for the entire academic year, and a student can not be released from his room contract at the end of the first semester. Students planning to move into sorority or fraternity houses for the second semester are urged not to apply for rooms in the University Halls.

Room Assignments. Quotas for each class are established each year by the Board of Regents on the basis of hall capacities. For women the following 1954–55 quotas are now in effect: freshmen, 32%; returning halls residents, 60%; new upperclassmen, 6%; foreign students, 2% (undergraduate or graduate). Quotas for men, because of the unusual draft and man-power situation, have been suspended, but the policy of keeping as much as possible a balance of freshmen, sophomores, juniors, and seniors in each house will continue; a 5 per cent quota has been established in the men's halls for foreign students. Wisconsin veterans of World War II and those who have been in service since then are given preference in assignment.

New room assignments are made, within quota limitations, in strict accordance with the applicant's location on the waiting list for rooms during the academic year.

2. OFF-CAMPUS HOUSING FOR WOMEN

Women students live in the following types of houses: privately operated and university approved dormitories and houses (30%), sororities (11%), privately-owned Madison homes, parents' homes, or working for room and board housing (33%), and University Residence Halls (26%).

Approved house costs for room and board vary from $530 to $1,050 per academic year. Room costs range from $95 to $180 per semester in room-only and kitchen-privilege units. Meals are available in the Memorial Union and in near-by restaurants.

Approved privately-owned units for women include large dormitories with capacities ranging from 118 to 235, smaller halls with capacities ranging from 30 to 50, and room-only and kitchen-privilege houses with capacities ranging from 6 to 30. All are located within walking distance of the campus and all meet at least the minimum standards for approval. Form information which includes exact capacities, types of room prices, addresses, and names and addresses of the housemothers plus general information will be mailed or supplied upon request at the Housing Bureau. Applications should be made directly to the housemothers after the form information is received.

Included in the above categories are **La Maison Francaise** where women, both graduates and undergraduates, may room and board; the **Spanish Corridor** which is operated for women during the summer only; **Andersen House** and **Tabard Inn,** Cooperative Houses for undergraduate, Wisconsin women; and sororities which are available to members only in the academic year, but which are often operated for regular students during the summer sessions. Contracts are signed for the semester in room-only houses and for the academic year in all board-and-room units. Payments are due in advance.

There are no residence halls for graduate women, but several smaller units are reserved for graduates. Some are kitchen-privilege units.

Rooms in private homes in Madison (Emergency Housing) are available to graduates, and also to undergraduates after all approved housing is rented. An undergraduate must have the approval of her parents to live in a private home and the parents are expected to visit the home before giving approval. Periods of rentals in private homes vary, but are usually by the week.

Apartments are available to graduate women, but are not approved or regularly inspected. Listings of vacant apartments are available at the Housing Bureau. Rental must be made through personal application.

MEN STUDENTS

1. UNIVERSITY RESIDENCE HALLS

The University Halls are an integral part of the educational pattern of the University, and their operation is directed toward filling this role effectively. Students of all creeds, races and backgrounds live together. An educational adviser of faculty rank and a House-fellow staff of outstanding young men bring to hall residents leadership and counsel, aid in fostering and promoting their welfare and in providing a wealth of educational opportunities for them.

The halls are comfortably furnished and of modern fireproof construction. Recreational space for leisure-time activities is provided. Active student organizations govern the halls, giving to students the opportunity of enjoying and participating in a democratic type of group living. All students living in the halls belong to their hall associations and must pay the nominal fees assessed by such organizations to meet the costs of the social and cultural programs.

Meals in all University Residence Halls are well balanced, nutritious, and skillfully prepared. A number of students work in the kitchens and dining rooms on a part-time basis in exchange for lunch and dinner. Applications for such work may be made to the Division of Residence Halls personnel office in Slichter Hall.

Tripp and Adams Halls, built in quadrangular form around common courts, provide housing for 50 men in double and single rooms in each of their 16 houses. Men have their meals in nearby Van Hise dining rooms.

The eight **Kronshage houses** are located along the lake shore to the west of Tripp and Adams. They accommodate 80 men each in double rooms; the dining rooms are located in Kronshage Hall, the central unit.

(See page 19 for Rates, Application, and Assignment Information.)

2. OFF-CAMPUS HOUSING FOR SINGLE MEN

Single men live in various housing units as follows: privately operated room-only lodging houses (32%), fraternities (15%), apartments (8%), rooms in private homes in residential sections of the city (16%), parents' homes (9%), on campus in University Residence Halls (20%). Men students are not required to live in approved houses. However, the University reserves the right to request men students to move when their quarters are unsatisfactory.

Accommodations in lodging houses and private homes are offered without board. Single rooms rent for $6 to $9 per week. Double room rates range from $5 to $7 per person. Information on available rooms can be obtained at the Housing Bureau a few weeks prior to the opening date for the semester. No lists are compiled for mailing; rentals are arranged by personal interview with the individual owners. Houses meeting the minimum standards of the University are classified approved. University agreement forms are provided for semester rentals in such units. Other than in approved units, room listings are accepted by the Housing Bureau on a weekly basis only. Room rent is payable by the week in advance. The householder may collect two weeks' rent as a deposit when rental arrangements are made. Students who plan to move are expected to give notice on their rent-paying day one week in advance of the date they plan to vacate the room.

Fraternities usually operate their houses for members only. However, when vacancies occur, they are listed with the Housing Bureau. Usually fraternities offer both board and room.

Babcock Co-operative House offers board and room to a limited number of students in the College of Agriculture. For information regarding this unit only, write to the College of Agriculture, Madison 6, Wisconsin.

Form letters containing current information will be sent by the Housing Bureau to those who request them.

MARRIED COUPLES AND FAMILIES

1. TEMPORARY HOUSING PROJECTS

East Hill Trailer Parking Site. This project has space for 120 student-owned trailers. The camp is located about two miles from the campus and has three community utility houses with bathrooms and laundry facilities. City bus service is available within two blocks of the court. Current information may be obtained by writing the Housing Bureau.

University Cabin Site. This project, located about 1½ miles from the campus, has 26 trailer parking sites and 16 small unfurnished cabins available for rental. Bathroom and laundry facilities are provided in a central utility building. City bus service is available within a half block. Current information may be obtained by writing the Housing Bureau.

2. APARTMENTS AND LIGHT HOUSEKEEPING ROOMS

Couples. Apartments and light housekeeping accommodations throughout the city are listed as they become vacant and information on available units can be obtained at the Housing Bureau. All rentals are by personal interview; no lists are compiled for mailing. The turnover continues throughout the year. Married students who are not able to find satisfactory accommodations at the beginning of the semester can usually improve their

housing situation after school is under way. Rental rates range from $65 to $110 per month for furnished and heated quarters.

Families With Children. Married students with children are advised not to bring their families to Madison until housing arrangements have been completed. It is difficult, but not impossible to obtain low-cost family housing. Families pay $80 to $120 per month for furnished or unfurnished one or two bedroom heated living units. Men who cannot locate family housing at the beginning of the semester may find it necessary to come alone and rent a room on a weekly basis while they search for accommodations. There is a continuous turnover, so the Bureau receives listings throughout the year. In addition to the trailer parking courts operated by the University, there are privately-owned modern courts within driving distance of the campus. Lists will be sent upon request.

We will be glad to send current form letters on housing for families or couples to students who write to the Housing Bureau.

MEALS

For students who live in houses that do not have dining halls or for those extra snacks or special occasions, the Memorial Union provides the answer in its five dining rooms—four of them in the Union building and another, Breese Terrace Cafeteria, near the Ag and Engineering campus.

Union dining rooms furnish a variety of dining services. The large, modern cafeteria features low-cost meals and a wide selection to fit the budget and taste. Tripp Commons is a large, oak-paneled dining room offering low-cost *table d'hote* meals and buffet service. The Georgian Grill features both *a la carte* and *table d'hote* lunches and dinners in a relaxing atmosphere with waiter service and those special touches (such as linens and silver service) that make for pleasant dining. The Rathskeller snack bar is open whenever the building is open serving sandwiches and short orders which take on a special flavor in the traditional *alte deutsch* atmosphere.

The Union's dining rooms will be open on the day you arrive on campus. The Union is the place to plan to meet classmates either in the lounges or over a coke in the Rathskeller.

There are many types of jobs open in the Union at the beginning of the year in the dining rooms or in other service areas of the building. Make inquiry at the Union Employment Office early in the semester.

There are a few student-sponsored co-op meal service clubs in the campus area—applications can be made after students arrive in Madison.

Private restaurants and lunch counters near the campus cater to student trade. Students' food costs for three meals will run from $1.50 per day upward.

COLLEGE OF LETTERS AND SCIENCE

MARK H. INGRAHAM, Dean

FACULTY

AGARD, WALTER RAYMOND, *B.A., B.Litt., Litt.D.*, Professor of Classics

ALBERSON, MRS. HAZEL STEWART, *Ph.D., Litt.D.*, Associate Professor of Comparative Literature

ALBERTY, ROBERT ARNOLD, *Ph.D.*, Associate Professor of Chemistry

ALEXANDER, JOHN WESLEY, *Ph.D.*, Associate Professor of Geography

ALLEN, CHARLES ELMER, *Ph.D., ScD.*, Emeritus Professor of Botany

ALLEN, FLORENCE ELIZA, *Ph.D.*, Emeritus Assistant Professor of Mathematics

ALLEN, PAUL JAMES, *Ph.D.*, Associate Professor of Botany

AMES, DAVID WATSON, *Ph.D.*, Instructor in Sociology

ARCHER, E. JAMES, *Ph.D.*, Assistant Professor of Psychology

ARNOLD, VICTOR C., *M.A.*, Assistant Dean

BACKUS, MYRON PORT, *Ph.D.*, Professor of Botany and Plant Pathology

BAERREIS, DAVID ALBERT, *Ph.D.*, Associate Professor of Anthropology

BAILEY, STURGES WILLIAMS, *M.A.*, Assistant Professor of Geology

BANDY, WILLIAM THOMAS, *Ph.D.*, Professor of French

BARNETT, MILTON LEONARD, *B.A.*, Assistant Professor of Sociology

BARSCHALL, HENRY HERMAN, *Ph.D.*, Professor of Physics

BEALE, HOWARD KENNEDY, *Ph.D.*, Professor of History

BECKER, HOWARD, *Ph.D.*, Professor of Sociology

BEEMAN, WILLIAM WALDRON, *Ph.D.*, Professor of Physics

BENDER, PAUL, *Ph.D.*, Associate Professor of Chemistry

BEYM, RICHARD, *Ph.D.*, Instructor in Spanish and Portuguese

BILLINGSLEA, FRED YARNELL, *Ph.D.*, Lecturer in Psychology

BILSTAD, NELLIE MAE, *Ph.D.*, Associate Professor of Zoology

BING, R. H., *Ph.D.*, Professor of Mathematics

BJORKSTEN, BETTINA, Instructor in Music

BLAEDEL, WALTER JOHN, *Ph.D.*, Associate Professor of Chemistry

BLANSHARD, RUFUS ANDERSON, *Ph.D.*, Instructor in English

BLOCK, HASKELL, *Ph.D.*, Assistant Professor of Comparative Literature

BLOTZ, HELEN S-THOMAS, *M.A.*, Assistant Professor of Music (also Extension)

BOARDMAN, EUGENE POWERS, *Ph.D.*, Associate Professor of History

BÖGHOLT, CARL MÖLLER, *Ph.D.*, Professor of Philosophy

BORCHERS, GLADYS LOUISE, *Ph.D.*, Professor of Speech (also Education)

BOTTKE, KARL GEORGE, *Ph.D.*, Associate Professor of French

BRANDEIS, ELIZABETH (MRS. P. A. RAUSHENBUSH), *Ph.D.*, Lecturer in Economics (Associate Professor)

BREMBECK, WINSTON LAMONT, *Ph.D.*, Associate Professor of Speech

BRIDGMAN, ALMA LOUISE, *M.A.*, Instructor in Economics

BRIDGMAN, CHARLES S., *Ph.D.*, Professor Psychology (also Director, Bureau of Industrial Psychology, Extension Division) (Professor)

BRIM, ORVILLE G., *Ph.D.*, Assistant Professor of Sociology

BROCKHAUS, HERMAN HENRY, *Ph.D.*, Associate Professor of Speech (also Extension)

BROGDEN, WILFRED JOHN, *Ph.D.*, Professor of Psychology; Associate Dean of the Graduate School

BRONFENBRENNER, MARTIN, *Ph.D.*, Professor of Economics
BRUCK, RICHARD HUBERT, *Ph.D.*, Professor of Mathematics
BRUNS, FRIEDRICH, *Ph.D.*, Emeritus Professor of German
BRYAN, GEORGE SMITH, *Ph.D.*, Emeritus Professor of Botany
BRYSON, REID ALLEN, *Ph.D.*, Associate Professor of Meteorology
BUCK, ROBERT CREIGHTON, *Ph.D.*, Professor of Mathematics
BUERKI, FREDERICK ALGA, *M.S.*, Assistant Professor of Speech (Assistant Theater Director)
BURLEIGH, CECIL EDWARD, *D.M.*, Professor of Music
BURNS, SAMUEL T., Professor of Music (also Extension)
CALDEN, GEORGE, *Ph.D.*, Lecturer in Psychology
CAMERON, EUGENE NATHAN, *Ph.D.*, Professor of Geology
CAMERON, RONDO EMMETT, *Ph.D.*, Assistant Professor of History (also Economics)
CARPENTER, LOUISE LOCKWOOD (MRS. R. H.), *B.M.*, Professor of Music
CARSTENSEN, VERNON, *Ph.D.*, Professor of History (also Agricultural Economics)
CASSIDY, FREDERIC GOMES, *Ph.D.*, Professor of English
CAVANAGH, GLADYS LOUISE, *M.S.*, Assistant Professor of Library Science
CHOU, KUO-P'ING, *Ph.D.*, Assistant Professor of Linguistics
CHURCH, RICHARD CASSIUS, *M.A.*, Associate Professor of Music
CLAGETT, MARSHALL, *Ph.D.*, Professor of History of Science
CLARENBACH, FRED A., *Ph.D.*, Professor of Political Science
CLARK, ANDREW HILL, *Ph.D.*, Professor of Geography
CLARK, HARRY HAYDEN, *M.A., LL.D.*, Professor of English
CLARKE, HELEN ISABEL, *M.A.*, Professor of Social Work
CLARKE, HERBERT MORRIS, *Ph.D.*, Assistant Professor of Botany
CLEVELAND, EDWARD DEWAYNE, *Ph.D.*, Instructor in English
CLINARD, MARSHALL BARRON, *Ph.D.*, Professor of Sociology
CLINE, LEWIS MANNING, *Ph.D.*, Professor of Geology
CODE, ARTHUR DODD, *Ph.D.*, Assistant Professor of Astronomy
COON, LELAND AVERY, *M.A.*, Professor of Music
CORNWELL, C. DANIEL, *Ph.D.*, Assistant Professor of Chemistry
COTTAM, GRANT, *Ph.D.*, Assistant Professor of Botany
CRANE, ROBERT ELWOOD, *Ph.D.*, Assistant Professor of Music
CROW, JAMES FRANKLIN, *Ph.D.*, Professor of Zoology (also Genetics)
CURTI, MERLE EUGENE, *Ph.D., L.H.D.*, Frederick Jackson Turner Professor of History
CURTIS, CHARLES WHITTLESEY, *Ph.D.*, Assistant Professor of Mathematics
CURTIS, JOHN THOMAS, *Ph.D.*, Professor of Botany
CURTISS, CHARLES FRANCIS, *Ph.D.*, Assistant Professor of Chemistry
CURVIN, JONATHAN WADHAMS, *Ph.D.*, Professor of Speech
CUTLIP, SCOTT MUNSON, *Ph.M.*, Associate Professor of Journalism
DANIELS, FARRINGTON, *Ph.D.*, Professor of Chemistry
DENNISTON, ROLLIN HENRY, *Ph.D.*, Emeritus Assistant Professor of Botany
DEWEY, HARRY, *M.S.*, Assistant Professor of Library Science
DIAMOND, ROBERT EDWARD, *Ph.D.*, Instructor in English
DIETRICH, ROBERT ERB, *Ph.D.*, Professor of Speech
DILLINGER, JOSEPH ROLLEN, *Ph.D.*, Assistant Professor of Physics
DORAN, MADELINE, *Ph.D.*, Professor of English
DOREMUS, ROBERT BARNARD, *Ph.D.*, Professor of English; Associate Dean
DOWNING, WILLARD EDWARD, *M.S.S.*, Associate Professor of Social Work (also Extension)
DUNCAN, ROBERT ELI, *Ph.D.*, Lecturer in Botany
DUNN, SAMUEL WATSON, *Ph.D.*, Assistant Professor of Journalism (also Commerce)
DVORAK, RAYMOND FRANCIS, *B.M., Mus.D.*, Professor of Music
EARLEY, JAMES STAINFORTH, *Ph.D.*, Professor of Economics
EASTMAN, IRENE BELLE, *B.M.*, Emeritus Assistant Professor of Music
EASUM, CHESTER VERNE, *Ph.D.*, Professor of History
EBERLEIN, WILLIAM FREDERICK, *Ph.D.*, Associate Professor of Mathematics

ECCLES, MARK, *Ph.D.*, Professor of English
EDSON, CHARLES FARWELL, JR., *Ph.D.*, Professor of History
EKERN, PAUL CHESTER, JR., *Ph.D.*, Assistant Professor of Meteorology (also Soils)
ELLSWORTH, PAUL THEODORE, *Ph.D.*, Professor of Economics
EMLEN, JOHN THOMPSON, *Ph.D.*, Professor of Zoology
EMMONS, RICHARD CONRAD, *Ph.D.*, Professor of Geology
ENCK, JOHN JACOB, *Ph.D.*, Assistant Professor of Geology
EPSTEIN, LEON DAVID, *Ph.D.*, Professor of Political Science
EVANS, HERBERT PULSE, *Ph.D.*, Professor of Mathematics (also Extension)
EVANS, RICHARD IRVING, *Ph.D.*, Associate Professor of Botany
EWBANK, HENRY LEE, *Ph.D.*, Professor of Speech
FARMER, PAUL, *Ph.D.*, Associate Professor of History
FELLMAN, DAVID, *Ph.D.*, Professor of Political Science
FERRY, JOHN DOUGLASS, *Ph.D.*, Professor of Chemistry
FINCH, VERNOR CLIFFORD, *Ph.D., Sc.D.*, Emeritus Professor of Geography
FINLEY, ROBERT WILLIAM, *Ph.D.*, Assistant Professor of Geography (also Extension)
FISCHER, RICHARD, *Ph.D.*, Emeritus Professor of Chemistry
FISHER, BURTON REUBEN, *Ph.D.*, Professor of Sociology
FISK, EMMA LUELLA, *Ph.D.*, Associate Professor of Botany
FOLEJEWSKI, ZBIGNIEW, *Ph.D.*, Assistant Professor of Slavic Languages
FOWLER, MURRAY, *Ph.D.*, Professor of Linguistics (also Classics)
FRASER, LEMUEL ANDERSON, *Ph.D.*, Associate Professor of Zoology
FRIEDLANDER, ERNST PETER, Artist in Residence, Music
FRIEDMAN, SAMUEL H., *Ph.D.*, Visiting Lecturer in Psychology
FRY, WILLIAM FREDERICK, *Ph.D.*, Assistant Professor of Physics
FULCHER, PAUL MILTON, *Ph.D.*, Professor of English
FULLERTON, ROBERT ELSTON, *Ph.D.*, Assistant Professor of Mathematics
GALPIN, ALFRED MAURICE, *Ph.D.*, Assistant Professor of French
GANE, SALLY LOUISE, *M.A., M.S.W.*, Assistant Professor of Social Work
GARD, ROBERT EDWARD, *M.A.*, Associate Professor of Speech (also Rural Sociology and Wisconsin Idea Theater)
GARNETT, ARTHUR CAMPBELL, *M.A., Litt.D.*, Professor of Philosophy
GASIOROWSKI, XENIA, *Ph.D.*, Assistant Professor of Slavic Languages
GATES, ROBERT MAYNARD, *Ph.D.*, Associate Professor of Geology
GAUGER, PAUL WILLIAM, *Ph.D.*, Assistant Professor of Speech (also Education)
GAUSEWITZ, WALTER, *Ph.D.*, Professor of German
GERLOFF, GERALD CARL, *Ph.D.*, Assistant Professor of Botany
GERTH, HANS HEINRICH, *Ph.D.*, Associate Professor of Sociology
GIBSON, ELLEN BERNICE, *B.A.*, Instructor in Library Science
GILBERT, EDNA EUPHEMIA, *Ph.D.*, Visiting Professor of Speech (also Education)
GILBERT, EDWARD MARTINIUS, *Ph.D.*, Emeritus Professor of Botany
GILCHRIST, JACK CECIL, *Ph.D.*, Associate Professor of Psychology
GILLEN, CHARLES FREDERICK, *Ph.D., Litt.D.*, Emeritus Associate Professor of French
GILLIN, JOHN LEWIS, *Ph.D., LL.D.*, Emeritus Professor of Sociology
GLAESER, MARTIN GUSTAV, *Ph.D.*, Professor of Economics (also Commerce)
GLAUSER, ALFRED CHARLES, *Ph.D.*, Associate Professor of French
GLECKNER, ROBERT FRANCIS, *Ph.D.*, Instructor in English
GLICKSMAN, HARRY, *Ph.D., LL.B.*, Emeritus Professor of English and Letters & Science Dean
GOERING, HARLAN LOWELL, *Ph.D.*, Assistant Professor of Chemistry
GOLIGHTLY, CORNELIUS LACY, *Ph.D.*, Assistant Professor of Philosophy
GOODWIN, WILLIAM FRANCIS, *Ph.D.*, Assistant Professor of Philosophy
GORDON, EDGAR BERNARD, Emeritus Professor of Music
GOSTING, LOUIS JOSEPH, *Ph.D.*, Assistant Professor of Chemistry
GRANT, DAVID ALEXANDER, *Ph.D.*, Professor of Psychology
GREENE, HENRY CAMPBELL, *Ph.D.*, Curator of Cryptogamic Herbarium

GREENE, JOHN COLTON, *Ph.D.*, Assistant Professor of History
GRIM, HARRIETT ELIZABETH, *Ph.D.*, Emeritus Assistant Professor of Speech
GROVES, HAROLD MARTIN, *Ph.D.*, Professor of Economics
GUNLAUGSON, CHRISTINE, *B.M.*, Assistant Professor of Music
GUYER, MICHAEL FREDERIC, *Ph.D., LL.D.*, Emeritus Professor of Zoology
HABERMAN, FREDERICK WILLIAM, *Ph.D.*, Professor of Speech
HAGEN, OSKAR FRANK LEONARD, *Ph.D., F.R.S.A.*, Professor of History and Criticism of Art
HAKEEM, MICHAEL, *Ph.D.*, Associate Professor of Sociology
HALL, NORRIS FOLGER, *Ph.D.*, Professor of Chemistry
HAMMER, PRESTON CLARENCE, *Ph.D.*, Associate Professor of Mathematics; Director Computing Service
HAMMOND, EDWIN HUGHES, *Ph.D.*, Assistant Professor of Geography
HANLEY, MRS. LOUISE, *M.A.*, Assistant Professor of English (Extension)
HANSON, GEORGE F., *M.S.*, State Geologist and Instructor in Geology
HARLOW, HARRY FREDERICK, *Ph.D.*, Professor of Psychology
HARRINGTON, FRED HARVEY, *Ph.D.*, Professor of History
HARRIS, JULIAN EARLE, *Ph.D.*, Professor of French
HART, CHARLES WILLIAM MERTON, *Ph.D.*, Associate Professor of Anthropology
HART, HENRY COWLES, *Ph.D.*, Assistant Professor of Political Science
HARTSHORNE, RICHARD, *Ph.D.*, Professor of Geography
HASLER, ARTHUR DAVIS, *Ph.D.*, Professor of Zoology
HAUGEN, EINAR INGVALD, *Ph.D.*, Thompson Professor of Scandanavian Studies
HAWKES, LESTER LITCHFIELD, *Ph.M.*, Associate Professor of Journalism
HAY, WILLIAM HENRY, *Ph.D.*, Associate Professor of Philosophy
HEDGES, WILLIAM LEONARD, *Ph.D.*, Instructor in English
HEERMAN, WALTER HENRY, Lecturer in Music
HEFFNER, ROE-MERRILL SECRIST, *Ph.D., Litt.D.*, Professor of German
HEIRONIMUS, JOHN PAUL, *Ph.D.*, Assistant Professor of Classics
HENEL, HEINRICH EDMUND KARL, *Ph.D.*, Professor of German
HERB, RAYMOND GEORGE, *Ph.D.*, Professor of Physics
HERRICK, CHESTER ALBERN, *Sc.D.*, Professor of Zoology (also Vettrinary Science)
HERRIOTT, JAMES HOMER, *Ph.D.*, Professor of Spanish; Associate Dean of the Graduate School
HESSE, EVERETT WESLEY, *Ph.D.*, Associate Professor of Spanish
HESSELTINE, WILLIAM BEST, *Ph.D., Litt.D.*, Professor of History
HIGBIE, CHARLES EVERETT, *Ph.D.*, Assistant Professor of Journalism
HIGBY, CHESTER PENN, *Ph.D., LL.D.*, Professor of History
HIGHLANDER, JOHN P., *Ph.D.*, Assistant Professor of Speech (also State Radio Council)
HILL, HENRY BERTRAM, *Ph.D.*, Professor of History (also Extension)
HIRSCHFELDER, JOSEPH OAKLAND, *Ph.D.*, Professor of Chemistry
HOFFMAN, FREDERICK JOHN, *Ph.D.*, Professor of English
HOHLFELD, ALEXANDER RUDOLPH, *Ph.D.*, Emeritus Professor of German
HOLT, MATTHEW LESLIE, *Ph.D.*, Professor of Chemistry
HOVEY, GRAHAM BILLINGS, *B.A.*, Associate Professor of Journalism
HOWE, HERBERT MARSHALL, *Ph.D.*, Associate Professor of Classics
HUFFER, CHARLES MORSE, *Ph.D.*, Professor of Astronomy
HUGHES, MERRITT YERKES, *Ph.D., Litt.D.*, Professor of English
HUITT, RALPH KINSLOE, *Ph.D.*, Associate Professor of Political Science
HYDE, GRANT MILNOR, *M.A.*, Professor of Journalism
IHDE, AARON JOHN, *Ph.D.*, Associate Professor of Chemistry
ILTIS, LEON LEONARD, *B.M.*, Professor of Music
IMMEL, ERIC ROBERT, *Ph.D.*, Assistant Professor of Mathematics
INGERSOLL, LEONARD ROSE, *Ph.D.*, Emeritus Professor of Physics
INGRAHAM, MARK HOYT, *Ph.D., LL.D.*, Dean of the College of Letters and Science; Professor of Mathematics
IRWIN, JOHN VALEUR, *Ph.D.*, Professor of Speech

JENSEN, MERRILL MONROE, *Ph.D.*, Professor of History
JEROME, GLADYS, *M.A.*, Instructor in English (also Extension)
JOHANSEN, GUNNAR, Professor of Music
JOHNSON, GERTRUDE ELIZABETH, *B.A.*, Emeritus Associate Professor of Speech
JOHNSON, WILLIAM SUMMER, *Ph.D.*, Professor of Chemistry
JONES, PAUL GEORGE, *M.A.*, Associate Professor of Music
JOOS, MARTIN, *Ph.D.*, Professor of German
JUDSON, S. SHELDON, *Ph.D.*, Associate Professor of Geology
KADUSHIN, ALFRED, *M.S.*, Assistant Professor of Social Work
KASTEN, LLOYD AUGUST WILLIAM, *Ph.D.*, Professor of Spanish and Portuguese
KIENITZ, JOHN FABIAN, *Ph.D.*, Professor of Art History
KIMBALL, LUCILLE COOPER, *B.M.*, Instructor in Music
KING, EDWARD LOUIS, *Ph.D.*, Associate Professor of Chemistry
KIRSHBERGER, LIDA, *Ph.D.*, Instructor in German
KLEENE, STEPHEN COLE, *Ph.D.*, Professor of Mathematics
KLEIN, MICHAEL WILLIAM, *Ph.D.*, Associate Professor of Chemistry
KNAPLUND, PAUL ALEXANDER, *Ph.D.*, *Litt.D.*, Professor of History
KOLISCH, RUDOLF, Artist in Residence, Music
KOREVAAR, JACOB, *Ph.D.*, Assistant Professor of Mathematics
KROEBER, CLIFTON BROWN, *Ph.D.*, Assistant Professor of History
KROFF, ALEXANDER YALE, *Ph.D.*, Associate Professor of French
LACY, EDGAR WILSON, *Ph.D.*, Professor of English
LANGER, RUDOLPH ERNEST, *Ph.D.*, Professor of Mathematics
LARSEN, EDWIN MERRITT, *Ph.D.*, Associate Professor of Chemistry
LAUDON, LOWELL ROBERT, *Ph.D.*, Professor of Geology
LEIBOWITZ, HERSCHEL WELDON, *Ph.D.*, Assistant Professor of Psychology
LEITH, CHARLES KENNETH, *Ph.D.*, *LL.D.*, *Sc.D.*, Emeritus Professor of Geology
LEVEQUE, ANDRE CAMILLE, *Ph.D.*, Professor of French
LIND, DAVID ARTHUR, *Ph.D.*, Assistant Professor of Physics
LIVELY, ROBERT ALEXANDER, *Ph.D.*, Assistant Professor of History
LUCKHARDT, HILMAR FRANCIS, *M.A.*, Associate Professor of Music
LYSENKO, MICHAEL GEORGE, *Ph.D.*, Assistant Professor of Zoology (also Medical Microbiology)
MACDUFFEE, CYRIS COLTON, *Ph.D.*, *Sc.D.*, Professor of Mathematics
MACK, JULIAN ELLIS, *Ph.D.*, Professor of Physics
MACKENDRICK, PAUL LACHLAN, *Ph.D.*, Professor of Classics
MACLEAN, MALCOLM SHAW, JR., *M.A.*, Assistant Professor of Journalism
MARCH, HERMAN WILLIAM, *Ph.D.*, Emeritus Professor of Mathematics
MARCOUILLER, DONALD RAY, *B.M.*, Instructor in Music
MARGRAVE, JOHN L., *Ph.D.*, Assistant Professor of Chemistry
MARTIN, BARCLAY, *Ph.D.*, Assistant Professor of Psychology
MATHESON, HELEN MARIE, *B.A.*, Lecturer in Journalism
MATHEWS, JOHN BURT, *M.A.*, Assistant to the Dean
MATHEWS, JOSEPH HOWARD, *Ph.D.*, Emeritus Professor of Chemistry
MAYOR, JOHN ROBERTS, *Ph.D.*, Professor of Mathematics (also Education)
MCCAMY, JAMES LUCIAN, *Ph.D.*, Professor of Political Science
MCELVAIN, SAMUEL MARION, *Ph.D.*, Professor of Chemistry
MCSHAN, WILLIAM HARTFORD, *Ph.D.*, Professor of Zoochemistry
MEIKLEJOHN, ALEXANDER, *Ph.D.*, *LL.D.*, Emeritus Professor of Philosophy
MELOCHE, VILLIERS WILLSON, *Ph.D.*, Professor of Chemistry
MERCIER, GERMAINE EUGENIE, *M.A.*, Assistant Professor of French
MEYER, HENRY CORD, *Ph.D.*, Visiting Associate Professor of History
MEYER, ROLAND KENNETH, *Ph.D.*, Professor of Zoology
MICHELL, ROBERT BELL, *Ph.D.*, Emeritus Professor of French
MILES, ARTHUR PARKER, *Ph.D.*, Professor of Social Work

MILLER, EDWARD ERNST, *Ph.D.*, Associate Professor of Physics
MILLIGAN, EDWARD ELGIN, *Ph.D.*, Assistant Professor of French (also Foreign Student Adviser)
MILLINGTON, WILLIAM FRANK, *Ph.D.*, Instructor in Botany
MILOFSKY, BERNARD, Artist in Residence, Music
MITCHELL, RONALD ELWY, *M.A.*, Professor of Speech; Theater Director
MONSCHEIN, ROBERT WINFIELD, *M.M.*, Assistant Professor of Music
MORGAN, J. THEODORE, *Ph.D.*, Associate Professor of Economics
MORRISON, PETER REED, *Ph.D.*, Associate Professor of Zoology (also Physiology)
MORTON, WALTER ALBERT, *Ph.D.*, Professor of Economics
MOTE, FREDERICK ALBERT, *Ph.D.*, Professor of Psychology
MULVIHILL, EDWARD ROBERT, *Ph.D.*, Associate Professor of Spanish (also Extension)
NAFZIGER, RALPH OTTO, *Ph.D.*, Professor of Journalism; Director of the School of Journalism
NAGEL, HOWARD JOHN, *M.S.S.W.*, Specialist in Social Work
NAUMANN, WALTER FREDRICH, *Ph.D.*, Associate Professor of German
NEALE-SILVA, EDUARDO, *Ph.D.*, Professor of Spanish and Portuguese
NEESS, JOHN CARL, *Ph.D.*, Assistant Professor of Zoology
NEWCOMB, ELDON HENRY, *Ph.D.*, Associate Professor of Botany
NOLAND, LOWELL EVAN, *Ph.D.*, Professor of Zoology
OLMSTED, CLARENCE WALTER, *Ph.D.*, Assistant Professor of Geography
ORCHARD, BERNICE ELLEN, *M.Sc.S.A.*, Associate Professor of Social Work
ORSINI, GIAN N.G., *Ph.D.*, Professor of Comparative Literature
OTTO, MAX CARL, *Ph.D.*, Emeritus Professor of Philosophy
OWEN, MRS. ANNA LOU, *Ph.D.*, Assistant Dean
PAGE, HORACE ALLEN, *Ph.D.*, Assistant Professor of Psychology
PALMERI, JOSEPH, *Ph.D.*, Associate Professor of French
PATTERSON, HELEN MARGUERITE, *M.A.*, Associate Professor of Journalism
PAXTON, J. RUSSELL, *M.M.*, Assistant Professor of Music (also Education)
PENNIMAN, CLARA, *M.A.*, Assistant Professor of Political Science (also Extension)
PERLMAN, SELIG, *Ph.D.*, Professor of Economics
PETROVICH, MICHAEL BORD, *M.A.*, Assistant Professor of History
PETZOLD, ROBERT GEORGE, *Ph.D.*, Assistant Professor of Music (also Education)
PFANKUCHEN, LLEWELLYN ERNEST, *Ph.D.*, Professor of Political Science
PHILLIPS, BURR WENDELL, *M.A.*, Professor of History (also Education)
POCHMANN, HENRY AUGUST, *Ph.D.*, Professor of English
POOLEY, ROBERT CECIL, *Ph.D.*, Professor of English and Integrated Liberal Studies Chairman
POST, GAINES, *Ph.D.*, Professor of History
POWELL, JOHN LEONARD, *Ph.D.*, Associate Professor of Physics
PRESSON, ROBERT KING, *Ph.D.*, Assistant Professor of English
QUINTANA, RICARDO BECKWITH, *Ph.D.*, Professor of English
RAHIER, ALBERT, Artist in Residence, Music
RAMSPERGER, ALBERT GUSTAV, *Ph.D.*, Professor of Philosophy
RAPER, KENNETH BRYAN, *Ph.D.*, Professor of Botany
REYNOLDS, ROBERT LEONARD, *Ph.D.*, Professor of History
RICHARDS, HUGH TAYLOR, *Ph.D.*, Professor of Physics
RIEGEL, SIEGHARDT MICHAEL, *Ph.D.*, Associate Professor of German; Assistant Dean
RIS, HANS, *Ph.D.*, Professor of Zoology
ROBINSON, ARTHUR HOWARD, *Ph.D.*, Professor of Geography
RODMAN, GEORGE BUSH, *Ph.D.*, Professor of English (also Extension)
ROE, FREDERICK WILLIAM, *Ph.D.*, *Litt.D.*, Emeritus Professor of English
ROEBUCK, JOHN RANSOM, *Ph.D.*, Emeritus Professor of Physics
ROGERS, SAMUEL GREENE ARNOLD, *M.A.*, Professor of French
ROLLEFSON, RAGNAR, *Ph.D.*, Professor of Physics
ROSA, ALBERTO MACHADO, *Ph.D.*, Assistant Professor of Spanish and Portuguese
ROSALDO, RENATO IGNACIO, *Ph.D.*, Associate Professor of Spanish
RÖSELER, ROBERT OSWALD, *Ph.D.*, Emeritus Milwaukee Seminary Professor of German

ROSSI, JOSEPH, *Ph.D.*, Professor of Italian
ROTWEIN, EUGENE, *Ph.D.*, Associate Professor of Economics
RUBIN, MORTON, *Ph.D.*, Assistant Professor of Sociology
RUEDISILI, CHESTER HENRY, *Ph.D.*, Lecturer in Psychology; Associate Dean
RUSSO, JOSEPH LOUIS, *Ph.D.*, Emeritus Professor of Italian
SACHS, ROBERT GREEN, *Ph.D.*, Professor of Physics
SACHSE, WILLIAM LEWIS, *B.Litt., Ph.D.*, Professor of History
SALTER, JOHN THOMAS, *Ph.D.*, Associate Professor of Political Science
SANCHÉZ-BARBUDO, ANTONIO, Associate Professor of Spanish
SANCHEZ, ROBERTO GARZA, *Ph.D.*, Assistant Professor of Spanish
SARIG, EMMETT RAY, *M.M.*, Associate Professor of Music (also Extension)
SAUER, JONATHAN D., *Ph.D.*, Assistant Professor of Botany
SCHAEFFER, ALBERT CHARLES, *Ph.D.*, Professor of Mathematics
SCHENK, QUENTIN FREDERICK, *Ph.D.*, Lecturer in Social Work
SCHENK, RACHEL KATHERINE, *M.A.*, Associate Professor of Library Science; Director, Library School
SCHLATTER, EDWARD BUNKER, *Ph.D.*, Emeritus Professor of Romance Languages
SCHOENFELD, CLARENCE, *M.A.*, Assistant Professor of Journalism (also Extension)
SCHUETTE, HENRY AUGUST, *Ph.D.*, Professor of Chemistry
SEARLES, JOHN REXFORD, *Ph.D.*, Associate Professor of English (also Education)
SEIFERT, LESTER WILHELM, *Ph.D.*, Associate Professor of German (also Extension)
SELLERY, GEORGE CLARKE, *Ph.D., LL.D.*, Emeritus Dean and Emeritus Professor of History
SHAIN, IRVING, *Ph.D.*, Instructor in Chemistry
SHANNON, LYLE WILLIAM, *Ph.D.*, Assistant Professor of Sociology
SHARP, PAUL FREDERICK, *B.A.*, Lecturer in History
SINGER, MARCUS G., *Ph.D.*, Instructor in Philosophy
SINGLETON, MACK HENDRICKS, *Ph.D.*, Professor of Spanish
SKOOG, FOLKE KARL, *Ph.D.*, Professor of Botany
SMITH, HENRY LADD, *Ph.D.*, Professor of Journalism
SMITH, KARL ULRICH, *Ph.D.*, Professor of Psychology
SOFFEN, JOSEPH, *M.S.W.*, Assistant Professor of Social Work (also Extension)
SOKOLNIKOFF, ELIZABETH STAFFORD, *Ph.D.*, Assistant Professor of Mathematics
SORUM, CLARENCE HARVEY, *Ph.D.*, Professor of Chemistry
STANLEY, RAYMOND JOHN, *Ph.M.*, Assistant Professor of Speech (also Radio)
STAUFFER, JOHN FREDERICK, *Ph.D.*, Professor of Botany
STAUFFER, ROBERT CLINTON, *Ph.D.*, Assistant Professor of History of Science
STEBBINS, JOEL, *Ph.D., Sc.D., LL.D.*, Emeritus Professor of Astronomy
STEFFENS, LEO JOSEPH, *M.M.*, Associate Professor of Music
STERLING, HENRY SOMERS, *Ph.D.*, Associate Professor of Geography
STOCKFISCH, JACOB ALLEN, *Ph.D.*, Assistant Professor of Economics
STOKES, WILLIAM SYLVANE, *Ph.D.*, Professor of Political Science
STONE, KIRK HASKIN, *Ph.D.*, Professor of Geography
SUOMI, VERNER EDWARD, *B.E.*, Associate Professor of Meteorology
SWANDER, HOMER D., JR., *Ph.D.*, Instructor in English
SWINNEY, EDWARD EARLE, *B.M.*, Emeritus Associate Professor of Music
TAYLOR, ROBERT, *B.A.*, Assistant Professor of Journalism (also University News Service)
TAYLOR, WARNER, *M.A.*, Emeritus Professor of English
TENENBAUM, LOUIS, *Ph.D.*, Instructor in French
TETER, JOHN WINFRED, *Ph.D.*, Associate Professor of Social Work (also Extension)
THATCHER, LIONEL W., *Ph.D.*, Professor of Commerce and Economics
THAYER, FRANK, *M.A., J.D.*, Professor of Journalism
THOMAS, EDNAH SHEPARD, *M.A.*, Assistant Professor of English
THOMLINSON, RALPH, *M.A.*, Acting Instructor in Sociology
THOMPSON, JOHN SEABURY, *M.A.*, Assistant Professor of Political Science
THOMPSON, JOHN WALTER, *Ph.D.*, Associate Professor of Botany (also Extension)

THURLOW, WILLARD R., *Ph.D.*, Associate Professor of Psychology
THWAITES, FREDERIK TURVILLE, *M.A.*, Emeritus Assistant Professor of Geology
TODD, MARY AVIS, *M.A.*, *M.S.W.*, Assistant Professor of Social Work (also Extension)
TREWARTHA, GLENN THOMAS, *Ph.D.*, Professor of Geography
TRICE, HARRISON MILLER, *M.A.*, Instructor in Sociology (also Extension)
TRIPP, L. REED, *Ph.D.*, Professor of Economics
TRUMBOWER, HENRY ROSCOE, *Ph.D.*, Emeritus Professor of Economics and Commerce
TRUMP, PAUL L., *Ph.D.*, Lecturer in Mathematics; also Director of Admissions
TUCKER, JOSEPH EAGON, *Ph.D.*, Professor of French
TWENHOFEL, WILLIAM HENRY, *Ph.D.*, Emeritus Professor of Geology
TYLER, STANLEY ALLEN, *Ph.D.*, Professor of Geology
VAN TAMELEN, EUGENE EARLE, *Ph.D.*, Assistant Professor of Chemistry
VOEGELI, DONALD JOSEPH, *M.M.*, Assistant Professor of Music (also Radio)
VOELKEL, LAURA B., Visiting Assistant Professor of Art History (also Classics)
VORTRIEDE, WERNER, *Ph.D.*, Associate Professor of German
WADE, CHESTER, *M.D.*, Lecturer in Social Work
WAGNER, RAPHAEL DARREL, *Ph.D.*, Assistant Professor of Mathematics (also Extension)
WAHLIN, HUGO BERNARD, *Ph.D.*, Professor of Physics
WALES, JULIA GRACE, *Ph.D.*, Emeritus Assistant Professor of English
WALLERSTEIN, RUTH COONS, *Ph.D.*, Professor of English
WATROUS, JAMES SCALES, *Ph.D.*, Professor of Art History
WATSON, KENNETH MARSHALL, *Ph.D.*, Associate Professor of Physics
WEAVER, ANDREW THOMAS, *Ph.D.*, *LL.D.*, Professor of Speech
WEINBERG, JULIUS RUDOLPH, *Ph.D.*, Professor of Philosophy
WESTLEY, BRUCE HUTCHINSON, *M.S.*, Assistant Professor of Journalism
WHITE, HELEN CONSTANCE, *Ph.D.*, *Litt.D.*, *LL.D.*, *L.H.D.*, Professor of English
WHITFORD, ALBERT EDWARD, *Ph.D.*, Professor of Astronomy and Director of Washburn Observatory
WHITLEY, ALVIN, *Ph.D.*, Assistant Professor of English
WILDS, ALFRED LAWRENCE, *Ph.D.*, Professor of Chemistry
WILEY, PAUL LUZON, *Ph.D.*, Associate Professor of English
WILLIARD, JOHN ELA, *Ph.D.*, Professor of Chemistry
WILLIAMS, JOHN WARREN, *Ph.D.*, Professor of Chemistry
WILMOT, WILLIAM VERNON, JR., *M.A.*, Assistant Professor of Economics
WINANS, JOHN GIBSON, *Ph.D.*, Associate Professor of Physics
WINCHELL, ALEXANDER NEWTON, *Sc.D.*, Emeritus Professor of Geology
WITTE, EDWIN EMIL, *Ph.D.*, Professor of Economics
WOLFE, HAROLD RECLUS, *Ph.D.*, Professor of Zoology
WOODRING, CARL RAY, *Ph.D.*, Associate Professor of English
WOODSIDE, MURIEL DOROTHY, *M.S.W.*, Supervisor, Social Work
WOOLLARD, GEORGE PRIOR, *Ph.D.*, Professor of Geology
WORKMAN, JOHN DAVID, *Ph.D.*, Milwaukee Seminary Professor of German
WYCKOFF, LEWIS BENJAMIN, JR., *Ph.D.*, Assistant Professor of Psychology
YOUNG, FRANK CHANDLER, *Ph.D.*, Assistant Dean
YOUNG, EDWIN, *M.A.*, Associate Professor of Economics (also School for Workers)
YOUNG, LAURENCE CHISHOLM, *Sc.D.*, Professor of Mathematics
YOUNG, WILLIAM HENRY, *Ph.D.*, Professor of Political Science
ZAWACKI, EDMUND IGNACE, *Ph.D.*, Associate Professor of Slavic Languages

COLLEGE OF LETTERS AND SCIENCE

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 B.S. General Course, the alternate Integrated Liberal Studies program, or one of several special courses mentioned below and discussed in detail on the pages indicated. After completing two years the student may regularly (1) work toward either the B.A. or the B.S. degree in the General Course, (2) enter the School of Journalism, (3) transfer to the School of Education as a candidate for the degree of B.S. (Education) and for the University Teachers' Certificate, (4) transfer to the School of Commerce as a candidate for the degree of Bachelor of Business Administration or B.S. (Light Building Industry) or (5) work toward the B.A. or B.S. degree with a view to entering the Law School or Medical School at the beginning of the senior year or later. Transfer to the School of Pharmacy is made after one year in the College of Letters and Science.

LEADING TO THE DEGREE OF BACHELOR OF ARTS

General Course, page 42.
Courses in Humanities, page 53.
Course in Journalism, page 85 (School of Journalism).

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE

General Course, page 45.
Course in Chemistry, page 51.
Course in Nursing, page 57.
Course in Journalism, page 85 (School of Journalism).
Course in Medical Technology, page 54.
Course in Applied Mathematics and Mechanics, page 49.
Courses in Physical Medicine, page 59.
Course in Naval Science, page 56.

LEADING TO THE DEGREE OF BACHELOR OF MUSIC

Course in Music, page 90 (School of Music).

Details concerning transfer to special schools within the University may be found on the following pages:

School of Commerce, page 81.
School of Education, page 82.
School of Law, page 82.
School of Medicine, page 83.
School of Pharmacy, page 84.

II. GENERAL REGULATIONS

1. STUDENT RESPONSIBILITY

The final responsibility for the selection of courses rests upon the student. It is primarily his duty to be familiar with and to meet in the proper order requirements of his course so that he may be sure to be able to graduate at the end of his senior year.

2. ADVISERS

Every student is assigned to a faculty adviser. Normally a student has the same adviser for the freshman and sophomore years and an adviser in his major department for the junior and senior years.

The adviser helps him select his subjects so that he will have a well-rounded education, interprets the requirements for him, and helps him to meet all his requirements in their proper sequence. 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 selections before he is permitted to enter classes. Throughout each semester the student is encouraged to seek counsel from his adviser regarding his educational progress and plans and to seek information from special departmental advisers regarding the nature and purpose of studies in the academic departments.

3. CREDITS, PROGRAM LOAD, AND EXAMINATIONS

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 (or its equivalent in other forms of instruction) for one semester together with the necessary preparation for that class hour. Two or sometimes three hours of laboratory work are considered as the equivalent of one hour of class work. Students in the general course 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.

PROGRAM LOAD. Each student in one of the general courses is required to take from 12 to 17 credits of class and laboratory work per semester. A student who desires to elect fewer than 12 credits must obtain permission in advance from the dean. A student in his first semester at Wisconsin is not permitted to elect more than 17 credits. A student who has received a *B* average (3.0 grade-point average) or better in the preceding semester at Wisconsin (on a basis of at least 14 credits) may carry a semester program not to exceed 19 credits, provided such a program does not entail taking more than six courses at a given time. Two one-credit courses, beyond the limitation of six, may be taken in the School of Music within the 19-credit hour limitation. In no case will a student be permitted to count toward graduation more than 19 credits in one semester.

Candidates for the bachelor's degree who desire to graduate in three years may usually do so by obtaining 17 to 19 credits per semester after the first semester of the freshman year, and by attending two or three summer sessions. Credit may also be obtained by taking correspondence courses from the Extension Division. 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 thoroughly before selecting his subjects. Correspondence credits together with other extension credits may not exceed one half the number of credits required for graduation.

Special permission must be obtained from the associate dean by students who wish to take correspondence courses after they have reached senior standing (see also Section 6, "Residence Requirements").

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

EXAMINATIONS. Each study terminates in a two-hour written final examination at the close of the semester. These final examinations are regularly scheduled and the time set may not be changed without authorization of the dean. In addition to the final examinations, two or three one-hour written tests are ordinarily held during the semester in all but the most advanced courses.

4. PHYSICAL EDUCATION AND MILITARY TRAINING

PHYSICAL EDUCATION. Freshman and sophomore women are required to take the equivalent of two hours of physical education per week for four semesters (i.e., for their first two years in the University). Freshman men are required to take two semesters of physical education during their first year of residence.

All women transfer students who enter the University with less than 58 credits are required to take physical education until they attain junior standing. All men transfer students who enter with less than 24 credits are required to take physical education until they attain sophomore standing. The requirement in physical education may be satisfied by accredited courses taken at another institution.

The following groups of students are exempt: (a) students who are certified as physically unfit by the Department of Student Health, (b) students who have served three months or more on active duty in the armed forces, and (c) students who at the time of registration have passed their twenty-first birthday. All applications for deferments or exemptions must be made in advance to the director of required physical education. Permission to defer the work will not be granted for more than one semester at a time and no work will be deferred into the senior year.

Students who take regimental band to satisfy the military science requirement do not receive degree credit for it.

MILITARY TRAINING. All male freshmen and sophomores are required to enroll in Military Science at the time of registration, with the provision that the following groups of students will be exempt: (a) students who qualify and are accepted for membership in the Regimental Band, (b) students who do not meet the established physical requirements as certified by the Student Health department, (c) students who have served three months or more on active duty in the armed forces, and (d) students who for other reasons are exempted or excluded by the Department of Military Science. Students who complete four semesters of Naval Science or Air Science and Tactics will be regarded as having satisfied this requirement.

Although no academic credit is given for physical education or for the basic course in Military Science, these courses are required for graduation and must appear on the students' study list in the same way as other subjects. A student who fails either physical education or basic military science will be placed on probation.

5. MATHEMATICAL PREPARATION

Minimum mathematical preparation, which will allow a student to enroll in all courses, majors, and fields of specialization, is considered to consist of *one* unit of high-school algebra and *one* unit of high-school plane geometry.

Only the following majors are open to the students without the minimum mathematical preparation: American institutions, art history and criticism, the classics, comparative literature, English, foreign languages, geography, Hispanic studies, history, philosophy, political science, and speech. They may also enroll in the journalism and music courses.

Students without this minimum preparation may *not* enroll in courses in astronomy, mathematics, or physics; nor in the specialized courses in chemistry, medical technology, nursing, or physical medicine; nor may they major or specialize in biological aspects of conservation, bacteriology, botany, chemistry, economics, geology, humanities, international relations, mathematics, medical science, physics, psychology, social work, sociology, or zoology.

If a student desires to specialize in a field requiring minimum mathematical preparation, he must satisfy that requirement before the beginning of the junior year.

The College of Letters and Science does not offer residence courses in elementary mathematics. Hence, students who are admitted without mathematical preparation can become eligible for courses requiring that preparation only by passing entrance examinations, by earning the required units in mathematics at an accredited school, or by taking correspondence courses from the University Extension Division.

6. RESIDENCE REQUIREMENTS

(a) At least 30 credits must be earned in residence in the College of Letters and Science at Madison.

(b) A minimum of 15 credits, and at least a *C* average (2.0 grade-point average) on all advanced major subjects carried, whether passed or not, must be earned in residence. All candidates for degrees should plan to take their senior year in residence, since the advanced work of the major is normally concentrated in the last year of the undergraduate course.

(c) Normally the last 30 credits must be earned in residence at Madison. Special permission to earn not to exceed nine of the last thirty credits at another institution must be secured *in advance* from the dean. In special cases the dean may permit a senior who has finished all of the specific course requirements and the work of his major, and who has maintained a good scholastic record, to complete the requirements for his degree by taking correspondence courses, provided he does not lack more than 6 credits toward that degree. Under special circumstances (see page 83) students are permitted to take the work of the senior year in the medical school of another university.

(d) Students who wish to earn a second baccalaureate degree in the College of Letters and Science must first be recommended by the department in which they plan to major. If recommended by the appropriate department they must then earn at least 30 credits in residence at Madison beyond the studies for the first degree and must satisfy all the requirements for the second degree.

7. QUALITY OF WORK REQUIREMENTS

GRADE-POINT SYSTEM

(1) *In each semester or session:* The student is expected to maintain at least a *C* average (2.0 grade-point average) on all work carried, whether passed or not, in each semester or session of his four-year course. Failure to meet this requirement will result in the student's being placed on probation or being dropped from the University.

(2) *In each half of the four-year course:* A student must earn 120 grade-points and at least 60 credits in order to meet the academic requirements of the first half of his four-year course. This means that a student may not count toward graduation those credits in excess of 60 that it takes to earn the first 120 grade-points. In the second half of his four-year course he must earn at least a *C* average (2.0 grade-point average) on the last 60 credits carried, whether passed or not.

(3) *In the Major Field:* A student must earn in the major at least a *C* average (2.0 grade-point average) on all work carried, whether passed or not.

Letters and Science students electing law in their senior year must meet the same grade-point requirement as other students in the College.

Semester grades are reported by letter only; the characterization of 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 9 points. The scale of grades and points follows:

Grade	Points per Credit
A — (Excellent)	4
B — (Good)	3
C — (Fair)	2
D — (Poor)	1
F — (Failure)	0

GRADE-POINT AVERAGE. The general quality of a student's work is expressed in terms of a grade-point average, which is defined as the total number of grade-points earned divided by the total number of credits carried, whether passed or not, exclusive of credits reported as incomplete or progress. The highest possible quotient is 4.0, which represents a grade of *A* in every subject; the lowest possible quotient is 0.0.

8. MAJOR STUDY AND THESIS

At the beginning of his junior year each candidate for a degree shall select a major study in one of the divisions* into which the college is organized and shall be assigned an adviser appropriate to the field in which he expects to concentrate. A division or department may refuse to accept as a major any student with less than a specified grade-point average in those subjects of the first two years which lie within the field of concentration, and may likewise reject him if his subsequent achievement falls below the standard set by the division or department with the approval of the faculty of the college. (See also Section 5, "Mathematical Preparation," above.)

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 may be restricted to groups of subjects within a department, or they may include courses in more than one department. The regular fields at present authorized are announced under the separate departmental headings. (See Departments of Instruction, page 100). A few majors which cut across departmental lines are announced under Part XIV, page 61.

The general requirements of the major may consist of courses within the field of concentration, related courses outside of the field of concentration but within the boundaries of the division,* and the courses outside of the division which may be considered as valuable or necessary for the specific major. These general requirements are as follows:

(a) A maximum of 60 credits may be *prescribed* by the division (although a student may *elect* more than that number of credits within a given 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 10 may be outside the boundaries of the division.

(b) Of the total number of credits required for graduation at least 80 must be secured outside the major department (and outside of any one department). For students majoring in a foreign language, these 80 credits may include up to 14 credits on a *second* foreign language taken in the same department. Any course which a student may credit toward his major must be credited toward it. In the major (field of concentration) itself, a minimum of 15 credits and at least a *C* average (2.0 grade-point average) on all advanced major subjects carried, whether passed or not, must be secured in residence at Wisconsin. Some of the credits in the major may be earned during the first two years.

(c) At least a *C* average (2.0 grade-point average) on all work carried must be earned in the major.

(d) A thesis of 4 to 6 credits may be prescribed as part of the major, as specified in the detailed announcements of the major requirements.

If a thesis be prescribed by the division, it must represent a scholarly treatment of some phase of the student's work in his major study; the subject thereof requires approval by the student's adviser and the faculty member in general charge of the field of concentration (ordinarily the departmental chairman). The thesis shall be typewritten and bound 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

---

* 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:

Biological Sciences—Botany, History of Science, Mathematics, Pharmacy, Psychology, Sociology and Anthropology, Zoology.

Humanities—Art History and Criticism, Classics, Comparative Literature, Comparative Philology, English, French and Italian, German, History, History of Science, Mathematics, Music, Philosophy, Scandinavian Languages, Slavic Languages, Spanish and Portuguese, Speech.

Physical Sciences—Astronomy, Chemistry, Geography, Geology, History of Science, Mathematics, Meteorology, Pharmacy, Physics.

Social Studies—Comparative Philology, Economics, Geography, History, Journalism, Philosophy, Political Science, Psychology, Social Work, Sociology and Anthropology, Speech.

carries 4 to 6 (but not more than 6) credits toward the requirements of the major and toward graduation.

9. HONORS IN SCHOLARSHIP

Excellence in scholarship receives special recognition in the form of Honors awards at the end of the sophomore and at the end of the senior year.

SOPHOMORE HONORS are awarded to students who earn a grade-point average of at least 3.25 including at least 20 credits of *A* on the first 58 residence credits. SOPHOMORE HIGH HONORS are awarded those eligible for honors who earn at least 45 credits of *A* on the first 58 residence credits. (In the computation of credits for these awards, credits carried at the Milwaukee Extension Center—not to exceed 32—may be substituted for residence credits, but credits in physical education, basic military science, band, or correspondence courses will not be included. A student transferring from any Extension Center other than Milwaukee with not more than 32 credits, who earns a grade-point average required for honors at the Extension Center as well as in residence will receive honors. Credits transferred from other institutions will not be included in the Honors computation, but a student may be eligible for Sophomore Honors if he presents not more than 15 transfer or other ineligible credits. Grades of *Failure* will not exclude a candidate but credits in failed courses will be included in the computation with zero grade-points.)

SENIOR HONORS AND HIGH HONORS are awarded on the basis of the last 60 credits carried before graduation, all of which have been completed in residence at the University. A student earning in residence at Madison on the last 60 credits carried before graduation a 3.25 grade-point average including at least 20 credits of *A* will be awarded Senior Honors; a student earning in residence at Madison on the last 60 credits carried before graduation a 3.25 grade-point average including at least 45 credits of *A* will be awarded Senior High Honors.

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 that work. Students doing all their work in the course, as well as those doing it partly in course and partly outside of the course, shall, with the approval of the department, be eligible for such examination and honors. Honors in the major may be granted without a comprehensive examination for a student who has a 3.5 grade-point average in the major, and who has successfully completed special "Honors Work" as prescribed by his department. High Honors in the major may be granted to a student who has an over-all grade-point average of 3.5 and who, in addition to meeting the requirements of Honors in the major, has written a thesis of distinction.

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

A framed list of the names of students awarded Sophomore Honors is displayed in Bascom Hall; the names of students awarded Senior and Thesis Honors and Honors in Major are published in the Commencement Register.

10. DEFICIENCIES

FAILURES. Students in this college are required to remove failures only in subjects specifically required for the degree they seek or the major they present. A failure may not be removed by correspondence study or by repeating the subject in an extension center or in another college, unless prior permission is given by the dean.

INCOMPLETES. An incomplete may be reported for a student who has carried a subject with passing grade until near the end of the semester and then, because of illness or other unusual and substantiated cause beyond his control, has been unable to take or complete the final examination, or to complete some limited amount of term work. 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 the grade shall be *F*; even with such proof, if his term work has convinced the instructor that he cannot pass, the grade shall be *F*. 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. Incompletes incurred in the last semester of residence may not be removed after five years of absence from the University without special permission of the Executive Committee in advance. Such incompletes remain on the record but do not lapse into failures. An incomplete in a thesis, however, must be removed within 10 days after the close of the semester or summer session in which it is incurred; if it is not so removed the student is required to re-register for an appropriate part of the thesis (1 or more credits).

11. CLASSIFICATION OF STUDENTS

RANK. A student must have at least 48 grade-points and at least 24 credits before he may be classified as a sophomore; at least 116 grade-points and 58 credits before he may be classified as a junior; and at least 172 grade-points and 86 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 grades earned during the freshman and sophomore years. Students who have a grade-point average of at least 2.5 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 provided his grade-point average does not fall below 2.5. At the discretion of departments, upper-group students are eligible for more advanced work than other students.

ADVANCED STANDING. Students transferring to the University of Wisconsin from other institutions with from 60 to 90 credits will be regarded as upper-group students after they have completed one semester of work at this University, provided their grade-point averages for this semester and subsequent semesters do not fall below 2.5. (See definition of grade-point average in Section 7, "Quality of Work Requirements.")

12. CERTIFICATE OF JUNIOR GRADUATE

A student who has earned at least 60 credits and 120 grade-points in this college, and who has pursued for at least two years an approved program which would normally lead to the B.A. or B.S. degree will be granted on request a Certificate of Junior Graduate in Liberal Studies.

13. TRANSFERS WITHIN THE UNIVERSITY

Students transferring from special courses, e.g., Chemistry or Physical Medicine, or from another college of the University, to one of the general courses, will receive no more than 17 credits a semester toward graduation for work already done, except in semesters in which their grade-point averages are *B* (3.0 grade-point average) or above, when the maximum is 19 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 17 below. (For Transfers to Other Schools of the University, see pp. 81–84.)

14. ADMISSION WITH ADVANCED STANDING

Students from accredited colleges and universities who have pursued college courses equivalent to those of the University of Wisconsin with at least a *C* average in the last semester and who have been granted honorable dismissal may be admitted to this college subject to current policy on nonresident students.

15. 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." Only in very rare instances will students who have already earned an undergraduate degree be enrolled in this category in the undergraduate college. A student admitted on this basis will not receive credit for courses taken and no grades or credits will be recorded. Such persons 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 Student Handbook.

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.

16. PLACEMENT AND ATTAINMENT EXAMINATIONS

PLACEMENT TESTS

In English. All freshmen are required to take, during the New Student Week and the first week in residence, several tests in English, which determine their assignment to Freshman English. (See V. Freshman Studies.)

In Foreign Languages. All students who plan to resume in college a language begun elsewhere (whether they are freshmen, upperclassmen, or entering advanced standing students) must take a placement test in that foreign language. The result of these examinations determine the classes in which the student is permitted or required to enroll. Advancement of more than one semester is optional rather than mandatory.

In Mathematics. A placement examination covering elementary and intermediate algebra is given to all entering freshmen who have had high-school mathematics in advance of one year of plane geometry, and who plan to enroll in any course in mathematics. Entering freshmen who have taken trigonometry in high school, and who plan to enroll in a course in mathematics, will also be given a placement test in trigonometry.

If, as a result of such placement, a student is required to repeat in college the substantial equivalent of a subject taken in high school, he will receive no college credit for such an equivalent (e.g., in the case of English, English 0).

ATTAINMENT EXAMINATIONS

(Not to be confused with Examinations for Credit—see below.)

Any student who so desires may take *attainment* examinations in English, history, mathematics, biology, chemistry, physics, and the foreign languages, by means of which he may prove his mastery of certain subjects required for graduation. Success in passing such an examination, although it does *not* reduce the number of credits required for graduation, entitles the student to substitute a subject of his own choice for the required subject. The examination in any of the sciences listed will be approximately the equivalent of the final examination in the corresponding freshman semester survey course (the so-called "17" course). Other departments which do not have specific freshman survey courses, will prepare examinations equivalent to those given in the required courses in the individual departments.

Foreign Language Attainment Examinations are designed to determine either (1) *proficiency*, i.e., advanced knowledge, or (2) *intermediate* knowledge, i.e., reading knowledge. These examinations are given soon after the opening of the first semester and also near the close of each semester of the academic year. (See Academic Calendar for exact dates.)

The test for *proficiency* in a language presupposes preparation equivalent to 24 credits received in college (e.g., four years in high school and one in college, or 2 years in high

school and 16 credits in college, etc.). The test for *intermediate* knowledge is based on approximately half this amount of preparation. Students who have lived abroad or who have acquired a knowledge of foreign language in some other way, and superior students who may not have the above-stated amounts of preparation are encouraged to take the examination.

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

Intermediate knowledge in a modern language shall be shown by a test involving the ability to pronounce the modern language and to interpret, adequately, modern prose of average difficulty. *Intermediate knowledge in Greek or Latin* shall be shown by demonstrating the ability to translate adequately and explain the grammatical construction 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.

EXAMINATIONS FOR CREDIT

In special cases, a student may receive credit toward graduation for university courses in which he requests and passes special university examinations. Under this provision a maximum of 15 credits may be obtained, of which not more than 8 may be in one department.

Examinations for credit will normally be based on work equivalent to a course given at the University, and the credit granted will be for the corresponding course. Evidence of work justifying an examination for credit must be presented to the department chairman during the first week of classes in a semester. Permission for such examination must be secured in advance from the Dean of the College upon recommendation of the departmental chairman. Examinations for credit will be taken during the first four weeks of classes in a semester at a time specified by the department. In general a student may not take such an examination if he was in residence during the three months immediately preceding the application for examination.

17. 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 B.S. General Courses are allowed to elect a maximum of 20 credits in other colleges and schools of the University under conditions specified below. However, this rule, hereafter referred to as the "Twenty-Credits Rule," does not apply to the election of music courses by Letters and Science music majors. Students may elect up to 30 credits in the Law School, 36 in the Medical School, and 24 credits in Naval Science under the special provisions outlined in the last three 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 some special B.S. courses may credit studies taken outside the college only if such studies are required in their respective courses.

The Schools of Journalism and Music, and the Library School are administrative subdivisions of the College of Letters and Science. Students may elect certain (unstarred) subjects in the Department of Journalism without special permission. Rules for enrollment in music subjects may be found on page 97.

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 B.A. and B.S. General Course students, to enjoy the privileges of this rule, must have been promoted to the junior year and must have completed the courses specified in Section 22 and 25, pages 43 and 44.

(b) The student must be spending at least two full years in residence for the bachelor's degree. That is, studies outside of 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) No more than 6 of the 20 credits may be earned in each semester of the junior year.

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

(e) Elections must be approved in advance by the Dean of the College of Letters and Science. In each case such approval will be endorsed on the study list 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 may be approved, but without credit toward graduation. Special consideration, however, will be given to programs directed to a definite educational end.

Art Education 50a, 50b, 52, 54, 55, 56, 62, 64, 70, 71, 160 and 168, Commerce 43, 121, 138, 168, 169, 171, 178 and 195, Library Science 71 and 74, and all courses in biochemistry, forest products, genetics, plant pathology, and soils, although counting as part of the twenty credits allowed under the Twenty-Credits Rule, do not require that condition (a), (b), and (c) of this section be met, providing the students meet the specific prerequisites for them. A student may receive credit for no more than 9 credits in drawing courses including Art Education 50a and 50b.

Upon checking at the office of the dean their compliance with regulations (a), (b), and (c) of this section, students with the proper prerequisites will be given permission under the Twenty-Credits Rule to take Home Economics 2, 3, 6, 7, 8, 18, 20, 50, 109, 110, 115, 116, 117, 119, and 127. A student may receive credit for only one of the courses: Home Economics 2 and Art Education 50.

EXCEPTIONS. Certain courses which are offered in other schools and colleges of the University are not subject to the above rules and may be elected in the same way as Letters and Science subjects by any student who can meet the prerequisites. These courses are:

All courses in medical microbiology and bacteriology.

Drawing 10, 12 and 23.

Any course in agricultural economics which is also listed in economics. Enter on study list as Economics.

Education 106, 108, 119, 120, and 123; Art Education 140.

Preventive Medicine 1.

Library Science 72 and 73.

Any course in rural sociology which is also listed in sociology. Enter on study list as Sociology.

Any course in commerce or in agricultural economics which is also listed in economics. Enter on study list as Economics.

LAW SCHOOL. Candidates for the B.A. or B.S. degree who are admitted to the Law School after completing 90 credits may count toward either of these degrees certain credits earned in the Law School, providing their elections outside of 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 30 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.

Other Letters and Science juniors or seniors in the B.S. General Course or any of the B.A. courses who satisfy the general requirements for election of courses outside of the college may also elect courses in the Law School. If, however, they later enter the Law School, only those law courses will count toward a law degree which have been carried *after* a student has met the entrance requirements as outlined in the section entitled "Transfer to the Law School," page 82.

MEDICAL SCHOOL. Some candidates for the B.A. and for the B.S. degree are permitted to major in medical science. If they are admitted to the Medical School in their senior year, they 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 requirements as outlined on page 83.

NAVAL SCIENCE. Students in the B.A. or B.S. General Course may count towards their degrees the 24 credits in Naval Science provided that they offer 126 credits for graduation. Such students may elect other courses outside the college only with the permission of the Executive Committee of the college. Students who transfer from N.R.O.T.C. to civilian status, or who have not completed the 24 credits of Naval Science at the time of their graduation, are allowed to count all Naval Science credits in excess of the first 6 credits, and to offer a total of 120 credits in satisfaction of the requirements for the B.A. or B.S. degree in the General Course. These courses will count under the Twenty-Credits Rule.

SCHOOL OF NURSING. Students in the B.A. or B.S. General Course who wish to complete a major in Letters and Science and also obtain a certificate of Graduate Nurse may count toward their degrees up to 20 credits in courses in the School of Nursing (with the exception of Nursing 3, 11, 12 and 21 which may not be credited toward the B.A. or B.S. degree). Such students must earn at least 100 credits in Letters and Science subjects and meet all of the requirements as outlined in Section II of "Course in Nursing," page 58.

18. ADVANCED INDEPENDENT WORK

In many divisions and departments Advanced Independent Work, leading to the B. A. degree with Honors, is open to students whose grade-point averages for the first two years' work are acceptable to their major divisions or departments. Another sort of independent work, not necessarily involving candidacy for honors, permits upper-group students (students who have obtained a 2.5 or higher average on all work carried) to elect independent work in lieu of a regular course or courses. The following is the approved procedure: the student and professor offering the course shall fill out and sign a form indicating the nature of the "180" work to be pursued by the student. If the study plan is approved by the chairman of the department in which the course is offered, he shall retain the approved plan for his files and initial the election on the student's study list. The election then becomes effective when the student's adviser approves the study list. Reports and examinations on this work shall be kept in the records of the department and shall be available for future reviews of the employment of the "180" course.

19. UNIVERSITY TEACHERS' CERTIFICATE

The University Teachers' Certificate is not granted to students in the College of Letters and Science excepting those registered in special courses (Chemistry, 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 at the beginning of the junior year as candidates for the degree of Bachelor of Science (Education). See page 82.

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 4 additional credits and 8 grade-points, if only 120 are ordinarily required for graduation from that course; if more than 120 are ordinarily required for graduation, 2 additional credits will be necessary (e.g., for graduation in chemistry course, 132 credits will be required).

II. Completion of the following professional requirements, 18 credits:

Educ. 73—The child: his nature and his needs, 3 credits
Educ. 74—The school and society, 3 credits
Educ. 75—The nature and direction of learning, 5 credits
A course in the teaching of the major subject (senior year), 5 credits
*Electives in the Department of Education, 2 credits

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

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

English Language Test for Foreign Students

Every student whose native tongue is not English must have a facility in English adequate for university work. Hence every foreign student must take a special test before registering for the first time at the University. A student who shows on this test an inadequate knowledge of English will be allowed to register for one semester (if he already has a permit to register); he will be required to take English 9, a special non-credit course for foreign students. Before he is allowed to register for a second semester, his case must be reviewed by the dean.

Others whose performance in the English language test indicates need of special training may be advised (or required by the appropriate college or major department) to take English 9. (English 9 is not a substitute for English 1.)

Degree Requirements for Foreign Students

In general, foreign students are held for the same degree requirements as any other entering students. Some exceptions to this policy are made in the individual colleges of the University. For instance, the College of Letters and Science waives the foreign language requirement for those B.A. students whose native tongue is other than English, and does not usually hold junior and senior transfer students to the usual course requirements of the general curricula other than those specified by the major department.

Special Adviser for Foreign Students

In addition to the student's usual faculty adviser, there is a special adviser for foreign students who assists in noncurricular and contingent matters.

III. B.A. GENERAL COURSE

Presented below are the curriculum requirements for the degree of Bachelor of Arts. The general requirements for the B.A. degree are also satisfied by the program of Integrated Liberal Studies plus the satisfaction of the foreign language requirement, see (2) below.

21. OUTLINE OF CURRICULUM

(1) English Language and Literature, 12 credits as follows:

(a) Use of English, 6 credits (with possible exemptions). Usually English 1a, 1b.

* May include a course in the teaching of the minor subject for 2 credits.

(b) English and/or American literature, 6 credits in a sophomore year course in English, American, or English and American literature. To complete this requirement, a student may offer two semesters in any combination of courses 30, 32, 33, and 40 with the exception that 30 and 33 may not in any way be combined.

(2) FOREIGN LANGUAGE. This requirement may be absolved (a) by presenting high-school and college courses in one, two, or three languages with at least 8 credits earned in college, (b) by attainment examinations, or (c) by a combination of these two methods.

(a) When one language is presented, at least 24 credits are required of which 4 credits must be in conversation and composition courses above the first-year level (except Latin and Greek). When two languages are presented, 28 credits are required, and when three languages are presented 30 credits are required. No less than 8 credits in a single language will be accepted; and a minimum of 14 credits must be offered in one. High-school work will be accepted at the rate of 4 university credits for each high-school unit up to a maximum of 5 units or 20 credits. A single high-school unit is not accepted unless the student takes the second college semester of the same language. 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.

(b) When attainment examinations are used to meet the language requirement, a student may present either proficiency (that is, advanced knowledge) in one foreign language, or intermediate (that is, reading knowledge) in two languages. (See page 38.) If attainment examinations are offered to fulfill the total requirement, the language credits already earned in college count as elective credit toward graduation.

(c) When both methods are used, such combinations as the following may be offered: "intermediate" knowledge in one foreign language and 14 credits in a second (or 8 credits in each of two others). A minimum of 8 credits must be earned in college.

French, Chinese, German, Greek, Hebrew, Italian, Latin, Polish, Portuguese, Russian, Scandinavian Languages and Spanish (any language currently offered at this University) may be offered for entrance and for graduation. Students majoring in a foreign language must present at least 8 credits in a second foreign language. A maximum of 54 credits in two languages within a department is allowed provided not more than 40 are in one.

In case of foreign students whose native language is not English, the foregoing language requirement shall be waived.

(3) REQUIRED WORK IN UNITED STATES HISTORY AND INSTITUTIONS as specified in Section 23, page 45.

(4) ONE OF THE FOLLOWING GROUPS (A, B, or C):

In order that students may come to understand better the interweaving relationships between these fields of knowledge (an important element in humanistic education), it is desirable that they plan programs, with their advisers, by means of which such relationships may be effectively realized, such as correlative courses in history, literature, art, and philosophy.

Group A (Humanities), 33 credits

(a) Special Humanities Requirement, 6 credits within the following range of studies: art history; aesthetics; (philosophy 53 and 153); music (at present, courses 9 and 20); intellectual history through literature;* literary criticism (e.g., English 165, 166; Comparative Literature 165, 170, 171); ideas in literature (e.g., English 133). Students majoring in fields other than language and literature may satisfy this requirement with 6 credits in any literature course (or courses) numbered 100 or above.

(b) History, 6 credits in a continuous year course.

* Not offered at present.

(c) Social Studies, 6 credits, in (a) an interdepartmental year course,* or in (b) *one* or *two* of the following: anthropology, cultural geography, economics, philosophy (logic and philosophy of science excluded), political science, psychology (courses in Group A only),** sociology.

(d) Natural Science—Mathematics—Logic—History of Science—Philosophy of Science —Psychology with experimental laboratory,† 15 credits within the group, so selected as to include a minimum of 9 credits in laboratory science.

Group B (Social Studies), 33 credits

(a) Social Studies, 18 credits, so distributed as to include work in at least *three* (with 6 credits in each of at least *two*) of the following fields: anthoropology, cultural geography, economics, history, philosophy, (logic and philosophy of science excluded), political science, psychology (courses in Group A only)**, sociology.***

(b) Natural Science—Mathematics—Logic—History of Science—Philosophy of Science —Psychology with experimental laboratory,† 15 credits within the group, so selected as to include a minimum of 9 credits in laboratory science.

Group C (Natural Science), 34 credits

(a) Natural Science, 20 credits, so distributed as to include *two* of the following groups, and within at least *one* of them a continuous year course (in a single science or in any regularly offered combination such as Botany 1—Zoology 1):

1. Two semesters of astronomy, chemistry, or physics, or a combination of these;
2. Two semesters of bacteriology, botany, psychology *with experimental laboratory,*† physiology, or zoology, or a combination of these;
3. Two semesters of geology, meteorology, or *physical* geography, or a combination of these.

(b) Mathematics, 8 credits.

(c) Social Studies, 6 credits, in (a) an interdepaartmental year course,* or in (b) *one* or *two* of the following: anthropology, *cultural* geography, economics, history, philosophy (logic excluded), political science, psychology (courses in Group A only),** sociology.

(4) PHYSICAL EDUCATION as specified in Section 4, page 33.

(5) MILITARY TRAINING as specified in Section 4, page 33.

(6) MAJOR STUDY AND ELECTIVES to total 120 credits.

22. REQUIRED WORK TO BE COMPLETED IN FIRST TWO YEARS

By the end of the sophomore year students in the B.A. General Course are expected to complete, or substantially so, the required courses outlined in Section 21 above. In any case (unless for exceptional reasons) they shall complete the following minimum requirements:

1. All English (composition and literature), foreign language (both years unless requirement fulfilled in less time), physical education and military training requirements.

---

* Not offered at present.

** Psychology courses (Group A) which may be employed in meeting this requirement in social studies are those numbered 1, 50, 105, 108, 109, 127, 135, 143, 144, 147, 148, 160, 161, 165, and 167.

*** Scandinavian 101a may also be counted.

† Psychology courses with experimental laboratory are those numbered 25, 116, 125, 154, 170, 171, 172, 176.

2. The following minimum group requirements:

	Social Studies	Natural Science, Mathematics Logic, History of Science, Philosophy of Science	Mathematics	History	Natural Science
Group A	6 cr.	9 cr.	—	6 cr.	—
Group B	12 cr.	9 cr.	—	—	—
Group C	6 cr.	—	8 cr.	—	10 cr.

23. REQUIREMENT IN UNITED STATES HISTORY AND INSTITUTIONS

The requirement, outlined below, is for all bachelor's degrees in the College of Letters and Science and the School of Education. There are minor variations as noted in Option 3 below for the Schools of Commerce and Pharmacy. The student may satisfy this requirement in one of three ways:

1. By passing, by the beginning of the junior year, an attainment examination in United States History based on college-level work. Any student passing this examination will be permitted to substitute 6 credits of his own choice for 6 credits of required social studies. (See Attainment Examinations, Section 16, p. 38.)

2. By completing satisfactorily, in college, a continuous year course in United States History. A year course is here understood to be one so listed in the Announcement of Courses (i.e., History 4, 12–112, 113, 117, 120, 121, 122); or two semester courses which, as to content, are in chronological sequence (i.e., any two *consecutively numbered* semester courses chosen from the following: History 101, 102, 103, 104, 105, 106, 107, 108, 109).

3. By combining a semester in advanced United States History with any one of the following courses: Economics 1a; English 140; Geography 146; Integrated Liberal Studies 23; Philosophy 139; Political Science 7, 107, 110, 112a, 112b, 165, 166, or 171; or Sociology 78. The student may choose the semester of history from one of the following semester courses: History 101, 102, 103, 104, 105, 106, 107, 108, 109, or 111; or he may complete either semester of one of the following year courses: History 112, 113, 117, 120, 121, or 122.

In this option, Commerce students may *not* elect Integrated Liberal Studies 23. Pharmacy students may include a semester of History 4 or 12 in the group of history courses in this option.

IV. B.S. GENERAL COURSE

Presented below are the curriculum requirements for the degree of Bachelor of Science. The general requirements for the B.S. degree are also satisfied by the program of Integrated Liberal Studies, see page 48.

24. OUTLINE OF CURRICULUM

(1) English Language, Literature, and Composition, 15 credits, as follows:

(a) Use of English, 6 credits (with possible exemptions). Usually English 1a, 1b.

(b) English and/or American Literature, 6 credits in a sophomore year course in English, American, or English and American literature. To complete this requirement, a student may offer two semesters in any combination of courses 30, 32, 33, and 40 with the exception that 30 and 33 may not in any way be combined.

(c) Intermediate Composition, 3 credits.

(2) Foreign Language, 8 credits. To fulfill this requirement, a student may present two units in one foreign language from high school, or take two semesters of one foreign language in college; or he may present a combination of these two methods. To fulfill the requirement by a combination of high-school and college courses, the student who presents *one* unit of a foreign language from high school must take one semester of the *same* language in college.

(3) REQUIRED WORK IN UNITED STATES HISTORY AND INSTITUTIONS, as specified in Section 23, page 45.

(4) ONE OF THE FOLLOWING GROUPS *(A or B)*:

Group A (Social Studies), 36 credits

(a) Social Studies, 21 credits, so distributed as to include work in at least *four* (with 6 credits in each of at least *two*) of the following fields: anthoropology, *cultural* geography, economics, history, philosophy (logic excluded), political science, psychology (courses in Group A only),* sociology**

(b) Natural Science—Mathematics—Logic—History of Science—Psychology with experimental laboratory.*** 15 credits within the group, so selected as to include a minimum of 9 credits in laboratory science

Group B (Natural Science), 34 credits

(a) Natural Science, 20 credits, so distributed as to include *two* of the following groups, and within at least *one* of them a continuous year course (in a single science or in any regularly offered combination such as Botany 1—Zoology 1):

1. Two semesters of astronomy, chemistry, or physics, or a combination of these;
2. Two semesters of bacteriology, botany, psychology with experimental laboratory, physiology, or zoology, or a combination of these;
3. Two semesters of geology, meteorology, or *physical* geography, or a combination of these.

(b) Mathematics, 8 credits

(c) Social Studies, 6 credits in (a) an interdepartmental year course,† or in (b) *one* or *two* of the following: anthropology, cultural geography, economics, history, philosophy (logic excluded), political science, psychology (courses in Group A only),* sociology

(5) PHYSICAL EDUCATION, as specified in Section 4, page 33.

(6) MILITARY TRAINING, as specified in Section 4, page 33.

(7) MAJOR STUDY AND ELECTIVES, to total 120 credits.

25. REQUIRED WORK TO BE COMPLETED IN FIRST TWO YEARS

By the end of the sophomore year students in the B.S. General Course are expected to complete, or substantially so, the required courses outlined in Section 24 above. In any case (unless for exceptional reasons) they shall complete the following minimum requirements:

1. All English (composition and literature), physical education and military training requirements must be fulfilled.
2. The following minimum group requirements must be fulfilled:

	Social Studies	Natural Science, Mathematics, Logic, History of Science	Mathematics	Natural Science
Group A	15 cr.	9 cr.	——	——
Group B	6 cr.	——	8 cr.	10 cr.

* Psychology courses (Group A) which may be employed in meeting this requirement in social studies are those numbered 1, 50, 105, 108, 109, 127, 135, 143, 144, 147, 148, 160, 161, 165, and 167.

** Scandinavian 101a may also be counted.

*** Psychology courses with experimental laboratory are those numbered 25, 125, 116, 154, 170, 171, 172, 176.

† Not offered at present.

V. FRESHMAN STUDIES

(a) ENGLISH. On the basis of placement tests taken during Registration Week and the first week of classes by all freshmen entering the University, most students are assigned to English 1a, some are assigned to English 11 (a course which completes the Freshman English requirement in one semester), some are not admitted to Freshman English, and a few are given exemption from Freshman English.

A student who, on the basis of these tests given at the beginning of each semester, is not admitted to English 1a must comply with the following procedures: (a) He must reduce his program by three credits; that is, he must drop English 1a, and he must not substitute for it any other course carrying credit. (b) He must enroll in English 0, a non-credit course. (c) If through placement-test procedure, he is not admitted to English 1a by the beginning of his third semester in residence, he must withdraw from the University until he is so admitted.

Students earning a grade of *A* in English 1a may, if they so desire, omit English 1b.

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.

(b) SCIENCE

Continuous year courses:

Botany 1, 2—5 credits per semester
Chemistry 1* or 4—5 credits per semester
Geography 2—5 credits per semester
Geology 1—5 credits per semester
Physics 1 or 31—5 credits per semester
Zoology 1, 2—5 credits per semester

Elementary survey courses: These are semester courses less specialized than the continuous year courses. They may *not* be taken for credit by students who have had either semester of the year course in the same subject above. Botany 17, Zoology 17, and Physiology 1, taken in that order, are planned to form an integrated sequence. For semesters in which these courses are offered see course listing under the appropriate department.

Astronomy 17—3 credits, first and second semesters
Botany 17—3 credits, first semester
Geography 5—3 credits, first and second semesters
Geography 17—4 credits, first and second semesters
Geology 17—4 credits, second semester
Meteorology 17—4 credits, first semester
Physics 17—4 credits, second semester
Zoology 17—3 credits, second semester

(c) MATHEMATICS—Semester courses repeated each semester: (Open to freshmen depending upon previous mathematical preparation.)

Mathematics 1 (Introductory college algebra)—4 credits
Mathematics 2 (Introductory mathematical analysis)—4 credits
Mathematics 20 (Calculus and analytic geometry)—4 credits
Mathematics 7 (Theory of investment)—4 credits

In general, students are required to present one full year of mathematics to satisfy the mathematics requirement in the natural science sequence for the B.A. or B.S. degree. However, students who have successfully passed either Mathematics 2 or 20 will be regarded as having fulfilled this requirement. Mathematics 7 will not count towards the requirement for the B.A. or B.S. degree.

* Chemistry 5, 3 credits and Chemistry 1b, 5 credits constitute a continuous year course for students who have had high-school chemistry.

(d) Social Studies:

Sociology–Anthropology 3 (Man, culture and society)—3 credits per semester
Geography 3 (Geography of the Americas)—3 credits, first semester
Geography 4 (Geography of the eastern hemisphere)—3 credits, second semester
Geography 6 (Survey of world geography)—3 credits
Geography 7 (World survey of economic geography)—3 credits
History 1 (Medieval Europe)—3 credits per semester
History 2 (Modern Europe)—3 credits per semester
History 3 (Europe and the modern world)—3 credits per semester
History 52–b (English and British history)—3 credits per semester
History 10a–b (Ancient)—3 credits per semester
Philosophy 1a (Introduction to philosophy)—3 credits
Political Science 7 (American government and politics)—3 credits per semester
Sociology 1 (Man and society: an introduction to sociology)—3 credits per semester
Sociology 2 (Social disorganization)—3 credits per semester

(e) Foreign Language. The languages at present available include Chinese, French, German, Classical Greek, Hebrew, Italian, Latin, Norwegian, Polish, Portuguese, Russian, Spanish, and Swedish. The number of credits per semester varies from 3 to 4, depending on the courses which the student elects.

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 16) and is subject to promotion or demotion at the end of the first few weeks as determined by the quality of his classwork. Advancement of more than one semester is optional rather than mandatory. In any case of placement other than that indicated by previous training, exception may be made by appealing to a committee.

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

(f) Other Freshman Courses:

Art Education 50a and 50b (Freehand drawing)—3 credits per semester
Drawing 10 (Mechanical drawing)—3 credits per semester
Freshman Forum—1 credit per semester
General Classics 37 (Latin and Greek words in English)—2 credits
General Classics 41 (Greek life and literature)—2 or 3 credits
General Classics 42 (Roman life and literature)—2 or 3 credits
General Classics 51 (Classical mythology)—2 credits
Geography 5 (Physical earth and its resources)—3 credits
Preventive Medicine 1 (Health problems for university students)—1 credit

(g) Freshmen who have a percentile ranking above 92 as determined by standards established for high-school students—at present the Henmon-Nelson Test of Mental Ability—and who are in the highest quarter of their high-school graduating class; or those who, if their apittude test rating is not available, are certified as ranking in the upper 10 per cent in their high-school graduating class, may elect, in each semester of their first year, one course listed in the time table with the prerequisite of sophomore standing.

VI. INTEGRATED LIBERAL STUDIES

This two-year program is open to entering freshmen and is limited to 300 students in each freshman group.

The integrated program offers a new approach to meeting the general (non-departmental) requirements of the College of Letters and Science. Students admitted to the integrated

program will follow a prescribed schedule of subjects designed to give a broad basic education preparatory to later specialization and to provide an introduction to many fields of study seen in relationship to each other. (See page 166 for description of courses.)

In addition to the prescribed subjects, candidates for the B.A. degree will take one subject in a foreign or classical language each semester until the B.A. language requirement is satisfied (see page 42). Candidates for the B.S. degree must complete the basic language requirement and thereafter will have the opportunity of electing at least one additional subject each semester with the approval of an adviser.

Students completing the two-year integrated curriculum with a foreign language or with additional elective subjects will be accepted as majors in many of the departments of the College of Letters and Science, or will be accepted for transfer to the School of Education, to the School of Commerce (with the addition of Mathematics 7, Economics 1a, Commerce 8 and 9), or to the School of Journalism (with the addition of Journalism 1 and Journalism 2). After a third year in the College of Letters and Science, such students may transfer to the Law School. The Library School recommends the integrated program as the first two years of college study for those who plan to enter Library Science.

PROGRAM OF INTEGRATED LIBERAL STUDIES

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
I.L.S. 11—Greek and Roman culture	4	I.L.S. 12—Medieval and renaissance culture.	3
I.L.S. 21—Early man and his society	3	I.L.S. 22—Transition to industrial society...	4
I.L.S. 31—Physical universe	4	I.L.S. 32—Earth science	3
I.L.S. 41—Theory and practice of writing...	2	I.L.S. 42—Nature and function of language.	2
Electives	3–4	Electives	3–5
	16–17		15–17

SOPHOMORE YEAR

I.L.S. 13—European culture, 1750–1850	4	I.L.S. 14—Recent American culture	3
I.L.S. 23—Modern industrial society, USA..	4	I.L.S. 24—International scene	3
I.L.S. 33—Biology	3	I.L.S. 34—Biology	4
Electives	4–6	Electives	4–6
	15–17		14–16

VII. COURSE IN APPLIED MATHEMATICS AND MECHANICS

COMMITTEE IN CHARGE: PROFESSORS LANGER, *chairman*, ROARK, SCHAEFFER, WAHLIN, WOODBURN

It is the purpose of this course to give an integrated basic training in the related fields of mathematics, physics, and engineering. It does not give specialized training in any one branch of engineering, but is designed to cover a wider field and to lay a basis for the theoretical training which is requisite for industrial research and technology. The demand for persons having such training may be expected to rise with the increasing scope of the applications of science to industry. This course provides a thorough foundation for post-graduate studies and for specialization in various fields of engineering.

REQUIREMENTS FOR ADMISSION AND GRADUATION. For graduation from the course in Applied Mathematics and Mechanics, 125 credits are required. Admission to the course is restricted to students whose high-school training in mathematics includes at least one and a half years of algebra and a year of geometry, or who have passed equivalent entrance examinations. Admission to the sophomore year is restricted to those who have at least a 2.75 grade-point average in the courses in mathematics and physics or chemistry taken during the freshman year. The grade-point average of at least 2.75 in all subjects taken at the University of Wisconsin shall be required for admission to the senior year. Of the elective credits, at least 8 must be taken in courses offered by the College of Letters and

Science outside of the Division of the Physical Sciences. The College of Letters and Science requirement in United States History and Institutions must be satisfied.

PROFESSIONAL ELECTIVES

To facilitate the planning of a co-ordinated program of studies for students with special interest in the fields indicated below, the following suggestions for professional electives are made:

1. Mathematics

	Credits
115a—Theory of equations	3
115b—Determinants and matrices	3
117—Vector analysis	3
119—Differential geometry	3
121—Elementary plane topology	3
137—Introduction to math. statistics	3

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

	Credits
53—Materials of construction	2
101—Advanced statics	2
102—Advanced dynamics	3
106—Advanced mechanics of materials	3
109—Graphics	2
112—Airplane stress analysis	3

3. Physics

	Credits
106—Atomic physics	6
113—Atomic and molecular structure	3
115—Thermodynamics	2
118—Kinetic theory of matter	3
124—Mathematical theory of heat conduction	2–3
126—Fundamental experiments in physics	3

4. Chemistry

	Credits
14—Quantitative analysis	4–5
130—Physical chemistry	4
131—Physical chemistry	2–6

5. Civil Engineering

	Credits
21—Engineering curves	2
22—Theory of route surveying	3
118—Short course in surveying	3
157—Indeterminate structures	3
158—Indeterminate structures	2

6. Electrical Engineering

Electronics (See also Physics)

	Credits
34—Fundamental electronics	4
36—Advanced circuits and networks	4
101—Fundamentals of electro-acoustical engineering	3
115—Open and closed cycle control systems	3
116—Electrical circuits	3
151—Industrial electronics	3
153—Electronics	3
182—Electronics and communications engineering	4

7. Mechanical Engineering

	Credits
25—Machine practice	3
41—Mechanism	3
43—Machine elements	3
44—Advanced machine design	3
141—Dynamic problems in design	3
142—Advanced kinematics of machinery	3
143—Advanced mechanics of machinery	3
169—Internal combustion engines	3
172—Flow of compressible liquids	3

COURSE IN APPLIED MATHEMATICS AND MECHANICS

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

RECOMMENDED SEQUENCE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman composition	3	English 1b—Freshman composition	3
Math. 51 or 2—Elementary analysis	5–4	Math. 52 or 20—Elementary analysis	5–4
Chem. 1a, 2a, or 4a—General chemistry	5–4	Chem. 1b, 2b, or 4b—General chemistry and qualitative analysis	5–4
Drawing 12—Engineering drawing	3	Drawing 23—Engineering drawing and descriptive geometry	3
Military Training	0	Military Training	0
Physical Education	0	Physical Education	0

SOPHOMORE YEAR

Math. 102a or 21—Calculus	4	Math. 102b or 22—Calculus	4
Physics 51, 53, 1a or 31—General physics	5	Physics 52, 54, 1b or 31—General physics	5
Mechanics 1—Statics	3	Mechanics 2—Dynamics	3
Military Training	0	Military Training	0
Physical Education (women only)	0	Physical Education (women only)	0
Electives		Electives	

JUNIOR YEAR

Math. 111—Applied differential equations	3	*Math. 113a—Applied mathematical analysis	3
Physics 103—Optics	4	Physics 102—Heat and thermodynamics, or	4
Mechanics 3—Mechanics of materials	4	M.E. 64—Thermodynamics	3
E.E. 8—Electrical machinery	3	E.E. 9—Electrical machinery	3
*Electives		C.E. 71—Hydraulics	3
		Electives	

* Students who plan to do graduate work are advised to elect Math. 120a and replace Math. 113a with Math. 120b.

SENIOR YEAR

First Semester	Credits	Second Semester	Credits
Math. 116a—Higher analysis	3	Math. 116b—Higher analysis	3
Math. 118—Introduction to the theory of probability, or		Physics 105—Mechanics	3
Math. 133—Finite differences and interpolation	3	Physics 116—Advanced circuit analysis or Physics 104b—Electricity and magnetism	3–4
Physics 104a—Electricity and magnetism	4	Mechanics 107—Mechanical vibrations	3
Mechanics 111—Aerodynamics, or C.E. 173—Advanced hydraulics, or C.E. 177—Mechanics of fluids	3	Electives	

VIII. COURSE IN CHEMISTRY

FARRINGTON DANIELS, DIRECTOR

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

In order to broaden the educational program, the course provides for a substantial amount of elective and required work outside the field of chemistry. Three options are offered—a general option, an option for food chemists, and an option for fermentation chemists. The work of the freshman year is identical in each of the three options.

This course meets the standards recommended by the American Chemical Society for undergraduate professional training in chemistry.

REQUIREMENTS. 130 credits are required for graduation. Students frequently find it desirable to satisfy part of the requirements during one or more summer sessions. High-school mathematical preparation is necessary.

The equivalent of at least courses 10a and 10b in German is required, but high-school work in this language may be counted toward this requirement.

The College of Letters and Science requirement in United States History and Institutions must be satisfied.

Admission to the junior year is restricted to students who have at least a 2.5 grade-point average for the first two years' work in all chemistry, mathematics, and physics courses combined.

COURSE IN CHEMISTRY

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (CHEMISTRY)

FRESHMAN YEAR (ALL OPTIONS)

Chem. 4a—General chemistry	5	Chem. 4b—General chemistry and qualitative analysis	5
Math. 2—Introductory mathematical analysis	4	Math. 20—Calculus and analytic geometry	4
English 1a	3	English 1b	3
German 1a	4	German 1b	4
Physical Education	0	Physical Education	0
Military Science	0	Military Science	0
	16		16

GENERAL OPTION

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
Chem. 11a—Quantitative analysis	5	Chem. 11b—Quantitative analysis	5
Physics 31—General physics	5	Physics 31—General physics	5
Math. 21—Calculus and analytic geometry	4	Math. 22—Calculus and analytic geometry	4
German 10a	3	German 10b	3
Military Science	0	Military Science	0
Physical Education (women only)	0	Physical Education (women only)	0
	17		17

JUNIOR YEAR

Chem. 120—Organic chemistry lectures	3	Chem. 122—Organic chemistry lectures	3
Chem. 121—Organic Chemistry laboratory	2	Chem. 123—Organic chemistry laboratory	2
Chem. 130a—Physical chemistry lectures	3	Chem. 130b—Physical chemistry lectures	3
Chem. 131a—Physical chemistry laboratory	3	Chem. 131b—Physical chemistry laboratory	3
Electives[a]	6	English 2—Intermediate composition	3
		Electives[a]	3
	17		17

SENIOR YEAR

Chem. 98—Senior seminar	1	Chem. 98—Senior seminar	1
Advanced Chem. (See Note c)	3	Chem. 156—Inorganic chemistry	3
Chem. 100—Senior thesis (See Note b)		Bact. 103—General survey	4
Electives[a,b]	11	Chem. 100—Senior thesis (See Note b)	
		Electives[a,b]	7
	15		15

OPTION FOR FOOD CHEMIST

SOPHOMORE YEAR

Chem. 11a—Quantitative analysis	5	Chem. 120—Organic chemistry lectures	3
Physics 31—General physics	5	Chem. 121—Organic chemistry laboratory	2
Math. 21—Calculus and analytic geometry	4	Physics 31—General physics	5
German 10a	3	Math. 22—Calculus and analytic geometry	4
Military Science	0	German 10b	3
Physical Education (women only)	0	Military Science	0
		Physical Education (women only)	0
	17		17

JUNIOR YEAR

Chem. 122—Organic chemistry lectures	3	Chem. 146—Chemistry of foods lectures	2
Chem. 123—Organic chemistry laboratory	2	Chem. 147—Chemistry of foods laboratory	3
Chem. 119—Organic analysis	3	English 2—Intermediate composition	3
Electives[a]	9	Bact. 103—General survey	4
		Electives[a]	5
	17		17

SENIOR YEAR

Chem. 98—Senior seminar	1	Chem. 98—Senior seminar	1
Chem. 130—Physical chemistry lectures	3	Chem. 130—Physical chemistry lectures	3
Chem. 131—Physical chemistry laboratory	3	Chem. 131—Physical chemistry laboratory	3
Chem. 113—Water analysis	1	Electives[a,b]	8
Bact. 125—Food bacteriology	4	Chem. 100—Senior thesis (See Note b)	
Electives[a,b]	3		
Chem. 100—Senior thesis (See Note b)			
	15		15

OPTION FOR FERMENTATION CHEMIST

SOPHOMORE YEAR

Chem. 11a—Quantitative analysis	5	Math. 22—Calculus and analytic geometry	4
Math. 21—Calculus and analytic geometry	4	Physics 31—General physics	5
Physics 31—General physics	5	German 10b	3
German 10a	3	Electives	4
Military Science	0	Military Science	0
Physical Education (women only)	0	Physical Education (women only)	0
	17		16

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
Chem. Engr. 18—Fundamentals of chemical engineering	3	Chem. Engr. 11—Unit operations	3
Chem. 120—Organic chemistry lectures	3	Chem. 122—Organic chemistry lectures	3
Chem. 121—Organic chemistry laboratory	2	Chem. 123—Organic chemistry laboratory	2
Chem. 119—Organic analysis	3	Bact. 103—General survey	4
Electives	5	Electives	4
	16		16

SENIOR YEAR

Biochem. 105—Principles of biochemistry	3	Bact. 226—Physiology of bacteria	4
Biochem. 106—Principles of biochemistry	2	Chem. 130—Physical chemistry lectures	3
Chem. 130—Physical chemistry lectures	3	Chem. 131—Physical chemistry laboratory	3
Chem. 131—Physical chemistry laboratory	3	Thesis[d]	3
Thesis[d]	3	Electives[e]	3
Electives[c]	3		
	17		16

(a) Of the total elective credits not more than 15 may be taken in chemistry, biochemistry, chemical engineering, mathematics and physics combined. Students who plan to do graduate work in chemistry are advised to elect one year (8 cr.) of French or Russian. It is strongly recommended that the student elect courses in the fields of American history, political science and economics.

(b) Senior thesis (Chem. 100) may be elected for 3 to 6 credits by students who have the consent of an instructor under whose direction the work will be done. Chemistry 100 is recommended for all seniors. Grades of *B* or better in Chem. 120, 121, 122, and 123 are required for election of Chem. 126. Chem. 126 is a prerequisite for 3 credits of thesis in organic chemistry. The election of other chemistry courses is limited only by Note (a) and the prerequisites for each particular course.

(c) This advanced chemistry requirement is satisfied by the election of senior thesis.

(d) To be done in Department of Biochemistry or Agricultural Bacteriology on a chemical problem.

(e) Students interested in Bacteriology should elect Agricultural Bacteriology 120 (Advanced General). Those interested in Biochemistry should elect Biochemistry 227 (Fermentations).

IX. COURSES IN HUMANITIES

COMMITTE IN CHARGE OF MODERN HUMANITIES: PROFESSORS MACKENDRICK, WEINBERG; ASSOCIATE PROFESSORS GLAUSER, VORTRIEDE, ZAWACKI, *chairman*, WILEY; ASSISTANT PROFESSOR GREENE. COMMITTEE IN CHARGE OF CLASSICAL HUMANITIES: PROFESSORS AGARD, *chairman*, MACKENDRICK; ASSISTANT PROFESSORS HEIRONIMUS, HOWE.

PURPOSE AND PLAN. The aim of the Courses in Humanities is to give students a well-rounded liberal education, with greater emphasis on the integration of their courses of study than the general B.A. course affords, and closer relations from the beginning between students and their teachers. Integration is secured by means of the study of a great regional culture, classical or European, in its various interrelated aspects: language, literature, geography, history, social institutions, art, and philosophy, on the theory that such study is effective preparation for living in contemporary society. Each student is assigned an adviser, who helps him plan his course and directs his tutorial work; and frequent conferences of students in small groups with their advisers establish a community of intellectual interest. At the end of the junior year the student may, if he wishes, specialize in a given period. A comprehensive examination at the end of the senior year insures further integration of the course of study.

The degree given is Bachelor of Arts (Humanities). Majors and minors may be chosen and teachers' certificates secured in the subjects included in the course of study, as in the general B.A. and teachers' B.S. courses. Students in the Courses 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 the junior and senior years, and fulfilling the special requirements (see School of Education).

The Course in Modern Humanities is especially designed for prospective teachers of modern languages and for students who anticipate careers involving foreign countries; the Course in Classical Humanities is especially designed for prospective teachers of Latin;

but both courses are also suitable for other students who wish an integrated cultural basis for later specialization.

I. MODERN HUMANITIES

REQUIREMENTS. For admission, four years of one foreign language, or two years each of two foreign languages. High-school mathematical preparation is required. For graduation, 120 credits, including the following:

a. Tutorial papers (6 cr.). Students read books and write papers dealing with various aspects of modern culture which are not covered in their regular courses.

b. A sophomore course in American or English literature (6 cr.). Students are expected to pass the test exempting them from English 1a.

c. Three of the following: (1) Latin 102 (6 cr.); (2) Greek 1 and 10 (14 cr.); (3) a reading knowledge of French; (4) a reading knowledge of German; (5) a reading knowledge of Spanish; (6) a reading knowledge of Italian. Another foreign language may be substituted for one of these languages with the approval of the Humanities Committee.

d. 10 credits in social studies (not including those taken to satisfy "f" below), of which at least 6 credits will be in history. The College of Letters and Science requirement in United States History and Institutions must be satisfied.

e. 10 credits in laboratory science, and 3 credits in the history of modern science.

f. 9 credits in philosophy or mathematics.

g. 3 credits in art history or music.

h. A final comprehensive examination in the field of major concentration. The committee defines "field of major concentration" as a minimum of 15 credits approved by the committee by the beginning of the junior year.

II. CLASSICAL HUMANITIES

REQUIREMENTS. For admission, three or four years of high-school Latin. High-school mathematical preparation is required. For graduation, 120 credits, including the following:

a. Tutorial papers during the first two years (12 cr.). They deal with Greek and Roman history, literature and art.

b. 22 credits in Latin beyond Latin 11; 18 credits in Greek beyond Greek 10.

c. 10 credits in laboratory science.

d. 6 credits in history, preferably History 10. However, the College of Letters and Science requirement in United States History and Institutions must also be satisfied.

e. 6 credits in philosophy.

f. A final comprehensive examination.

X. COURSE IN MEDICAL TECHNOLOGY

This is a four-year course leading to the degree of Bachelor of Science (Medical Technology) and to a certificate in Medical Technology from the University hospitals. The course prepares the student for technical work in laboratories of clinical diagnosis located in hospitals, clinics, or offices. After some experience the university-trained technologist may also qualify for supervisory work and teaching.

A minimum of 90 college credits including both required and elective courses must be completed during the first three years. The fourth year is devoted entirely to the major study (Medical Technology). High-school mathematical preparation is required.

The curriculum for the first three years includes the following required courses: Freshman English 6 cr., English and/or American literature or intermediate composition 6 cr.; general chemistry 8–10 cr., organic chemistry 4 cr., quantitative chemistry 4 cr., physio-

logical chemistry 4 cr.; general physics 6 cr.; human physiology 4 cr.; zoology 5 cr.; parasitology 3 cr., medical bacteriology 8 cr.; history 6 cr. *or* mathematics 8 cr. The College of Letters and Science requirement in United States History and Institutions must be satisfied. A working knowledge of French or German is also required. This requirement may be satisfied by the completion of the fourth semester of French or German at the University of Wisconsin or at another accredited college with a grade of at least *C*, or by passing a reading knowledge or the attainment examination in either language to be given by the appropriate department at the University of Wisconsin.

In addition to the above required courses enough elective credits must be earned to make a total of 90.

The fourth year is devoted entirely to the study of the specialized medical subjects required for the major and to practical work in the laboratories of the hospital. The work of the first semester of the fourth year begins September first, and continues through the university final examination period with no Christmas recess. The second semester starts the last week in January and continues through the second semester with no spring recess. The summer months are spent in the laboratories of the University hospital. No academic credit is given for the summer work, but it is required for completion of the course.

For additional information concerning the course, inquiry should be made to Dr. O. A. Mortensen, Associate 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 Education	0	Physical Education	0
	15		15

SOPHOMORE YEAR

English 30a, 32a, 33a, 40a, or 2 or 3	3	English 30b, 32b, 33b, 40b, or 2 or 3	3
French 10a or German 10a	3–4	French 10b or German 10b	3–4
Physiology 1—Human physiology	4	Chemistry 120a—Organic chemistry	2
Zoology 1—Animal biology	5	Chemistry 121a—Organic chemistry	2
Physical Education	0	Zoology 119—Animal parasites of man	3
		Electives	2–3
		Physical Education	0
	15–16		15–16

JUNIOR YEAR

Chemistry 10—Quantitative analysis	4	Physiological Chemistry 103	4
Medical Microbiology 1	5	Medical Microbiology 2	3
History or Mathematics	3–4	History or Mathematics	3–4
Electives	3–4	Electives	5–6
	16–17		16–17

SENIOR YEAR*

Med Tech. 101—Urine analysis	3	Med. Tech. 111—Applied serology	2
Med. Tech. 102—Normal hematology	5	Med. Tech. 112—Applied parasitology	3
Med. Tech. 103—Special hematology	4	Med. Tech. 113—Clinical chemistry	7
Med. Tech. 104—Applied bacteriology	4	Med. Tech. 114—Microtechnique	3
	16		15

* Limited to 24 students.

XI. COURSE IN NAVAL SCIENCE

Enrollment in Naval Science is limited and applicants must meet the physical requirements for a commission in the Navy, be unmarried, and be less than 25 years of age on July 1 of the expected year of graduation.

A student in the Naval Science course will be in one of the following categories: (a) *Regular students* selected annually by nationwide competitive examinations who on graduation are commissioned in the regular Navy or Marine Corps and are obligated to serve on active duty as officers for three years. While enrolled in school they receive retainer pay at the rate of $50 per month, and on summer cruises $81.12, the pay prescribed by law for midshipmen. Tuition, textbooks, and uniforms are furnished. (b) *Contract students* selected on a competitive basis by the Professor of Naval Science from freshman applicants at the beginning of the fall semester who on graduation are commissioned in the Naval or Marine Corps Reserve and are obliged to serve on active duty as officers for two years with the option of applying for commission in the Regular Navy or Marine Corps. Uniforms are furnished and commuted ration allowance (about $27 per month) is payable during their junior and senior years. On one summer cruise required they are paid at the rate prescribed by law for enlisted men of the seventh pay grade, $78 per month.

Enlisted veterans of any of the armed services who wish to qualify for a commission may apply for advanced standing as contract students. Normally this advanced standing is limited to one or two semesters.

NROTC students in the College of Letters and Science may not receive degrees in the following special courses: chemistry, applied mathematics and mechanics, physical medicine, music, humanities, or 3-year pre-legal. They may select one of the following options: (a) the B.A. General degree, presenting a total of 126 credits; (b) the B.S. General degree, with a total of 126 credits; (c) the course in Journalism, with a total of 130 credits; (d) transfer to the Schools of Commerce or Education, under the appropriate rules of these schools; (e) the degree of Bachelor of Science (Naval Science), requirements for which are as follows:

1. A total of 126 credits.
2. English: 15 credits, to include freshman English, 6 credits; sophomore literature, 6 credits; and sophomore composition, 3 credits.
3. Foreign language: 14 credits—intermediate knowledge of a foreign language, which may be satisfied by passing an intermediate attainment examination or by completion of the second-year courses in a foreign language.
4. Science and Mathematics: 31–41 credits, to include physics, 15 credits; chemistry, 8–10 credits; mathematics through calculus, 8–16 credits.
5. Social studies: 18 credits, to include 6 credits in Political Science 121 (Foundations of international relations), and 12 credits from the following: history (American, European, or Far Eastern), political science (foreign policy, American government, Far Eastern politics), geography (United States, European, Far Eastern). The College of Letters and Science requirement in United States History and Institutions must be satisfied.
6. Naval Science: 24 credits. In addition, two hours per week of laboratory instruction, including infantry drill, and one to three summer cruises or periods of active training duty are required.
7. Electives: 14–38 credits.

Students who are interested in the NROTC program should consult the Professor of Naval Science, Naval Armory, 1610 University Armory.

COURSE IN NAVAL SCIENCE

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

RECOMMENDED SEQUENCE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman English	3	English 1b—Freshman English	3
Mathematics 1a—Introductory college algebra	4	Mathematics 1b—Trigonometry and analytical geometry	4
Chemistry 1a—General chemistry	5	Chemistry 1b—General chemistry	5
Naval Science 11—Naval orientation	3	Naval Science 12—Naval orientation	3
Physical Education	0	Physical Education	0
	15		15

SOPHOMORE YEAR

English 30a, 32a, 33a, or 40a	3	English 30b, 32b, 33b, or 40b	3
Physics 1a—General physics	5	Physics 1b—General physics	5
Mathematics 101a—Calculus	4	Mathematics 101b—Calculus	4
Naval Science 21—Naval weapons	3	Naval Science 22—Naval weapons	3
	15		15

JUNIOR YEAR

English 2 or 3—Intermediate composition	3	Foreign Language 1b	4
Foreign Language 1a	4	Advanced Physics	3–4
Pol. Sci. 121—Foundations and problems of international relations	3	Social Studies	3
Advanced Physics	2–4	Pol. Sci. 137—International organization and diplomacy	3
Naval Science 31—Navigation	3	Naval Science 32—Navigation	3
	15–17		16–17

SENIOR YEAR

Foreign Language 10a	3	Foreign Language 10b	3
Social Studies	6	Social Studies	3
Naval Science 41—Naval machinery and diesel engines	3	Naval Science 42—Ship stability, naval justice, and leadership	3
Electives	4–5	Electives	7–8
	16–17		16–17

XII. COURSE IN NURSING

For students interested in the study of Nursing, two possible programs are available:

1. The Course in Nursing which leads to the degree of Bachelor of Science (Nursing), combining two years of academic work, 27 months of resident professional instruction, and a major during the fifth year in Public Health Nursing or in Ward Management and Ward Teaching.

   During the period of resident professional instruction, scholarships are awarded to cover the general fees, and the student is given room, board, and laundry service in the Nurses' Dormitory.

2. A combination of the study of Nursing, with a major in the College of Letters and Science leading to a Bachelor of Arts or Bachelor of Science degree in the General Course and also to the Certificate of Graduate Nurse. This procedure combines three years of academic work (approximately 16–17 credits per semester) with 27 months of resident professional instruction. (See II, below.)

I. Requirements for graduation from the Course in Nursing.*

A. Curriculum A—For students in the basic professional program; that is, students who do not enter as registered professional nurses.

1. English, 12 credits as follows: Freshman English (English 1a, 1b—with possible exemptions), 6 credits; English and/or American literature (two semesters in any

* For descriptions of content of nursing courses, see bulletin of the School of Nursing.

combination of courses 30, 32, 33, and 40 with the exception that 30 and 33 may not in any way be combined), 6 credits.

2. Foreign language, 8 credits as described under requirements for the B.S. General Course.
3. Science, 17–19 credits, to include: Chemistry 5 (3 cr.) *or* 1a (5 cr.), Biochemistry 3 (4 cr.), Microbiology 4 (3 cr.), Physiology 4 (4 cr.), Science elective (3 cr.).
4. History, 6 credits, in a continuous year course. The College of Letters and Science requirement in United States History and Institutions must be satisfied.
5. Social Studies, 10 credits: to include Sociology 1 (3 cr.), Psychology 1 (4 cr.), *and* 105 (3 cr.).
6. Electives: Letters and Science electives to bring the total to 60 credits and grade-points.
7. Resident Professional Instruction (third and fourth years), 37 credits as follows: Dietetics 1 (2 cr.), Nursing 1, 2, 3, 4, and 5 (21 cr.), Nursing 10, 11, 12, 13, 14 and 15 (14 cr.).
8. Major—the completion of a fifth year of closely related subjects which constitute a major in either Ward Management and Ward Teaching or Public Health Nursing.
   A. Ward Management and Ward Teaching—30 credits to include Nursing 30 (3 cr.); Nursing 20, 21 (9 cr.); Education and Social Studies (15 cr.); L & S Elective (3 cr.).
   B. Public Health Nursing—30–31 credits to include Nursing 30 (3 cr.); Nursing 40, 41, 42, 43 (11 cr.); Nursing 45 (field work, 8 cr.); Social Work 145 (3 cr.); Education 120 (2 cr.) or 123 (3 cr.); L & S Elective (3 cr.).
9. A total of 127–128 credits.

B. Curriculum B—For students who enter as registered professional nurses. The School of Nursing will evaluate the professional education of these students and will also make recommendations regarding elections in the science group listed below.

1. English, 12 credits; foreign language, 8 credits; History 6 credits—as described above under Curriculum A.
2. Science, 12 credits in at least two fields.
3. Social Studies, 14 credits; to include Psychology 1, 105 and Sociology 1.
4. Electives: Letters and Science electives to bring the total to at least 60 credits.
5. Resident Professional Instruction, 37 credits and Nursing Major (30–31 cr.) as described above under Curriculum A. (Actual courses to be taken depend upon evaluation of professional training by the School of Nursing.)

II. Requirements for students who combine the study of nursing with a major in the College of Letters and Science.

Such students may count up to 20 credits in nursing courses under the terms of the Twenty-Credits Rule. Courses outside of the College of Letters and Science, other than those in the School of Nursing, may not be credited under the Twenty-Credits Rule unless permission of the Executive Committee is recorded prior to the election of such courses.

Requirements:

1. Fulfillment of the degree requirements for the B.A. or B.S. General Course. (Satisfactory completion of the program of Integrated Liberal Studies may be substituted for all degree requirements except the foreign language requirement.)
2. Satisfactory completion of specific courses required by the School of Nursing which

may be credited either toward the satisfaction of Letters and Science degree requirements or as electives: Chemistry 5 (3 cr.); Biochemistry 3 (4 cr.); Microbiology 4 (3 cr.); Physiology 4 (4 cr.); Psychology 1 (4 cr.), *and* 105 (3 cr.); Sociology 1 *or* 2 (3 cr.).

3. Major Study: To be chosen from the major subjects offered in the College of Letters and Science.
4. Nursing: A total of 20 credits including Nursing 1 and Dietetics.
5. Electives: A sufficient number so that the credits taken in the College of Letters and Science will total at least 100.

XIII. COURSES IN PHYSICAL MEDICINE

Degree Course

The four-year course leading to the degree of Bachelor of Science (Physical Medicine) is administered jointly by the College of Letters and Science and the Medical School. Mathematical preparation is required. The program consists of three years' work in Letters and Science and one year in the Physical Therapy major. The academic work is followed by three months of clinical work in approved hospitals under supervision of the faculty. A certificate is given by the Medical School at the completion of this work. No academic credit is given for the work done during the summer months, but it is required for completion of the course. The course prepares the student for full professional qualifications in the field of Physical Therapy including licensure examinations and the examination of the American Registry of Physical Therapists. The course is fully accredited by the Council on Medical Education and Hospitals of the American Medical Association.

Requirements for graduation are as follows:

1. A total of 124 credits and at least 124 grade-points.
2. English: 12 credits; or English, 6 credits, and history, 6 credits. The College of Letters and Science requirement in United States History and Institutions must be satisfied.
3. Science: 44 credits to include at least one course in each of the following subjects: physics, zoology, anatomy, physiology, physiological chemistry, kinesiology, and one year of general chemistry.
4. Psychology: 10 credits.
5. One of the following:
   (a) Foreign language: requirement may be satisfied either by securing in high school and/or college the equivalent of 14 credits in one foreign language, or by passing an intermediate attainment examination.
   (b) Social Studies (see list—footnote, p. 35), 14 credits.
6. Speech: 6 credits.
7. Home Economics 119 (or its equivalent): 2 credits.
8. Physical Therapy: theoretical and technical training, 30 credits to include courses in applied anatomy, pathology, medical sciences, massage, therapeutic exercise, electrotherapy, hydrotherapy, ethics and administration, bandaging and asepsis, research technique and clinical practice. The senior year is a 12-month year, the last three months of which are spent full time in the treatment of patients.
9. Electives: 6 credits.

PHYSICAL MEDICINE CURRICULUM

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (PHYSICAL MEDICINE)

RECOMMENDED SEQUENCE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Chemistry 1a or 5—General chemistry	5–3	Chemistry 1b—General chemistry	5
English 1a—Freshman English	3	English 1b—Freshman English	3
Foreign Language 1a or Social Studies	4	Foreign Language 1b or Social Studies	4
Physics 65—General physics	3	Physics 65—General physics	3
Physical Education	0	Physical Education	0
Military Training	0	Military Training	0
Electives	0–2		
	15		15

SOPHOMORE YEAR

English 30a, 32a, 33a, 40a, or 2 or 3, or History	3	English 30b, 32b, 33b, 40b, or 2 or 3, or History	3
Language 10a or Social Studies	3	Language 10b or Social Studies	3
Physiological Chemistry 14	3	Psychology 105—Human adjustment	3
Speech 1—Fundamentals of speech	3	Phys. Med. 1 (Orientation)	1
Psychology 1—Introduction to psychology	4	Zoology 1—Animal biology	5
Physical Education (women only)	0	Physical Education (women only)	0
Military Training	0	Military Training	0
	16		15

JUNIOR YEAR

Anatomy 37—Human anatomy	6	Physiology 116—Physiology of exercise	3
Physiology 115	5	Speech 25—Correction of speech disorders	3
Psychology 165—Behavior pathology	3	Phys. Ed. 56—Kinesiology	3
Home Ec. 119—Child development	2	Anatomy 108—Applied anatomy	3
		Electives	3
	16		15

SENIOR YEAR (12 MONTHS)

Phys. Med.12—Preclinical subjects	1	Phys. Med. 5b—Therapeutic exercise	3
Phys. Med. 3—Medical sciences	3	Phys. Med. 6—Electrotherapy	4
Phys. Med. 4—Massage	2	Phys. Med. 7—Hydrotherapy	1
Phys. Med. 5a—Therapeutic exercise	4	Phys. Med. 8—Clinical practice	5
Phys. Med. 101—Pathology	2	Phys. Med. 102—Ethics and administration	1
Phys. Med. 103—Journal Club	1	Phys. Med. 103—Journal Club	1
Elective	3	Phys. Med. 3—Medical sciences	1
	16		16

CERTIFICATE COURSE IN PHYSICAL THERAPY

The certificate course for physical therapy is twelve months in length and begins in September of each year. College credit toward a degree in physical therapy is given for this work.

Inquiries and applications for admission should be addressed to Dr. H. D. Bouman, Section of Physical Medicine, Service Memorial Institutes. Requirements for admission: Candidates for admission must be able to satisfy one of the following requirements:

1. A minimum of 90 academic credits including courses in animal biology and physics.
2. Graduation from an accredited school of nursing.
3. Graduation from an accredited school of physical education.

Courses in chemistry are highly recommended. Due to the limitation of clinical facilities, the number of students admitted to the course is limited to twenty.

CURRICULUM

The curriculum includes courses in anatomy, clinical practice, electrotherapy, ethics and administration, hydrotherapy, massage, pathology, physiology, principles of physical therapy

as applied to orthopedics, medicine, surgery, neurology, dermatology, psychology, therapeutic exercise and electives.

First Semester	Credits	Second Semester	Credits
Anatomy 37	6	Physical Medicine 5	4
Physiology 115	5	Physical Medicine 6	4
Physical Medicine 2	1	Physical Medicine 7	1
Physical Medicine 3	3	Physical Medicine 8	5
Physical Medicine 4	2	Physical Medicine 103	1
Physical Medicine 101	2	Physical Medicine 1	1
		Physical Medicine 3	1
	19		17

CERTIFICATES

A certificate is issued by the Medical School at the end of the above courses to those who have successfully fulfilled all the requirements including extensive written, oral and practical final examinations.

Additional information about these courses is found in the University of Wisconsin bulletin, Course in Physical Therapy, which can be obtained by writing to University Editor, 811 State Street, Madison 5, Wisconsin.

XIV. SPECIAL MAJORS

MAJOR IN AMERICAN INSTITUTIONS

PURPOSE

This major in the Division of Social Studies is designed for (a) students in the College of Letters and Science desiring a broad liberal knowledge of American life in a number of its phases and not specialization in a department, (b) students in the School of Education, and (c) students planning to enter the Law School. It is open only to students whose major interest is essentially interdepartmental in scope.

PROCEDURE

A Divisional Committee consisting of Professors Hart *(chairman)*, Brandeis, Harrington, Loomer, Golightly, Olmstead, and Barton administers the major. The chairman will assign a member of the committee as an adviser to each student entering the major. At the beginning of the junior year the student will work out a program of studies meeting the requirements below and secure the approval of the adviser representing the committee.

A student who plans to elect the major in American Institutions in the School of Education should plan his college work as early as possible so as to complete:*

a. the necessary and desirable major and minor combinations required for the University Teachers' Certificate.

b. statutory requirements of courses in conservation and co-operatives:

c. preparation for successful placement in positions in secondary schools.

In fulfilling the requirements of one major and two minor subjects, therefore, the student will normally satisfy the first minor requirement within the 40 credits of the American Institutions major. The second minor of 15 credits, required for certification by the State Department of Public Instruction, should be in a subject outside the general social studies field, and the practice teaching in connection with Education 75 should be in this second minor. For additional information the student should confer with Professor Burr W. Phillips before the beginning of his junior year.

PREPARATION FOR THE MAJOR

Students electing this major will normally have completed one or more of the required courses during their freshman and sophomore years. Integrated Liberal Studies provides a

* See School of Education.

satisfactory background for the major. For other students, course work dealing with the antecedents of American Institutions is recommended in the freshman and sophomore years. This may be obtained in History 5a–b, History 3a–b, or English Literature. It is recommended that majors not planning to take advanced American Literature courses in the major meet their sophomore English requirements by taking English 40.

COURSE WORK

The 40 credits required by the major include:

I. REQUIRED COURSES, totaling 22 hours, as follows:

6 cr. History 4a–b—History of the United States, 1607–1952 (with the consent of the adviser, the student may substitute: History 113—History of American thought and culture, or History 121—Social development of the American people).

3 cr. Political Science 7—American government and politics (with the consent of the adviser, the student may substitute: Political Science 110—Government and the problems of democracy).

4 cr. Economics 1a—General economics (with the consent of the adviser, students enrolled in the Integrated Liberal Studies program may substitute: Integrated Liberal Studies 23—Modern industrial society).

3 cr. Geography 103—Geography of Anglo-America (with the consent of the adviser, the student may substitute Geography 146—Historical geography: United States and Canada).

3 cr. Sociology 185—Modern American communities.

3 cr. American Institutions 110—Evaluation of American institutions. This is a final seminar for majors, given during the second semester, and scheduled normally at the end of the senior year.

II. OPTIONAL COURSES, totaling 18 hours, selected from this list:

Art History and Criticism—131, 135, and 159
Contemporary Trends—103
Economics—1b, 105, 110, 117, 119, 120, 122, 123, 124a, 124b, 126, 127, 134, 135, 136, 137, 139, 142, 143, 144, 145, 146, 148, 152, 158, 162, 166, 172, 177, and 179
English—112, 114, 140, 150, 166, 169, 170, 171, 173, 174, 190, and 191
Geography—104, 125, 126, 127, 128, 129, 146, and 153
History—101, 102, 103, 104, 105, 106, 107, 108, 109, 111, 112, 113, 117, 119, 120, 121, 122, and 137
History of Science—170
Journalism—110, 111, and 114
Philosophy—54, 120, 134, 139, 144, 147, 150, 157, 158, and 162
Political Science—13, 110, 112a–b, 115, 120, 21–121, 122, 123, 126, 131, 134, 135, 139, 143, 148, 152, 159, 163, 165, 166, 170, 171, 172, 173, 174, and 175
Psychology—105
Social Work—145
Sociology and Anthropology—25, 39, 101, 114, 125, 126, 127, 129, 130, 131, 133, 134, 136, 139a–b, 144, 145, 150, 154, 156, 159, 161, 163, 164, 169, 171, 173, 174, 177, 193, 198, and 199
Speech—116, 130, 131, and 156

COURSES OUTSIDE THE COLLEGE OF LETTERS AND SCIENCE

To take these courses, students will need to comply with the Twenty-Credits Rule (see the General Regulations of the College of Letters and Science, Section 17). Permission of the Dean is required for all except those starred:

School of Commerce—*43 and *178

School of Education—104 and 115
College of Engineering: Civil Engineering—141 and 142
Law School—Law in Society
History of Anglo-American Law
College of Agriculture: Agricultural Economics—114

With the approval of his adviser, the student will carefully select courses from the above list so that:

a. not more than 9 of the 18 hours are in one department,
b. at least half of the 40 hours of courses for the major are in courses numbered above 100,
c. at least 12 hours of the 18 hours of optional courses are approved by the adviser as relevant to a theme such as those described below, within the general field of American Institutions.

OPTIONAL THEMES OF INTEREST

Eleven themes are suggested here, any one of which will satisfy requirements II.c. above. The committee may approve a theme not listed here, provided it is interdepartmental in scope. After the description of each theme, representative courses are listed which will be approved by the adviser as relevant to it. But these are merely suggestive, not required, and the adviser will approve any other courses from the list above which are relevant to the theme and meet the individual needs of the student.

1. RURAL LIFE IN AMERICA. A large part of the American population still lives in rural surroundings, and rural areas will continue to be the great source of population reproduction and replacement for the cities. Traditions of the frontier, the farm, the mining and logging camp, and the village are fundamental in the American social and economic system, even in its urban aspects. Within this theme, students may study the agricultural environment, economy, and society; or they may view developments of American culture from a rural perspective.

   Representative course offerings: Economics 117—Outlines of land economics (Agr. Econ.); History 115—The history of American agriculture; Pol. Sci. 134—Rural local government; Soc. 25—Rural life (Rural Soc.).

2. URBANIZATION AND INDUSTRIALIZATION. Since Theodore Roosevelt, national leaders have been concerned with the deep changes in American life occasioned by the shift to the city and the factory. Since most people work for others, central controls of financial investment, of transportation, power and other utilities, and of strategically located land become crucial to the economy. The family ceases to be the unit of work and play; new forces of social disorganization and dependence follow. In a mobile population, vertical affiliations with professional or interest groups replace the old neighborhood affiliations. Cities sprawl over the surrounding countryside, and their industrialized media of communication reach the remotest farmstead. Accentuated social needs have brought forth new professions to which this theme should provide useful background: social work, corporate and industrial management, social research. Medicine, law, teaching, engineering, and architecture encounter new problems and opportunities in an urban industrial society.

   A program of studies on this theme may be selected in preparation for graduate study in metropolitan regional planning. For a description of the special major in Regional Planning (undergraduates), see page 78.

   Representative course offerings: Geography 129—Urban geography; Soc. 177—The modern city; Pol. Sci. 13—Municipal government; Economics 134—Economic history of the United States; or History 122b—American economic life; the growth of industrial and finance capitalism; Economics 122—Labor problems; Pol. Sci. 163—Local planning administration.

3. Conservation and Planning in the Use of American Resources. America's wealth, productive capacity and welfare are intricately related to the quantity, quality and intelligent use of its mineral, soil, water, plant, animal, and population resources. The problems of conservation and planning in the wise use of resources become more critical as the ratio of population to available resources increases, as technology calls for more intensive use of resources, and as we begin to regard our part of the earth as a permanent homestead for the American people. The student will discover many new legal, political, scientific, and economic solutions to specific conservation problems.

   Representative course offerings: Economics 117—Outlines of land economics (Agr. Econ.); Geography 128—Conservation of natural resources; Philosophy 144—Philosophy of social planning; History 111—History of the West.

   One of the following courses dealing with the natural phenomena out of which conservation problems arise may, with the approval of the adviser, be credited toward requirement I.b. above for students electing this theme: Soils 106, Wildlife Management 118, Geology 150 or 136, Botany 160 or 164, Zoology 124.

4. Implications of Technology for American Life. It is commonplace to speak of "the atomic age." In a wider sense, we may be in the process of a "technological revolution" which will leave its mark on our institutions as deeply as did the earlier phase, now called the Industrial Revolution. The pattern of technological change itself is studied in the history of science. Its interaction with economic institutions, with family, church, and government are explored in cultural anthropology and sociology. It is reflected as a formative influence in specific studies of the farm economy, business corporations, labor unions, law, political parties, government administration. Whether or not the scientific method comprises a philosophy, it has certainly had a powerful effect on American ideals. The interdepartmental course, Contemporary Trends, affords an unusual opportunity to bring these varied approaches into synthesis.

   Representative course offerings: History of Science 170—Modern science; Economics 146—Government and business; Philosophy 120—Philosophy of science; Contemporary Trends 103—Contemporary trends.

5. Social and Intellectual Development. This theme provides the opportunity to study the development of science, art, literature, philosophy, and law as influenced by, and in turn shaping, the society of which they are parts.

   Representative course offerings: Art History 131—American architecture; or Art History 159—Development of American art; History 113—History of American thought and culture; Philosophy 139—American philosophers; English—Any 100 course in American literature.

6. Interpretations of American Social Development which have originated in the University of Wisconsin and have become part of its intellectual pattern and are as such known to the world: Frederick Jackson Turner's theory of the role of the frontier in American history and John R. Commons' theory of the "rise of bargaining classes" and of "industrial government."

   It is not the intention to indoctrinate the student but to demonstrate to him by these examples how original thinkers operating within the same culture as his own, have constructed intellectual configurations explaining the past and casting light on the present and future.

   Representative course offerings: Economics 119—Evolution of industrial society; Economics 145—American labor history; Philosophy 139—American philosophers; Pol. Sci. 115—Law in society; History 111—History of the West 1763–1893.

7. Security and Opportunity in American Life. With the growth of large-scale social organizations, the traditional American ideal of opportunity comes into apparent conflict with human desires for security. In this theme the student may explore the histori-

cal ideals of enterprise, self-reliance and progress through political movements, literature, philosophy, and social manners. With these he may compare the drive for security evidenced by trade associations and union organization, new political alignments, welfare and assistance legislation; or as revealed by religion or psychology. He may thus seek scholarly perspective on what seems destined to remain a many-sided national controversy.

Representative course offerings: Economics 120—Social security; or Econ. 123—Labor legislation; English 150—American fiction; or English 170—Contemporary American literature; Philosophy 150—A philosophy of democracy; Pol. Sci. 165—History of American political thought: History 108, 109—Recent history of the U. S.

8. America and World Problems. America's new position as the world's strongest nation, and a vigorous participant in international affairs opens up many lines of inquiry. A comparative study may be made of ideals and institutions, American and foreign. America's role may be observed in international trade, organizations, and politics. Students who may elect this might include those who are interested in the responsibilities posed for the citizen by the threat of war and national aggression, or who want a broad base for graduate training in international affairs. Those interested in the foreign service as a vocation, or in a slightly more concentrated study of international affairs should consider the major in International Relations.

   Representative course offerings: Economics 144—Capitalism and socialism; Geography 125—Political geography: world survey; History 120—American foreign relations; Social Studies 159—Current problems of American foreign policy (Pol. Sci. 159).

   Students electing *America and World Problems* as a theme may, with the approval of their adviser, satisfy part of the requirement II.c. above by courses on foreign areas or international affairs not listed under II. above.

9. Old World Contributions to American Life. Our concept of America as "the melting pot" conceals the distinctive influences of older populations and cultures. These are still reflected as differences among national-origin groups in America. But in a wider sense, we have taken up scientific discoveries, literary and artistic movements, legal devices, social ideals and economic practices from older societies. American institutions can be studied as offshoots of European institutions conditioned by developments affecting all human society.

   Representative course offerings: History 113—History of American thought and culture; or History 121—Social development of the American people; Economics 119—Evolution of industrial society; or Econ. 144—Capitalism and socialism; Soc. 145—The individual and his culture; Soc. 164—Problems of American minority groups; English 173—The rise of a national literature in America 1775–1836; Geography 146—Historical geography of the United States and Canada.

   In this theme, students may, with the approval of the adviser, satisfy part of requirement II.c. above by courses on foreign governments or cultures not listed under II. above.

10. An Area of the United States. It is entirely possible to integrate one's study of American Institutions around a particular area of the United States. For instance a student interested in the northern part of Wisconsin would find relevant course work in geography, land economics, rural zoning, wildlife management, local government, archaeology and ethnography, rural sociology, and history. This theme will be especially productive for students who have an opportunity to make a systematic first-hand observation of the area chosen.

11. A Period Illustrative of American Development. An intensive study of an historical period, approached via several of the social studies, lends itself particularly well to an appreciation of the interrelation of institutions with environment and ideas. Examples are the post-Civil War period of railroad building, the period producing the Populist movement, the New Deal.

BACTERIOLOGY

Students who wish to prepare themselves for positions in the field of bacteriology may major either in Medical Microbiology or in Bacteriology. The student should consult with the chairman of the department selected.

A Letters and Science *major* in Bacteriology in the Department of Medical Microbiology may be constructed as follows: The student will meet the usual requirements for the B.A. or B.S. degree and secure a minimum of 22 credits in the major including the following: Medical Microbiology 1 or 102, and 2; Zoology 119; Physiological Chemistry 103 or 104; and suitable courses in either Bacteriology or Medical Microbiology to complete the required 22 credits. High-school mathematical preparation is required. The satisfactory completion of the courses laid down as prerequisite to the *major* courses specified above forms an integral part of this major.

A Letters and Science *major* in Bacteriology in the Department of Bacteriology may be constructed as follows: The student shall meet the usual requirements for the B.A. or B.S. degree; in addition the student shall secure a total of not less than 20, and not more than 30, credits in Bacteriology, or in a combination of Bacteriology and Medical Microbiology. If such a combination is used, the student shall present at least 15 credits in Bacteriology. Additional courses in biological sciences, chemistry, and other fields of study will be assigned to meet the needs of the student.

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. Interdepartmental 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.

MAJOR IN EAST ASIAN STUDIES

A committee, Professors Alberson, Barnett, Boardman *(chairman)*, Bronfenbrenner, Chou, Hart, Kienitz, Thomson and Trewartha, administers the major. The chairman will assign one of the members of this committee to each student electing the major. Registration for the major should be effected no later than the beginning of the junior year. Students contemplating registration should consult with members of the committee during the sophomore year.

Students electing the major in East Asian Studies will normally complete one or more of the required courses during the sophomore year.

REQUIREMENTS FOR THE MAJOR

A minimum of 30 credits is required for the major if it is not taken for pre-professional purposes. Students electing the major on this basis are strongly urged to take work in at least one Asian language as a part of their major program. Students who plan to use the major for pre-professional purposes will be required to submit a minimum of 30 credits plus 2 years of an Asian language taken at Wisconsin or at an institution of equivalent standing elsewhere. In either case, the study program must include:

(a) History 168a, 3 credits, and History 168b, 3 credits.

(b) Preparation of a senior thesis, 2 credits per semester, under the direction of one of the members of the committee. This requirement is designed to provide some depth of understanding of one phase of East Asian life or culture and to afford opportunity for the development of a special field of interest.

(c) Additional courses to complete the major will be selected according to the student's interests from the following, and must include work in four departments.

ART HISTORY

Art History 130—Fine Arts of China .....3 cr.
Art History 132—Chinese pottery and porcelain .....3 cr.
Art History 133—Chinese painting .....3 cr.
Art History 110—Proseminar. Introduction to the critical study of single personalities, movements, or problems drawn from occidental or oriental art.....2 cr.

COMPARATIVE LITERATURE

Comp. Lit. 65—Chinese literature in translation .....3 cr.
Comp. Lit. 101—Literatures of Asia .....3 cr.

ECONOMICS

Econ. 141—Economic problems of the Far East.....3 cr.
Econ. 160—Economic problems of under-developed areas.....3 cr.

GEOGRAPHY

Geography 110—Geography of the Far East.....3 cr.

HISTORY

History 169—Civilization of China .....3 cr.
History 170—19th and 20th Century China .....3 cr.
History 172—Japan since 1868 .....3 cr.

LINGUISTICS

Linguistics 2—First-year Chinese .....8 cr.
Linguistics 12—Second-year Chinese .....6 cr.
Linguistics 180—Third-year Chinese .....6 cr.
Linguistics 140-1—First-year Sanskrit .....6 cr.
Linguistics 240-1—Second-year Sanskrit .....6 cr.

PHILOSOPHY

Philosophy 143—Introduction to Indian philosophy .....3 cr.

POLITICAL SCIENCE

Pol. Sci. 140—Far Eastern politics .....3 cr.
Pol. Sci. 155—Proseminar—The U. S. and the Far East.....2-3 cr.

SOCIOLOGY AND ANTHROPOLOGY

Anthropology 116—Peoples of Asia ..... 3 cr.
Anthropology 119—Peoples of the Pacific ..... 3 cr.

HISPANIC STUDIES

This major is planned to give students a well-rounded academic preparation in several interrelated fields and also minimum training for various occupational opportunities in export-import houses, manufacturing concerns, shipping companies, airway systems, banking institutions, government offices, etc., or for secretarial work, translating, interpreting or teaching.

Students majoring in Hispanic Studies may also prepare for teaching by meeting the requirements for the teaching certificate. See bulletin of the School of Education.

Those who wish to do advanced work in this field of concentration may continue their studies toward the M.A. degree. See M.A. degree and Ph.D. minor in Hispanic Studies in the bulletin of the Graduate School.

Students intending to major in Hispanic Studies should consult the Chairman of the Department of Spanish and Portuguese either in their freshman year 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 or nearly all required subjects for the B.A. degree other than foreign languages; (b) Economics 1a (General economics). The College of Letters and Science requirement in United States History and Institutions must be satisfied. 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 2a–2b (Physical geography); Geography 5 (Physical earth and its resources) or Geography 17 (Survey of physical geography: man's natural environment); Geography 6–7 (World survey of cultural geography; I, Regional aspects; II, Economic aspects); History 2 (Modern European history); History 3 (European civilization, 800 to the present); History 4 (History of the United States); Political Science 7 (American government and politics).

Following is a list of the required courses for this major:

Art History 157—Patterns and principles of Spanish art (or related fields of Spanish or Spanish-American art offered by this department)		2
Economics 151—Economic problems of Latin America		2
Geography 102—Geography of South America		3
Political Science 130—Governments of Latin America		3
Spanish 47—Spain of today		3
Spanish 48—Spanish America of today		3
Spanish 112—Composition and conversation		2
Spanish courses above 100 in the field of literature		4
A total of 17 credits chosen from the following group		17
Anthropology 109—Archaeology of Mexico, Central and South America	3	
Anthropology 115—The Indians of Central and South America	3	
Geography 111—Geography of Middle America	3	
History 119—Latin-American history	6	
History 129—Latin-American history	6	
History 130—Spain and the Spanish Empire	6	
Journalism 121—Interpreting Hispanic affairs	2	
Political Science 131—The United States and Latin America	3	
Spanish 117—Commercial and industrial language practice in Hispanic countries	2	
Spanish 150—Spanish civilization	4	
Spanish 151—Spanish-American civilization	4	—
Total credits required for major		39

Those who have not previously taken a second foreign language are required to take a minimum of one year of college Portuguese, the language of Portugal and Brazil.

The electives are flexible enough to accommodate any individual purpose the student may have. The following courses are especially recommended for election because of their particular bearing on the major or for their professional value.

Art Hist. 153—Representative painters of the 17th century
Art Hist. 159—Development of American art
*Com. 8 and 9—Accounting
*Com. 13—Marketing methods
Com. 31—Business statistics
Com. 109—Commercial law
Com. 114—Marketing management
Com. 169—Air transportation
Econ. 30—Economic statistics
Econ. 105—Money and banking
Econ. 126—International trade in agricultural products
Econ. 136—Transportation problems
Econ. 137—Corporation finance
Econ. 153—International finance
Econ. 156—International trade
Geog. 101—Geography of Europe
Geog. 103—Geography of Anglo-America
Geog. 107—Geography of the Mediterranean and Near East
Geog. 112—Problems of Latin America
Geog. 127—Geography of manufacturing
Geog. 147—Historical geography of the Mediterranean borderlands
Geology 150—Economic aspects of geology
Hist. 116—History of the thirteen colonies to 1760
His. 120—American foreign relations
Hist. 122—American economic life
Hist. 124—Recent history of the U. S., 1901–1948
Hist. 138—History of Europe, 1789–1871
Journ. 120—Interpreting foreign news
Pol. Sci. 118 and 119—Principles of international law; survey and problems
Pol. Sci. 123—American diplomacy
Pol. Sci. 127 and 128—Comparative government
Pol. Sci. 137—International organization and diplomacy
Pol. Sci. 138—Contemporary problems in international relations
Portuguese 1, 10 and 15

Econ.-Com. 251 (Seminar, Latin-American development and trade), Geography 202 (Advanced regional geography, Latin America) or Geography 22 (Seminar, Latin America), and Art History 210 (Seminar, when dealing with a Spanish subject) will be open in exceptional cases to undergraduate students.

SAMPLE PROGRAM FOR STUDENTS WHO OFFER TWO UNITS OF HIGH-SCHOOL SPANISH

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman English	3	English 1b	3
Spanish 10a	3	Spanish 10b	3
(Natural Science)	5	(Natural Science)	5
Spanish 16a	2	Spanish 16b	2
(Other B.A. requirements)	2–3	Other B.A. requirements)	2–3
Physical Education	0	Physical Education	0
Military Training	0	Military Training	0
	15–16		15–16

SOPHOMORE YEAR

Spanish 21a	3	Spanish 21b	3
(Sophomore English)	3	(Sophomore English)	3
Economics 1a	4	Spanish 47	3
Spanish 48	3	Spanish 25b	2
Spanish 25a	2	(Other B.A. requirements)	4–5
Physical Education (women only)	0	Physical Education (women only)	0
Military Training	0	Military Training	0
	15		15–16

JUNIOR YEAR

Anthropology 115	3	Economics 151	2
Art History 157	2	Political Science 130 or 131	2
Geography 102	3	(Second foreign language, Portuguese 1b)	4
(Second foreign language, Portuguese 1a)	4	Spanish 112	2
Electives	3–4	Electives	5–6
	15–16		15–16

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

SENIOR YEAR

First Semester	Credits	Second Semester	Credits
History 129 or 130	3	History 129 or 130	3
Journalism 121	1	Journalism 121	1
Spanish literature	2–3	Spanish 117	2
Spanish 150 or 151	2	Spanish literature	2–3
Portuguese 15a	2	Spanish 150 or 151	2
Electives	3–4	Electives	4
	14–15		14–15

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 82.) Consult requirements for graduation in the announcement of the School of Education.

MAJOR IN INTERNATIONAL RELATIONS

Open only to candidates for the B.A. degree, this major offers a broad general background in international political, social, and economic relations, and in regional civilizations. Although the major is not primarily vocational (experience has shown that the relative number of job opportunities in the international field is not large), it does provide an integrated though flexible program of training for those students who plan to enter the foreign services of the United States Government; for those who are interested in securing positions with exporting and importing firms, shipping companies, international banking houses, or foreign press services; and for those who wish to teach international affairs or engage in research in the field. The major is administered by a Committee of Advisers representing the Departments of Political Science, Economics, and the language departments concerned. Concentration in the field of the major will normally begin in the junior year, but students who contemplate this major should consult with one of the committee members concerning their programs as early as possible. The requirements for the major will be subject to revision from time to time, but students who have entered upon the work of the major will be held to meet the revised requirements only to the extent that their prior academic obligations permit.

During the freshman year the student's program will consist normally of an introductory history or social science course, English, foreign language, and mathematics or a science. High-school mathematical preparation is required. The two-year curriculum in Integrated Liberal Studies, with electives in Modern Languages, offers a suitable preparation for this major.

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

The major includes a minimum of *40 credits*. At the beginning of the junior year the student will confer with the Chairman of the Committee of Advisers (Professor Ellsworth), to be assigned an adviser in the chosen field of specialization who will assist him in preparing a sequence of studies covering the work in the major during the last two years. This sequence may be arranged either on a functional or on a regional basis and will be varied to meet the needs of the individual student.

The student's work in the major will consist of a group of fundamental courses, the requirements varying with the field of specialization, and of other courses chosen so as to build an integrated program. These courses will be primarily in political science, econom-

ics, geography, commerce, history, and foreign language, but the program may include work in such related fields as anthropology, geology, journalism, philosophy, sociology, and social psychology, or, in general, any courses which, in the opinion of the student's adviser, may be necessary to provide an integrated program to fit his individual purpose.

The various fields of specialization within the major are listed below, together with the requirements in each field. Work in the major will be completed by taking any required courses, along with recommended courses or courses in related fields which, in the adviser's opinion, may be desirable. Among such courses in related fields the following are of special significance: Philosophy 132 (History of modern philosophy) and 150 (A philosophy of democracy).

PREPARATION FOR THE AMERICAN FOREIGN SERVICE

ADVISER, PROFESSOR LLEWELLYN PFANKUCHEN

The forty credits (40) which constitute this major must include the fundemental courses listed below, in addition to Economics 1a (General economics) and Political Science 7 (American government and politics) which are required but not counted toward the major. The rest may be chosen from the list of recommended courses, or from courses in related fields, as recommended by the adviser. Courses marked (*) are of greater general importance. Students may also plan a substantial part of the major centering on a particular geographical region.

I. REQUIRED COURSES

	Credits
History 4a-b—History of the United States	6
Political Science-Geography 21 or 121—Foundations and problems of international relations (or I.L.S. 24—The world scene)	3
Political Science 137—International organization: world cooperation and the U.N.	3
Geography 7—Economic geography	3
Economics 156—International trade	3

II. RECOMMENDED COURSES

Commerce

190a	Commercial law	3

Economics

*105	Money and banking	3
119	Evolution of industrial society	3
126	International trade in agricultural products	3
140	European economic history since 1700	3
*143	Structure of the American economy	3
*144	Capitalism and socialism	3
153	International finance	3
*157	International economic policy	3
*160	Economic problems of underdeveloped areas	3
166	Population problems	3

Geography

101	Geography of Western Europe	3
102	Geography of South America	3
103	Geography of Anglo-America	3
108	Geography of the Soviet Union	3
110	Geography of the Far East	3
111	Geography of Middle America	3
*125	Political geography	3
132	Use and appreciation of maps	3
146	Historical geography of the United States and Canada	3

Geology

134	Regional geology	2
*150	Minerals in world affairs	3

History

2a-b	Modern European history	6
*37-137	Origins and history of World War II	3
108	Recent history of the U.S., 1901–1929	3
109	Recent history of the U.S., 1929–1951	3
*120	American foreign relations	6
129	Latin-American history	6
139a	The Age of Imperialism, 1871–1918	3
143	British Empire since 1815	6
147	Modern Britain, 1815 to the present	6
149b	History of Russia	3
168b	History of the Far East	3
178	Recent German history	6

Journalism

104	Interpretation of contemporary affairs	3
114	Communication and public opinion	3
120	International communications and the foreign press	3

Political Science

101	Introduction to political theory	3
112a-b	Constitutional law	6
*118a	International law; law of peace	3
119	International law; problems	3
*123	Administration conduct of U. S. foreign affairs	3
127	British politics	3
128	Continental European politics	3
130	Latin-American politics	3
131	Latin-American international relations	3
132	Central-Eastern European politics	3
133	Government and politics of the Soviet Union	3
136	Soviet foreign policy	3
138	Contemporary problems in international relations	3
140	Far Eastern politics	3
155	The United States and the Far East	3
156	Prospects and problems of world government	3
187a	Governments of Scandinavia	3
187b	International relations of Scandinavia	3

Social Studies

*159	Problems of American foreign policy...	3

Sociology and Anthropology

134	Democratic and totalitarian societies...	3
155	Ideological conflicts	3
187a-b	Social trends in Scandinavia	6
130	Public opinion	3
194	Introduction to public opinion research	3
163	Modern population problems	3
141	Applied anthropology	3

Sociological aspects of certain regions, of special interest to certain students, are treated in such courses as Anthropology 117 (People of Europe), 116 (Peoples of Asia), 118 (Peoples of Africa), and 119 (Peoples of the Pacific).

SPECIALIZATION IN THE ECONOMIC PHASES OF INTERNATIONAL RELATIONS

ADVISER, PROFESSOR P. T. ELLSWORTH

The forty credits (40) which constitute this major must include the fundamental courses listed below, in addition to Economics 1a (General economics) and Political Science 7 (American government and politics), which are required but not counted toward the major. The rest may be chosen from the list of recommended courses or from courses in related fields, as recommended by the adviser. Courses marked with an asterisk (*) are of greater general importance.

Fundamental Courses

	Credits
Economics 156, International trade	3
Economics 157, International economic policy	3
Political Science 121, Foundations of international relations (or I.L.S. 24, The World scene)	3
Geography 7, Economic geography	3
And one of the following combinations:	
History 4a and b, History of the United States.....	6
History 122a and b, American economic life.....	6
History 108, Recent history of the United States, 1901–1929, and History 109, Recent history of the United States, 1929–1952.....	6
or History 137, Origins and history of World War II.....	6
History 139a and b, Recent European history.....	6
Economics 119, Evolution of industrial society, and Economics 134, Economic history of the U. S.	6
Economics 140a and b, European economic history since 1700.....	6

Recommended Courses

Economics

		Credits
*105	Money and banking	3
117	Outlines of land economics	3
130	Economic statistics	3
*143	The structure of the American economy	3
*144	Capitalism and socialism	3
150	Economic theory	3
151	Economic problems of Latin America.	2
*153	International finance	3
158	Large-scale enterprise	3
*160	Economic problems of underdeveloped areas	3
*166	Economics of population	3
181	Business cycles	3
182	Economic control	3

Commerce

*8	Elements of accounting	4
9	Intermediate accounting	4
31	Business statistics	3
114	Marketing management	2
137	Corporation finance	3

Political Science

*118a	International law	3
119	Problems of international law	3
*123	Administration of U. S. foreign policy	3
*137	International organization	3
138	Contemporary problems in international relations	3

Political conditions of special regions of interest to certain students are treated in such courses as Pol. Sci. 127 (British politics), 128 (Continental European politics), 130 (Latin-American politics), 131 (Latin-American international relations), 132 (Central-Eastern European politics), 133 (Government of the Soviet Union), 187a (Governments of Scandinavia), 136 (Soviet foreign policy), 140 (Far Eastern politics), and 187b (International relations of Scandinavia).

History

120	American foreign relations, 1776–1947.	3
138a-b	Europe, 1789–1871	6
113	Social and intellectual history of the U. S.	3
151	European intellectual and social history since 1789	3
165	History of commerce	3

The history of special regions of interest to certain students is treated in courses such as History 154 (The British Empire since 1815), 146 (History of the German people), 149 (History of Russia), 168 (History of the Far East).

Geography

5 Physical earth and its resources 3
127 Geography of manufacturing 3
132 The use and appreciation of maps.... 3

Geography of special regions of interest to certain students is treated in courses such as 101 (Geography of Europe), 102 (Geography of South America), 103 (Geography of Anglo-America), 107 (Geography of the Mediterranean and Near East), 108 (Geography of the Soviet Union), 110 (Geography of the Far East), 146 (Historical geography of the United States and Canada), and 202 (Advanced regional geography: Mexico).

Geology

150 Economic aspects of geology 2

Social Studies

*159 Problems of U. S. foreign policy 3

Sociology and Anthropology

186 European social structure: south and west 3
188 European social structure: north and east 3
134 Democratic and totalitarian societies... 3
*163 Modern population problems 3

Sociological aspects of special regions of interest to certain students are treated in such courses as Anthropology 116 (Peoples of Asia), 117 (Peoples of Europe), and 118 (Peoples of Africa).

SPECIALIZATION IN THE LATIN-AMERICAN REGION

ADVISER, PROFESSOR E. NEALE-SILVA

The forty credits (40) which constitute this major must include the fundamental courses listed below. The rest may be chosen from the list of recommended courses, preferably those marked (*), or from courses in related fields, as recommended by the adviser.

Fundamental Courses

	Credits
Commerce 151 (see Economics 151)	
Economics 151, Latin America: Economic development and relations	2
Geography 102, Geography of South America	3
Geography 111, Geography of Middle America	3
History 129a–b, Latin-American history	6
Journalism 121 (II), Reporting Hispanic affairs (Latin America)	1
Political Science 130, Latin-American politics	3
Political Science 131, Latin-American international relations	3

Recommended Courses

Anthropology

		Credits
*115	The Indians of Central and South America	3

Commerce

**8	Elements of accounting	3
9	Intermediate accounting	4
**13	Marketing methods	3
31	Business statistics (or Economics 130)	3
109	Commercial law	3
114	Marketing management	2
136	Transportation problems	2–3
137	Corporation finance	3

Economics

105	Money and banking	3
126	International trade in agricultural products	3
130	Economics statistics (or Commerce 31)	3
153	International finance	2
*156	International trade	3
157	International economic policy	3

Geography

3	Geography of the Americas	3
5	Physical earth and its resources	3
103	Geography of Anglo-America	3
112	Problems of Latin America	3
127	Geography of manufacturing	3
202	Advanced regional geography: Mexico.	2

Geology

134	Regional geology (Western hemisphere)	2
150	Economic aspects of geology	2

History

		Credits
*4a-b	History of the United States	6
108	Recent history of the United States, 1901–1929	3
109	Recent history of the United States, 1929–1952	3
120	American foreign relations	6
122a	American economic life (1789–1860)	3
122b	The age of big business (1861 to present)	3

Journalism

120	International communications and the foreign press	2

Political Science

118a	International law: law of peace	3
119	Problems of international law	3
*21 or *121	Foundations of international relations (or I.L.S. 24, The world scene).	3
123	Conduct of United States foreign policy	2
127	British politics	3
128	Continental European politics	3

Social Studies

159	Current problems of American foreign policy, Interdepartmental seminar	3
290	Interdepartmental seminar in Latin America	2–3

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

Students electing specialization in the Latin-American region must also show proficiency in Spanish by offering the following courses or equivalent training beyond Spanish 10b (two years of college Spanish):

Spanish 16a and 16b (Elementary composition, conversation and grammar review)..4 cr.
Spanish 21 or 23 (Elementary survey of Spanish literature *or* modern Spanish readings) .....6 cr.
Spanish 27 (Spanish commercial letter writing).....2 cr.
Spanish 48 (Spanish America of today).....3 cr.
†Spanish 151 (Spanish-American civilization) .....4 cr.

18–19 cr.

Students who have not taken a second foreign language in high school or in college are required to take a minimum of one year of Portuguese, the language of Brazil.

Those who specialize in the Latin-American region should have a grade-point average of at least 2.8 before they are accepted as majors. All majors in this field will be required to write a thesis on a Latin-American topic in the Departments of Economics, Geography, History or Political Science. Thesis work carries 2 credits per semester and is counted as part of the major.

SAMPLE PROGRAM FOR STUDENTS WHO OFFER TWO UNITS OF HIGH-SCHOOL SPANISH

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a	3	English 1b	3
Spanish 10a	3	Spanish 10b	3
Natural science	5	Natural science	5
Spanish 16a	2	Spanish 16b	2
Other B.A. requirements	2–3	Other B.A. requirements	2–3
Physical Education	0	Physical Education	0
Military Training	0	Military Training	0
	15–16		15–16

SOPHOMORE YEAR

Spanish 21a or 23	3	Spanish 21b or 23	3
Second modern foreign language	4	Second modern foreign language	4
Sophomore English	3	Sophomore English	3
Political Science 7	3	Economics 1a	4
Other B.A. requirements	2–3	Other B.A. requirements	2
Physical Education (women only)	0	Physical Education (women only)	0
Military Training	0	Military Training	0
	15–16		16

JUNIOR YEAR

History 4a	3	History 4b	3
Geography 102	3	Geography 111	3
Spanish 27	2	Political Science 130 or 131	3
Spanish 48	3	Economics 151	2
Political Science 123	2	Economics 105	3
Electives	3–4	Electives	2
	15–16		16

SENIOR YEAR

History 119a	3	History 119b	3
*Thesis	2	*Thesis	2
Economics 156	3	Economics 157	3
Spanish 151	2	Spanish 151	2
Journalism 121 (II)	1	Anthropology 115	3
Electives	4–5	Electives	2–3
	15–16		15–16

† When this course is not offered, it may be replaced by 176, Spanish-American essay and novel (4 cr.) or 146, Survey of Spanish-American literature (6 cr.).

SAMPLE PROGRAM FOR STUDENTS WITH NO PREVIOUS FOREIGN LANGUAGE TRAINING

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Spanish 1a	4	Spanish 1b	4
English 1a	3	English 1b	3
Natural science	5	Natural science	5
Other B.A. requirements	4	Other B.A. requirements	4
Physical Education	0	Physical Education	0
Military Training	0	Military Training	0
	16		16

SOPHOMORE YEAR

Spanish 10a	3	Spanish 10b	3
Spanish 16a	2	Spanish 16b	2
Sophomore English	3	Sophomore English	3
Geography 102	3	Geography 111	3
Economics 1a	4	Political Science 7	3
Physical Education (women only)	0	Other B.A. requirements	2
Military Training	0	Physical Education (women only)	0
		Military Training	0
	15		16

JUNIOR YEAR

Spanish 21a or 23	3	Spanish 21b or 23	3
History 4a	3	History 4b	3
Economics 151	2	Anthropology 115	3
Spanish 48	3	Political Science 131	3
Political Science 130	3	Political Science 123	3
Journalism 121 (II)	1	Electives	1
Electives	1		
	16		16

SENIOR YEAR

Spanish 27	2	Spanish 151	2
Spanish 151	2	Economics 157	3
Economics 156	3	History 119b	3
History 119a	3	Portuguese 1b	4
Portuguese 1a	4	Electives	2
*Thesis	2	*Thesis	2
	16		16

SPECIALIZATION IN FRENCH AREA STUDIES

ADVISER, PROFESSOR JULIAN HARRIS

The 40 credits which constitute this major must include the following courses or their equivalent:

French 22	Elementary survey of French literature	6 cr.
French 25 or 124	Composition and conversation	4 cr.
French 120	French for translators or Advanced French translation	3–4 cr.
French 150	French civilization, or 48, France of today	4 cr.

In addition to completion of the required courses, each major is required to pass the Oral Proficiency Test (see page 134) with a rating of at least "Satisfactory."

Oral practice acquired by residence or meals at the French House or by foreign travel is strongly recommended to supplement class instruction. Such practice may, upon recommendation of the chairman, be accepted in lieu of a conversation course. Students will note that intermediate attainment in a second modern foreign language is recommended for majors in International Relatoins. This should be acquired as early as possible. Unless at least two units of modern language are offered from high school, it will be difficult to complete the major with less than 128 credits.

In the first two years, in addition to French, English, and science (or mathematics), it is advisable to choose History 2 (Modern European history) 6 credits; Economics 1a (General

* Thesis work carries 4 credits at the rate of 2 credits per semester. These credits are counted as part of the major.

economics) 4 credits; and Political Science 7 (American government) 3 credits. If possible, English 2a (Composition) and Geography 7 (Economic geography) or Geography 6 (Regional geography) 3 credits, should be included.

The sequence of courses to be chosen in the junior and senior years will be determined on consultation with the adviser, the special purpose or interest of each student being taken into consideration. In addition to the courses specified in French, the following courses are recommended for French Area Studies (those marked with an asterisk will usually be interesting to the largest number of students):

Commerce

		Credits
†8	Elements of accounting	4

Economics

105	Money and banking	3
119	Evolution of industry	3
143	Problems of structural change in the American economy	3
*144	Capitalism and socialism	3
*156	International trade	3
157	International economic policy	3

History

4a, 4b	History of the United States	6
120	American foreign relations	6
*136	History of France	6
137	Origins and history of World War II.	3
138	History of Europe, 1789–1871	6
139a	Age of imperialism in Europe	3
*139b	European history since 1918	3
145	European intellectual and social history	3
151	European intellectual and social history since 1789	3

Geography

*101	Geography of Europe	3
	or	
*107	Geography of the Mediterranean and Near East	3
147	Historical geography of the Mediterranean borderlands	3

Journalism

		Credits
104	Interpretation of contemporary affairs.	3
120	International communications and the foreign press	3

Political Science

101	Introduction to political theory	3
118a	International law: law of peace	3
*21 or *121	Foundations of international relations (or I.L.S. 24, The world scene).	3
123	Conduct of U. S. foreign policy	3
128	Continental European politics	3
137	International organization: world co-operation in the U.N.	3

Social Studies

159	Current problems in American foreign policy	3

Sociology and Anthropology

134	Social psychology of democratic and totalitarian societies	3
186	European social structure: South and West	3

SAMPLE PROGRAM FOR STUDENTS WHO OFFER TWO UNITS OF HIGH-SCHOOL FRENCH

(Other equally acceptable programs could be worked out.)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
French 10a	3–4	French 10b	3–4
English 1a	3	English 1b	3
History 2a	3	History 2b	3
Mathematics or Science	4–5	Mathematics or Science	4–5
Freshman Forum	1	Freshman Forum	1
Physical Education	0	Physical Education	0
Military Training	0	Military Training	0
	14–16		14–16

SOPHOMORE YEAR

French 22a	3	French 22b	3
French 25a or 124	2	French 25b or 124	2
Science or Mathematics	4–5	English 33b	3
English 33a	3	Economics 1a	4
Political Science 7	3	Second foreign language	4
Physical Education (women only)	0	Physical Education (women only)	0
Military Training	0	Military Training	0
	15–16		16

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

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
French 120	2–3	French 120	2–3
Second foreign language	4	Second foreign language	3–4
History 4a	3	History 4b	3
Political Science 121	3	Political Science 137	3
Economics 105	3	Geography 7	3
	15–16		14–16

SENIOR YEAR

French 150	2	French 150	2
History 136	3	History 136	3
Economics 156	3	Economics 144	3
Political Science 128	3	Geography 101	3
Second foreign language	3–0	Electives	4–5
Electives	2–5		
	16		15–16

MEDICAL SCIENCE

A major in Medical Science is authorized for students in the General Course who satisfy the requirements as detailed on page 83.

MAJOR IN THE BIOLOGICAL ASPECTS OF CONSERVATION

This major is designed to provide (a) a knowledge of the importance to man of biological resources, (b) an understanding of some of the relationships of these various resources to one another, (c) training in the natural sciences dealing with these resources, and (d) an appreciation of the esthetic and recreational values and possibilities attached to these resources. While this major will not train professionals in any phase of conservation, it will be training for subprofessionals such as biological aides, wardens, ranger naturalists, museum workers, etc., and will prepare for graduate work in certain phases of conservation. If taken in the School of Education, it will be preparation for teaching in biology and general science. It should also be useful as a cultural course and training for citizenship. Students interested in this major should consult with Professor John W. Thomson, 209 Birge Hall. Mathematical preparation is required.

1. Required courses, 25–32 credits as follows:
   Botany 1 or 17—5 or 3 credits
   Zoology 1 or 17—5 or 3 credits
   Geology 1 or 17—5 or 3 credits
   or Geography 2b or 17—5 or 4 credits
   Chemistry 1a—General chemistry, 5 credits
   Botany 160—Flora of Wisconsin and its conservation, 3 credits
   Zoology 124—Conservation of aquatic resources, 2 credits
   or Zoology 126—Field zoology, 3 credits
   Geography 128—Conservation of natural resources, 3 credits
   Wildlife Management 118—Wildlife ecology, 3 credits

2. Courses chosen from the following subjects, to bring the total to 50 credits—the number of credits in the 100-group of courses to total at least 25. (Subject to the rule governing election of courses outside of the college in which the student is enrolled.)

   Botany: Economic, Taxonomy, Dendrology, Identification, Ecology, Plant conservation.
   Economics: Land economics.
   Geography: Geography of Anglo-America, Geography of Wisconsin, Climatography, Mapping.
   Geology: Physiography, Soil erosion, Glacial geology, Mapping.
   Political Science: Government and natural resources, Rural local government.
   Zoology: Entomology, Ecology, Fishes, Birds, Mammals, Hydrobiology, Parasitology.

Agricultural Economics: Land economics, Agricultural economics.
Agricultural Engineering: Surveys and structures, Drainage and irrigation, Soil erosion.
Agronomy: Crop production, Pastures, Biometry.
Entomology: Farm insects, Taxonomy, Control, Ecology, Forest entomology.
Forestry: Forest products, General forestry.
Horticulture: Landscape design, Public grounds.
Rural Sociology: Rural life, Rural local government.
Soils: General survey, Soil erosion, Forest soils, Genesis and classification.
Veterinary Science: Animal body, Fur farming.
Wildlife Management: Wildlife ecology, Wildlife management.

3. At least one summer of practical experience, such as work with the soil conservation Service, the Wisconsin Conservation Department, the Fsh and Wildlife service, nature counselor at a camp, ranger naturalist, or the equivalent.

4. Attendance at the seminars in Wildlife, Limnology, and Plant Ecology is recommended.

MAJOR IN REGIONAL PLANNING

The major in Regional Planning is designed to provide a broad but integrated program of studies focusing upon problems in sub-national area planning. The emphasis is upon substantive issues and the processes of public decision-making and action concerning (a) the development and use of land and other basic resources and (b) the provision of public services closely related to land development and use.

In recent years there has been a growing awareness of serious problems of congestion, blight, and haphazard expansion of our *urban metropolitan regions*. Similarly, there is an increasingly wide recognition of complex land-use and other resource-use problems in *major regions* such as large river valleys. (The term "major regions" includes any extensive areas defined with primary reference to land-use and other resource-use problems; also states and counties or groups of counties.) In both types of regions, natural ecological factors are intricately interwoven with the human factors of population and technology, economic and governmental patterns, and fiscal and legal systems. Intelligent public action must, therefore, be based upon an improved understanding of interrelations of all these significant elements in our regional problems.

The Regional Planning sequence joins the essential values of the liberal arts program with the values of a thorough study of an important group of public problems in contemporary life. Successful completion of the requirements of this major will equip the student with the basic prerequisites for work as a junior social science analyst dealing with regional planning problems. The undergraduate major or its equivalent is also the basis for graduate work leading to a master's degree in Regional Planning.

This major in the Division of Social Studies is administered by a Divisional Committee consisting of Professors Beuscher, Clarenbach, and Ratcliff *(chairman)*. The chairman will assign one of the members of this committee, or a member of a larger associated committee on regional planning, as adviser to each student electing this major. The student will consult with his advisers, and shall, not later than the beginning of the junior year (preferably earlier), submit a program of studies for the approval of the adviser.

The student in this major will choose *one* of two sequences of required courses. Sequence A is concerned primarily with *Urban (Metropolitan) Regions,* sequence B with *Major Regions*. Credits in sequence A required courses total 53; in sequence B, 52.

1. For Sequence A and for Sequence B:

Economics 1a	General economics, 4 cr.
Economics 117	Outlines of land economics, 3 cr.
Economics 124a	Public finance (or Economics 124b), 3 cr.

Economics 142	Public utilities, 3 cr.
Economics 130	Economic statistics (or Sociology 132), 3 cr.
Political Science 112b	Constitutional law, 3 cr.
Political Science 143	Introduction to public administration, 3 cr.
Political Science 163	Local planning administration, 3 cr.
Sociology 163	Modern population problems, 3 cr.
Sociology 171	Planning and social organization, 3 cr.
Geography 132	The use and evaluation of maps, 2 cr.

2. Additional, required for Sequence A only:

Economics 179	Urban land economics, 3 cr.
Political Science 13	Municipal government, 3 cr.
Sociology 177	The modern city, 3 cr. (or Geography 129—Urban geography, 3 cr.)
Sociology 157	Methods of sociological inquiry, 3 cr.
Commerce 178	Housing and planning problems, 3 cr.
Drawing 10	Elements of drawing, 3 cr.
Civil Engineering 141	City planning, 2 cr.

3. Additional, required for Sequence B only:

Political Science 134	Rural local government, 3 cr.
Political Science 152	Government and natural resources, 3 cr.
Sociology 125	Principles of rural sociology, 3 cr.
Sociology 127	Rural community organization, 2 cr.
Sociology 128	Methods of research in rural sociology, 2 cr.
Geography 103	Geography of Anglo-America, 3 cr.
Geography 128	Conservation of natural resources, 3 cr.

SAMPLE PROGRAM FOR B.S. DEGREE CANDIDATES WITH MAJOR IN REGIONAL PLANNING

(A) URBAN (METROPOLITAN) REGIONS

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a	3	English 1b	3
(Natural science, etc., requirements)*	3–9	(Natural science, etc., requirements)*	3–9
Electives**	3–9	Drawing 10	3
		Electives**	0–6
	15		15

SOPHOMORE YEAR

English 2 or 3	3	(Sophomore literature, required)	3
(Sophomore literature, required)	3	(Natural science, etc., requirements)	0–4
(Natural science, etc., requirements)	0–5	Economics 130—Economic statistics (or Soc. 132—Introduction to social statistics)	3
Economics 1a	4	Geography 129—Urban geography (or Soc. 124—The modern city)	3
Electives	0–5	Geography 132—Use and evaluation of maps.	2
		Electives	0–4
	15		15

JUNIOR YEAR

Sociology 163—Modern population problems.	3	Economics 179—Urban land economics	3
Economics 117—Outlines of land economics..	3	Political Science 163—Local planning administration	3
Political Science 143—Introduction to public administration	3	Sociology 157—Non-statistical methods of sociological inquiry	3
Political Science 13—Municipal government..	3	Electives	6
Electives	3		
	15		15

* It is strongly recommended that at least one course in mathematics (1a or 3a) be included.

SENIOR YEAR

First Semester	Credits	Second Semester	Credits
Economics 124a—Public finance	3	Political Science 112b—Constitutional law	3
Economics 142—Public utilities	3	Commerce 178—Housing and planning problems	3
Civil Engineering 141—City planning	2	Sociology 171—Planning and social organization	3
History 121—Social development of the American people	3	Electives	6
Electives	7		
	15		15

SAMPLE PROGRAM FOR B.S. DEGREE CANDIDATES WITH MAJOR IN REGIONAL PLANNING

(B) Major Regions

FRESHMAN YEAR

English 1a	3	English 1b	3
(Natural science, etc., requirements)*	3–9	(Natural science, etc., requirements)*	3–9
Electives**	3–9	Electives**	3–9
	15		15

SOPHOMORE YEAR

English 2a	3	(Sophomore literature, required)	3
(Sophomore literature, required)	3	(Natural science, etc., requirements)	0–4
(Natural science, etc., requirements)	0–5	Economics 130—Economic statistics (or Soc. 132—Introduction to social statistics)	3
Economics 1a	4	Geography 103—Geography of Anglo-America	3
Electives	0–5	Geography 132—Use and evaluation of maps	2
		Electives	0–4
	15		15

JUNIOR YEAR

Sociology 163—Modern population problems	3	Geography 128—Conservation of natural resources	3
Economics 117—Outlines of land economics	3	Political Science 112b—Constitutional law	3
Political Science 143—Introduction to public administration	3	Political Science 163—Local planning administration	3
Sociology 125—Principles of rural sociology	3	Electives	6
Economics 142—Public utilities	3		
	15		15

SENIOR YEAR

Economics 124a—Public finance	3	Political Science 152—Government and natural resources	3
Political Science 134—Rural local government	3	Sociology 127—Rural community organization	2
Sociology 128—Methods of research in rural sociology	2	Sociology 171—Planning and social organization	3
History 122a—American economic life: the history of American agriculture	3	Electives	7
Electives	4		
	15		15

The sample programs may be appropriately modified to allow for the Intgerated Liberal Studies alternative in satisfying the basic freshman-sophomore requirements.

The College of Letters and Science requirement in United States History and Institutions must be satisfied.

Appropriate modifications may also be made if the student is a candidate for the B.A. degree instead of the B.S. degree.

** A student who must take a foreign language in order to meet the new B.S. requirement will have a reduced number of electives.

XV. TRANSFER TO THE SCHOOL OF COMMERCE

The School of Commerce is organized as an administrative unit separate from the College of Letters and Science. However, students who expect to enter the School of Commerce will register as pre-Commerce students in the College of Letters and Science during their freshman and sophomore years. In the first two years they will carry general liberal arts subjects offered by the College of Letters and Science, supplementing these subjects with Commerce 8 and 9 and Economics 1a. High-school mathematical preparation is required. At the beginning of their junior year students with a grade-point average of 2.3 will transfer to the School of Commerce and continue the appropriate course of study leading either to the degree of Bachelor of Business Administration or to the degree of Bachelor of Science (Light Building Industry). Those students who have failed to achieve the required grade-point average at this time must transfer to the B.A. or B.S. General Course.

Each of the two curricula outlined below specifies the credits required in certain fields of study and provides for a substantial number of free electives in the College of Letters and Science.

1. CURRICULM LEADING TO THE DEGREE OF BACHELOR OF BUSINESS ADMINISTRATION

The following requirements must be met by juniors seeking admission to the School of Commerce as candidates for the degree of Bachelor of Business Administration:

1. A minimum of 12 credits in English composition, English literature, American literature, or comparative literature, of which at least 6 credits must be in English composition.
2. Mathematics through Mathematics 7 or a semester in calculus for transfers from Engineering.
3. A minimum of 8 credits in laboratory science.
4. Economics 1a.
5. Commerce 8 and 9.
6. Elective credits in Letters and Science subjects.
7. Junior standing (58 credits).
8. A minimum scholastic average of 2.3 (on all work carried in first two years).

Foreign language is optional. Juniors who do not present Economics 1a, and Commerce 8 and 9 may be admitted *conditionally* to the School of Commerce, at the discretion of the dean, pending completion of these requirements.

2. CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (LIGHT BUILDING INDUSTRY)

The student in the Light Building Curriculum is admitted to the School of Commerce in his junior year as a candidate for the degree of Bachelor of Science, Light Building Industry, provided he has satisfactorily completed the following required courses:

1. Six (6) credits in English composition.
2. Agricultural Engineering 18.
3. Mathematics through Mathematics 102a or 21.
4. Physics 1b.
5. Economics 1a.
6. Elective credits in Letters and Science subjects.
7. Junior standing (58 credits).
8. A minimum scholastic average of 2.3 (on all work carried in first two years).

XVI. TRANSFER TO THE SCHOOL OF EDUCATION

Students enter the School of Education as freshmen or juniors, depending upon the majors which they plan to complete.

Students desiring to major in Art Education, Applied Art, Physical Education, Occupational Therapy, or in Community Leadership in Recreation will register in the School of Education at the beginning of the freshman year.

The elementary education program is a four-year program leading to the B.S. degree in Education. Students who are preparing to be elementary teachers will hold joint registration in the College of Letters and Science and the School of Education as freshmen and sophomores with the records being kept in the College of Letters and Science and faculty advising carried on by members of the School of Education staff. (Foreign language is *not* required for those following the B.S. basic degree requirements. Mathematics preparation *is* required. The speech proficiency requirement may be met in one of the speech-skills courses listed below or in Education 8 or in the special non-credit speech course.)

Students who plan to become teachers of academic subjects in junior and senior high school register as pre-secondary students in the College of Letters and Science during their freshman and sophomore years and meet the general requirements of the first two years of the College of Letters and Science with the exception of foreign language which is not required of those students who follow the B.S. basic degree requirements. These students are assigned advisers in the School of Education for the freshman and sophomore years, and are encouraged to consult the Counselors in the Office of the Dean of the School of Education. At the beginning of the junior year pre-education students are eligible to request transfer to the School of Education. Prior to transfer to the School of Education at the beginning of the junior year, a conference is required with one of the Counselors in the Office of the Dean of the School of Education.

All students registered in the School of Education as freshmen and sophomores and those who plan to transfer to the School of Education at the beginning of the junior year are advised to meet the speech proficiency requirement before junior standing is achieved. A student may meet this requirement either (1) by enrolling in a special non-credit speech course until such time as his proficiency is certified, or (2) by enrolling in a speech-skills course and securing certification by his instructor. If the latter method is chosen the student must notify his instructor at the beginning of the semester of his desire to be certified. Speech 1, 2, 3, 6, 7, 105, and 110 may be taken by students seeking to meet the speech proficiency requirement for the University Teachers' Certificate under Option B. If the student fails to be certified under one of these plans, he must reach the required standard through special clinic or course assignments.

Students who expect to enter the School of Education at the beginning of the junior year are advised to take at least the elementary course in as many as possible of the fields that serve as foundations of the later required courses. Such subject fields are economics, geography, physiology or zoology, psychology, and a selection from the introductory courses in the several social studies.

No student will be admitted to the School of Education unless his scholastic record is sufficiently high to indicate the probability of success in a teaching field.

XVII. TRANSFER TO THE SCHOOL OF JOURNALISM

(See School of Journalism, page 85)

XVIII. TRANSFER TO THE SCHOOL OF LAW

Students in the B.S. General Course or in any of the B.A. 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, including

those studies which normally come in the freshman and sophomore years at Wisconsin. "Three academic years of satisfactory work" means that a student must have earned 90 credits in the College of Letters and Science (subject to the provisions of Section 7), with an over-all grade-point average of 2.5. In the case of veterans, this requirement is subject to modification by the Registrar in consultation with the Dean of the Law School upon evidence of hardship in its application to a particular veteran.

Students transferring to the Law School under these provisions may credit not to exceed 30 law credits as free electives toward their B.A. or B.S. degree, provided, however, that they secure at least 30 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 Section 17).

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 even though they may have entered Wisconsin with advanced standing.

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

By availing themselves of either this section or Section 17, students may earn both the undergraduate degree and the law degree in six years. Students who do not secure their undergraduate degrees in addition to their law degrees will be at a disadvantage.

XIX. TRANSFER TO THE SCHOOL OF MEDICINE

A student in the College of Letters and Science who wishes to prepare for a career in medicine will register in the B.A. or B.S. General Course during his first two years and will plan his course with one of a group of special advisers.

At the beginning of his junior year, he will be required to select a major study in consultation with the Associate Dean of the Medical School who will serve as the student's adviser for that year. Properly qualified students will be admitted to the major in Medical Science at this time, but, because this major requires a minimum of 25 credits in closely related medical subjects, a student can complete it only if he is admitted to the Medical School. Therefore, the student should plan his program so as to include the possibility of an alternate major. He may integrate the preprofessional requirements with a major in one of several fields of study if the program of the last two years is carefully planned.

Permission to elect the Medical Science Major does not imply admission to the Medical School (such admission is the function of the appropriate committee). However, if the student qualifies for admission to the Medical School, he will be registered concurrently, during his fourth year, as a senior in the College of Letters and Science and as a freshman in the Medical School. At the end of the senior year and upon completion of the major in Medical Science, the student will be awarded the degree of Bachelor of Arts (Medical Science) or the Bachelor of Science (Medical Science).

REQUIREMENTS FOR ADMISSION TO THE SCHOOL OF MEDICINE

90 credits to include:

1. All of the general course requirements for the B.A. or B.S. degrees (see pages 42 and 45) except that of the major.

2. The following specific courses, which may have been taken either to fulfill some of the requirements of (1) or as electives:
   A. Chemistry: general chemistry, including quantitative analysis (8–10 cr.); organic chemistry, including both aliphatic and aromatic compounds (4–5 cr.); quantitative chemistry (3–4 cr.).
   B. Physics: general physics (8–10 cr.).
   C. Zoology: general zoology (5 cr.); vertebrate embryology (3–5 cr.).
   D. Mathematics: college mathematics (3–4 cr.).
   E. Origin of Greek and Latin medical terms (3 cr.). Required of candidates who have not taken two years of high-school Latin or its equivalent.

NOTE: Students are urged to choose elective credits from the fields of humanities and social studies.

Students who transfer to another medical school for the work of the senior year may secure a degree at the University of Wisconsin upon satisfaction of the following requirements: (a) Completion of at least 60 credits in the University and the work of the junior year in residence at Madison; (b) Transfer to an accredited medical school which requires a bachelor's degree for continuation, but whose regulations prevent it from granting this degree after only one year of residence; (c) Completion of one year in such an accredited medical school with a record which makes him eligible for advancement to the second year of the medical course; (d) Fulfillment of all requirements of the B.A. or B.S. degree with a major in Medical Science of the University of Wisconsin except for the requirement of residence in the senior year.

Those students who plan to complete their undergraduate degrees before attending the School of Medicine should consult with the Associate Dean of the Medical School before the beginning of their junior year concerning requirements and procedures.

XX. TRANSFER TO THE SCHOOL OF MUSIC

(See School of Music, page 90.)

XXI. TRANSFER TO THE SCHOOL OF PHARMACY

The School of Pharmacy is an independent administrative unit separate from the College of Letters and Science. However, a minimum preparation of one year of collegiate work will be required for admission to the School of Pharmacy. This pre-pharmacy work of the freshman year will normally be taken in the College of Letters and Science.

Applicants for admission to the School of Pharmacy must present a minimum grade-point average of 2.3 for all of their collegiate work. Pre-pharmacy students in the College of Letters and Science who fail to attain a grade-point average of 2.3 at the end of their first year of work may continue their registration in Letters and Science provided they have met the minimum requirements of the college. Students may not be registered in pre-pharmacy for more than four semesters and in the second year of their pre-pharmacy work they are not permitted to carry courses in the School of Pharmacy. See bulletin of the School of Pharmacy for complete details.

RECOMMENDED SUBJECTS OF THE FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman English	3	English 1b—Freshman English	3
Chemistry 1a—General chemistry	5	Chemistry 1b—General chemistry	5
Mathematics 1a, 3a or Language	4	Mathematics 1b, 3b or Language	4
Botany 17—Survey	3	Zoology 17—Survey	3
Pharmacy 1a—Orientation	1	Pharmacy 1b—Orientation	1
Physical Education	0	Physical Education	0
Military Training or Band	0	Military Training or Band	0
	16		16

XXII. SCHOOL OF JOURNALISM

RALPH O. NAFZIGER, DIRECTOR, PROFESSOR OF JOURNALISM

PURPOSE AND PLAN. The University of Wisconsin was one of the first universities to offer systematic instruction in journalism—the first course having been listed in 1905. The department became a charter member in 1916 of the organization now known as The Association of Accredited Schools and Departments of Journalism. The present organization, the School of Journalism, was established in 1927. In co-operation with the Department of Agricultural Journalism, operated separately in the adjoining College of Agriculture, the school offers a diversified journalism program.

Students may enter the School of Journalism at the beginning of their junior year. As freshmen and sophomores, they enroll in basic pre-journalism courses that determine whether or not students may transfer into the school as juniors. All but a few credits of the first two years are concerned with subjects required of all students in the College of Letters and Science.

After completing the last two years of college in the School of Journalism, students become candidates for one of two degrees. The Bachelor of Arts (Journalism) is the older degree, and is awarded to those who have completed language requirements prescribed by the College of Letters and Science. In the Bachelor of Science (Journalism) degree an extra semester of English composition is required, and only two semesters of a foreign language.

GRADUATE DEGREES. The school also confers the degrees of Master of Arts (Journalism) and Master of Science (Journalism) upon graduate students meeting the requirements (see Graduate School bulletin). The school has worked out a plan for obtaining the Ph.D. in allied fields with a "double minor" in journalism, or with journalism as one of several fields in an inter-disciplinary program in mass communication under the supervision of a Graduate School committee.

ADVISERS. Journalism faculty members act as advisers of all students in the school, including freshmen and sophomores who should inform the Registrar in advance that they plan to enter the School of Journalism.

Of the 124 credits required for graduation from the University, 94 are in subjects outside of the journalism curriculum. Up to 45 of these credits are in the social studies—economics, cultural geography, history, philosophy, psychology, political science, sociology—or in English. Of the 30 credits required in journalism, a large proportion are in non-technical subjects (law, history, public opinion, communications and society). Education for journalism is conceived to involve a general and liberal education and an understanding of the relationship of the press and society, as well as training in enough technical courses to qualify students as good craftsmen for journalistic positions immediately after graduation. The record of alumni throughout the world is believed by the staff of the school to demonstrate that such technical and general education is well balanced.

The scope of journalism teaching is indicated in the list of courses on page 168. Additional information may be obtained by writing to the Director, 200 Journalism Hall, Madison 6, Wisconsin.

ORGANIZATIONS AND PRACTICAL EXPERIENCE

Students preparing for journalism are given regular news assignments in Madison. The editors of a number of Wisconsin daily and weekly papers meet and share their experiences with the students. Places on the editorial and business staffs of student publications are open to journalism students. The *Daily Cardinal* is owned and managed by students interested in journalism. The *Octopus,* a humorous periodical, and the *Badger,* university annual, offer a variety of experience in journalism. The *Wisconsin Engineer,* a monthly published by the students of the College of Engineering, and the *Wisconsin Country Magazine,* a monthly edited by the agricultural students, furnish practice in technical

journalism. Students in radio and TV news courses assist in the preparation of programs for WHA and WHA-TV.

All students preparing for journalism are required to learn typewriting before or soon after entering the University.

The school aids graduates in obtaining positions in newspaper, magazine, trade journal, publicity, radio news, and advertising work, and in school or college teaching.

SCHOLARSHIPS AND LOANS

Several scholarships for undergraduate students in the School of Journalism are awarded annually. These include the Elsie Bullard Morrison awards, a $250 scholarship for a junior woman student, a $250 scholarship for a junior man student, a $100 prize for a major in journalism. The Esther Rose Goodman award of $50 is made annually to a journalism student for excellence in news reporting. The Joseph C. Harsch-Alfred I. duPont Award Foundation scholarship of $250 for graduate study by a radio newsman is also available to eligible journalism seniors or graduates. Sigma Delta Chi, professional journalism fraternity, annually recognizes the outstanding male graduate in journalism and makes several scholarship awards to journalism students who rank high in scholarship. Theta Sigma Phi, honorary and professional journalism sorority, annually makes awards to an outstanding junior and an outstanding senior woman in journalism. Journalism students are also eligible for loans from a special fund for journalism students and for various university-wide loan funds and scholarship awards.

REQUIREMENTS FOR ADMISSIONS

For admission to this school, students must be eligible for junior standing in the College of Letters and Science. They must also have a minimum grade-point average of 2.3 in all work carried up to the time that application for admission is made. Students must have completed Journalism 2 (Journalism 2a and Commerce 112 for students electing the advertising sequence) and must present to the School of Journalism a scholastic record in general which indicates a probability of success in some field of journalism.

Students entering the University as freshmen or sophomores must complete the studies required in the first two years of the B.A. or B.S. General Courses (see Sections 22 and 25) and are strongly advised to carry, during these two years, such courses, prerequisite to the advanced courses of the School of Journalism, as are open to freshmen and sophomores. As far as possible students should carry the following courses during the freshman and sophomore years:

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Journalism 1—General survey	1	English 1b—Freshman English	3
English 1a—Freshman English	3	Foreign language	3–4
Foreign language	3–4	Sociology-Anthropology 1a (or elective)	3
Political Science 7a	3	Science	5–6
Science	5–6	Physical Education	0
Physical Education	0	Military Training	0
Military Training	0		
	15–16		14–15

SOPHOMORE YEAR

Journalism 2a—Newspaper reporting	3	Journalism 2b or Commerce 112 for advertising students	3
English 30a, 32a, 33a, or 40a	3	English 30b, 32b, 33b, or 40b	3
Foreign language or History elective	3	Foreign language or History elective	3
English 2 or 3 (for B.S.)	3	Psych. 1—Introductory psychology (or elective)	4
Economics 1a—General economics	4	Economics 1b—General economics	4
Physical Education (women only)	0	Physical Education (women only)	0
Military Training	0	Military Training	0
	16		17

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. or B.S. General Courses of the College of Letters and Science, in order to be admitted to the School of Journalism. To complete the requirements for graduation from the School of Journalism in two years, they should present most of the subjects listed above for the first two years at the University (excepting the credits in journalism). Students from other institutions should send certified copies of their preparatory school and academic records to the Office of Admissions, Advanced Standing, Bascom Hall, before coming to the University.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ARTS (JOURNALISM) OR BACHELOR OF SCIENCE (JOURNALISM)

(1) A total of 124 credits. (2) Completion of either the B.A. or B.S. General Course requirements, including a minimum of 30 and a maximum of 42 credits in journalism subjects, as specified by the department, to satisfy the requirement for the major. (3) Economics 1a and 1b, Political Science 7a, Psychology 1 or Sociology-Anthropology 1a, and 15 credits in advanced social studies as indicated below. At least 6 of these must be in the field of recent American History. The College of Letters and Science requirement in United States History and Institutions must be satisfied.

The required journalism subjects, except in the journalism-advertising sequence, are: Journalism 2 (6 cr.); Journalism 3 (4 cr.); Journalism 4 (2 cr.); Journalism 109 (2 cr.); Journalism 110 (3 cr.); Journalism 111 (3 cr.); and at least one among the following courses: Journalism 105a (3 cr.); Journalism 112 (2 cr.); Journalism 113 (3 cr.). Journalism 1 does not count toward the minimum of 30 credits required in the major, but does count toward the 124 university credits. Students in the journalism-advertising group may include Commerce 112 and Commerce 116 in the required 30 credits in journalism.

Required subjects in the journalism-advertising sequence are: Journalism 2a (3 cr.); Journalism 3 (4 cr.); Journalism 4 (2 cr.); Journalism 5 (2 cr.); Journalism 109 (2 cr.); Journalism 111 (3 cr.); Commerce 112 (3 cr.); Journalism 115 (3 cr.); Journalism 141 (3 cr.); and at least two chosen from the following courses: Journalism 108 (2 cr.); Commerce 116 (3 cr.); Journalism 117 (2 cr.); Journalism 118 (3 cr.); Journalism 126 (3 cr.); Journalism 142 (3 cr.). A course in statistics, like Commerce 31 or Sociology 32, is strongly recommended.

The student's point-credit ratio in courses in journalism and advertising must not be less than 2.5, and in other courses not less than 2.0. Those students in the School of Journalism who fail to maintain the grade-point requirements will be advised to withdraw. Students who are deficient in English composition will be recommended for special guidance and tests, and possibly for non-credit remedial work in accordance with faculty legislation.

For journalism students the languages which may be offered include Latin, Greek, French, Italian, Norse, Spanish, Russian, and German (other foreign languages only by permission of the Director).

Upper-group seniors (who have a point-credit ratio over 2.5 in all studies) have the privilege of writing a thesis (4 credits).

In addition to the introductory courses in the social sciences required in the freshman and sophomore years (Psychology 1 or Sociology 1a, Political Science 7a, and Economics 1a and 1b), at least 15 credits, including 6 credits in American history, must be elected from *advanced courses* in at least three of the following groups: history, political science, economics, sociology, psychology, philosophy, geography, contemporary trends. Advanced courses in the social sciences are those numbered over 100.

SPECIAL AREAS OF STUDY

The major in Journalism may be combined also with various area studies which have been developed within the college. The major in American Institutions which is designed

for students who wish to make an integrated study of American culture is an example. (See page 61.) The two-year program of Integrated Liberal Studies, following a prescribed schedule of courses and designed to give a broad basic education, is open to a limited number of entering freshmen. (See page 48.) Students in this program who propose to enter the School of Journalism should elect Journalism 2 and Psychology 1 or Sociology 1a.

A combined program of Naval Science and Journalism requires for garduation 130 credits and 130 grade-points.

SPECIAL JOURNALISM FIELDS

Students are expected to pursue at least one of several special fields: 1. Daily newspaper, 2. Community newspaper, 3. Journalism-advertising and Business management, 4. Journalism-magazine, 5. Journalism teachers, 6. Journalism-radio, 7. Public relations, 8. Communications media and Public opinion. (For sequences in Agricultural and Home Economics journalism see the bulletin of the College of Agriculture.)

Further explanation of optional areas of specialized study follows:

DAILY NEWSPAPER

Reporting, editing, press association, and other editorial work. This sequence normally attracts a considerable proportion of the journalism majors. Electives may be selected from among such courses as Journalism 104, 105a, 112, 113, 114, 120, 128.

JOURNALISM MAGAZINE

In addition to the required journalism courses, the magazine sequence normally includes courses such as Journalism 105a, 105b, 106, 117.

ADVERTISING

Students may prepare for advertising positions by combining courses in journalism with those in advertising. The normal arrangement of those courses is indicated in the Journalism-Advertising field.

COMMUNITY JOURNALISM

Because of the growing opportunities in community journalism, including the 9,000 country and suburban weekly newspapers, special training is outlined in the Community Newspaper Group. "Back shop" laboratory work on the linotype, stereotyping, presses, cost accounting, and job estimating is provided at the Campus Publishing plant for Journalism 107.

JOURNALISM-RADIO

For specialization in radio and TV news and other radio work, journalism majors usually elect such courses as Journalism 118, 122a and 122b, Speech 7, 110, 115, 116, 117, 160, 161, Education 163, 166b, and Music 125.

JOURNALISM TEACHERS

Candidates for the University Teachers' Certificate must register in the School of Education as well as in the School of Journalism in the junior year. They should take one minor in English and substitute a second minor in one social science for the required 15 credits of advanced social science. (See page 82.) Through a co-operative arrangement with the School of Education, students who wish to prepare for the supervision of journalism classes, student publications, and public relations in high school, may obtain the University Teachers' Certificate, along with the B.A. or B.S. (Journalism). A minor in English is also required for these students. A minor in journalism for Education students requires a minimum of 15 credits including Journalism 2a, 3, 4, 191.

PUBLIC RELATIONS

A suggested selection of courses in journalism and elsewhere to train graduates for publicity, public relations, house organs, and company magazines. Journalism 114, 117, 125, 128, 196 and Agricultural Journalism 103 are normally elected. The scope includes educational, governmental, military, and industrial public relations.

TECHNICAL JOURNALISM AND HOUSE PUBLICATIONS

Special work is offered for students interested in technical and business journalism, house publications, company magazines, and other specialized periodicals. The courses in newspaper and magazine work may be elected by students in other colleges and schools. Subject to special provisions (see page 39), students in the School of Journalism may elect courses in the College of Engineering, the Law School, the School of Education, and the College of Agriculture including Home Economics. Thus by combining studies, students may prepare for practically all lines of technical and business journalism. Journalism 105b and 117 are especially designed for such students.

AGRICULTURAL JOURNALISM

The School of Journalism and the Department of Agricultural Journalism offer courses to supplement each other. See the bulletin of the College of Agriculture.

COMMUNICATIONS MEDIA AND PUBLIC OPINION

A sequence emphasizing courses such as Journalism 114, Communications media and public opinion; 111, Newspaper and society; 128, Communication media analysis; 125, Public relations; 122, Radio and TV news; Journalism 194, Introduction to public opinion research; Speech 115, 116, 160, 161; Education 163, 166b, a course in statistical method, and supporting work in the social studies.

XXIII. LIBRARY SCHOOL

RACHEL K. SCHENK, DIRECTOR, ASSOCIATE PROFESSOR OF LIBRARY SCIENCE

The Library School is a professional school offering a program of training in librarianship to both men and women. This training is given in residence only, as an independent course to those who qualify for admission. Upon successful completion of the full course of study, students will be awarded either the degree of Master of Arts or Master of Science in Library Science. The School also offers certain undergraduate courses to meet preprofessional requirements for the graduate program and to meet certification requirements for both public and school libraries in Wisconsin.

UNDERGRADUATE PREPARATION. Undergraduates in college who are planning to enter the Library School on the completion of their college work are advised to select courses in literature, modern and classical languages, history, social sciences, psychology, philosophy, and education, science, speech and history of art. Recently many positions are available for students who have a background in certain of the sciences, such as chemistry, physics and biology, and in business administration and law.

The prospective Library School student should also elect the 8 preprofessional credits in Library Science during his junior and senior years. Students in the College of Letters and Science may take courses 72 and 73 for credit without special permission, but courses 71 and 74 fall under the Twenty-Credits Rule and are subject to the regulations governing the election of courses outside the college. These four courses will be offered each summer session for students who seek admission to the graduate program and have not been able to take them in the regular school year.

UNDERGRADUATE MINOR IN THE SCHOOL OF EDUCATION. Students in the School of Education may taken a minor in Library Science by completing 15 credits in Library Science including courses 71, 72, 73, 142, 144, and 191. The purpose of this minor is to prepare students

for teacher-librarian positions and to meet the licensing requirement for teacher-librarians in the state of Wisconsin.

RECOMMENDED PRELIMINARY PRACTICE. Some practice in a library is desirable before entering the Library School. Such experience tests a candidate's aptitude for and interest in library work, and gives a knowledge of library terminology and familiarity with library processes. Facility in the use of a typewriter is required in the School as in a modern library.

STUDENT EXPENSE. Library School students are required to pay the regular university fees. Textbooks and other materials will average $30 for the full year.

FELLOWSHIPS AND SCHOLARSHIPS. In addition to the fellowships, scholarships and assistantships described in the bulletin of the Graduate School, special scholarships are available for ships described in the bulletin of the Graduate School, two special scholarships are available for Library School students. The Alumni Association of the School annually offers the Mary Emogene Hazeltine Scholarships, amounting to one hundred eighty dollars each. Application in the form of a letter should be made to the Director before May 1 of the scholastic year preceding that for which appointment is desired.

APPOINTMENTS TO POSITIONS. Since the war there has been a severe shortage of trained librarians. It seems unlikely that this situation will change in the near future. While the School does not promise to place its graduates, it assumes the work of recommendation and placement through its correspondence with library authorities in the state and throughout the country, and is generally successful in placing graduates in suitable positions. This placement service is also available to alumni of the School who desire change in positions.

To hold a full-time public library position in Wisconsin a certificate is required by state law. Graduation from the Library School meets one of the requirements for a Grade 1 certificate, namely "a one-year course in an accredited library school."

REQUIREMENTS FOR ADMISSION. The general requirements for admission to the Graduate School must be met (see bulletin of the Graduate School). In addition the student must have the equivalent of a bachelor's degree in one of the general courses of the University of Wisconsin including Library Science 71, 72, 73 and 74. He must also have a reading knowledge of a foreign language (see Section 11, page 37).

Two application forms are necessary, both of which may be secured from the Director of the Library School. The one for the Graduate School should be sent to the Dean of the Graduate School, as should transcripts of all undergraduate and graduate work. An *official transcript* from *each* school attended is necessary. The other form should be returned at the same time to the Director of the Library School, 811 State Street, Madison 5. When possible it is desirable to file application by May 15 for the ensuing academic year. This is especially necessary when the candidate is planning to take the preprofessional courses in a summer session. Early application is advised, as the number of graduate students that can be accepted is limited to forty and each application will be carefully scrutinized.

XXIV. SCHOOL OF MUSIC

SAMUEL T. BURNS, CHAIRMAN, PROFESSOR OF MUSIC AND EDUCATION

The School of Music offers three programs of study or majors leading to the Bachelor of Music degree:

1. The Applied Music major prepares the student for musical performance and studio teaching.
2. The Music History and Theory major prepares the student for specialization in composition and arranging or in music history and literature.
3. The School Music major prepares the student for teaching music in the schools.

Provision in this major is made for emphasis in either the instrumental or the vocal field.

Opportunity is also provided for students who are working for the Bachelor of Arts degree to complete a music major or a music teaching minor, and special courses in music are provided for students who major in Occupational Therapy or in Community Leadership in Recreation.

Detail regarding these various plans for study is given in the following pages or sections.

ADMISSION TO PROGRAMS OF MUSIC STUDY

All students desiring to work for either a major or minor in music are given auditions at the time of first registration in the School of Music to determine their musical background and to give some idea of their natural musical talent. The information secured in these auditions is used by advisers in helping the students plan their work. Following are the types of information sought in these auditions:

1. The student's natural musical "ear" and rhythmic sense.
2. His knowledge of music theory: key signatures, scales, intervals, chords, note values, musical terms, etc.
3. His ability as a performer on an instrument or using his voice.
4. His ability to read music, using an instrument and using the voice alone.

The auditions are given by the Theory Assignment Committee and the Applied Music Assignment Committee. At the time of registration new students are given appointments with these committees, who on the basis of the auditions make recommendations regarding enrollment in specific classes. The student then completes his enrollment.

TRANSFERS to the School of Music from other departments of the University or from other colleges follow the same procedure as new students, i.e., appearing before the Theory Assignment Committee and the Applied Music Assignment Committee for recommendations regarding courses in which they wish to enroll.

ASSIGNMENT TO ADVISERS. Freshman students entering the Bachelor of Music program are assigned to advisers by the Office of Admissions. These advisers usually serve the student throughout his first and second years of study. Third- and fourth-year students and transfers are assigned advisers by the School of Music, the adviser being determined by the student's field of specialization.

REQUIREMENTS FOR THE BACHELOR OF MUSIC DEGREE

GENERAL REQUIREMENTS

Students in all majors take certain fundamental courses during the first and second years of study. These courses stress aspects of music which every musician must master: wide knowledge of music history and literature (courses 20, 30, 40); understanding of music's structure, and skill in analyzing, harmonizing and writing music (courses 11, 21).

All students also take courses designed to help them become competent performers of music in some one of the following media: piano (courses 61, 71, 81, 91), voice (62, 72, 82, 92), a string or wind instrument (63, 73, 83, 93) or organ (64, 74, 84, 94). It is expected also that all students maintain membership in one or more of the musical organizations.

At the end of the second year, if the record during the first two years has been satisfactory (minimum acceptable grade-point average, 2.6), the student makes final selection of his major. Thereafter, the work is more specialized in the direction of the professional field chosen.

All students receiving degrees must meet the university requirement in United States History and Institutions (see page 45).

All Bachelor of Music degrees require a minimum of 130 credits and 260 grade-points (i.e., an average of *C*), the distribution to be in accord with the recommended sequences on the following pages.

SPECIAL REQUIREMENTS FOR VARIOUS MAJORS

Major in Applied Music:

This major requires 84 credits in music and 46 credits in Letters and Science. The music credits must include applied music at the fourth-year level, i.e., completion of one of the following: Music 91, 92, 93, 94, and presentation of a senior recital. All majors in Applied Music, irrespective of the specialization, are also expected to attain certain proficiency in piano. This minimum for voice majors is completion of Music 61b, First-year piano. For students whose specialization in applied music is a string or wind instrument, proficiency on piano to the level of Music 55b is required.

The Letters and Science credits must include 6 credits of English, 6 of history, and an additional 6 credits of either history or English. This major also includes the foreign language requirements as outlined below or on page 43. Other Letters and Science courses beyond those specifically required are elective.

Expected Beginning Level in Performance:

It is expected that students majoring in Applied Music will have had considerable experience in performance before coming to the University. Students electing the Applied Music major who are not sufficiently advanced will be accepted for the major tentatively and permitted to make up the deficiency. This "make-up" work may demand that the student lengthen his period of study by an extra semester or by attendance at one or more summer sessions, the length of time to be determined by his progress. The expected beginning levels for each applied music major field are as follows:

Piano. Ability to play music of the level of difficulty of the following: 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; the ability to read at sight hymn tunes and simple accompaniments.

Voice. The student must be able to read simple music and must have had training equal to the first half of Concone, with the usual technical study for the same period. It is expected also that the natural quality of the voice is good.

String and Wind Instruments. A candidate should be well grounded in the fundamentals of performance on his instrument, should be able to read works of moderate difficulty and should show promise of developing into a performer of professional calibre.

Organ. No previous experience in organ playing is required but it is expected that a student planning to specialize in organ will have a satisfactory technique on the piano.

MAJOR IN APPLIED MUSIC: RECOMMENDED SEQUENCE FOR DEGREE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Music 11a—First-year theory	4	Music 11b—First-year theory	4
Music 20a—Appreciation and history of music	2	Music 20b—Appreciation and history of music	2
Applied Music	3	Applied Music	3
Music 85, 86, 87	1	Music 85, 86, 87	1
English 1a	3	English 1b	3
Foreign language	4	Foreign language	4
Physical Education	0	Physical Education	0
Military Training	0	Military Training	0
	17		17

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
Music 21a—Second-year theory	4	Music 21b—Second-year theory	4
Music 30a—Music in the Baroque era	2	Music 30b—Music in the Classic era	2
Applied Music	3	Applied Music	3
Music 85, 86, 87	1	Music 85, 86, 87	1
Foreign language	3	Foreign language	3
English or history	3	English or history	3
Physical Education (women only)	0	Physical Education (women only)	0
Military Training	0	Military Training	0
	16		16

JUNIOR YEAR

Music 9a—Chamber music in performance	1	Music 9b—Chamber music in performance	1
Music 31a—Third-year theory	3	Music 31b—Third-year theory	3
Music 40a—Music in the Romantic era	2	Music 40b—Music in the post-Romantic era.	2
Applied Music	3	Applied Music	3
Music 85, 86, 87	1	Music 85, 86, 87	1
Music 95a—Ensemble	2	Music 95b—Ensemble	2
History	3	History	3
L & S electives	2	L & S electives	2
	17		17

SENIOR YEAR

Music 85, 86, 87	1	Music 85, 86, 87	1
Applied Music	3	Applied Music	3
Music 96—Applied technics	2	Music 97—Applied repertoire	2
Music—Secondary applied	2	Music—Secondary applied	2
Music electives	2	Music electives	2
L & S electives	5	L & S electives	5
	15		15

Major in Music History and Theory:

This major requires 84 credits in music and 46 credits in Letters and Science. The courses in music must include piano through the 61b level. The courses in Letters and Science must include 6 credits in English, 6 in history. This major also includes the foreign language requirement (see page 43).

MAJOR IN HISTORY AND THEORY: RECOMMENDED SEQUENCE FOR DEGREE

FRESHMAN YEAR

Music 11a—First-year theory	4	Music 11b—First-year theory	4
Music 20a—Appreciation and history of music	2	Music 20b—Appreciation and history of music	2
Applied Music	2	Applied Music	2
Music 85, 86, 87	1	Music 85, 86, 87	1
English 1a	3	English 1b	3
Foreign language	4	Foreign language	4
Physical Education	0	Physical Education	0
Military Training	0	Military Training	0
	16		16

SOPHOMORE YEAR

Music 21a—Second-year theory	4	Music 21b—Second-year theory	4
Music 30a—Music in the Baroque era	2	Music 30b—Music in the Classic era	2
Music 65a or 75a	2	Music 65b or 75b	2
Applied Music	2	Applied Music	2
Music 85, 86, 87	1	Music 85, 86, 87	1
Foreign language	3	Foreign language	3
L & S electives	3	L & S electives	3
Physical Education (women only)	0	Physical Education (women only)	0
Military Training	0	Military Training	0
	17		17

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
Music 9a—Chamber music in performance	1	Music 9b—Chamber music in performance	1
Music 31a—Third-year theory	3	Music 31b—Third-year theory	3
Music 40a—Music in the Romantic era	2	Music 40b—Music in the post-Romantic era	2
Music—Secondary applied	2	Music—Secondary applied	2
Music 76a—Conducting	2	Music 76b—Conducting	2
Music 85, 86, 87	1	Music 85, 86, 87	1
History	3	History	3
L & S electives	2	L & S electives	2
	16		16

SENIOR YEAR

Music 34a—Arranging	2	Music 34b—Arranging	2
Music 85, 86, 87	1	Music 85, 86, 87	1
Music 141a—Modern contrapuntal technics	3	Music 141b—Modern contrapuntal technics	3
Music 150—Proseminar	2	Music 150—Proseminar	2
Music 162a—Composition	3	Music 162b—Composition	3
L & S electives	5	L & S electives	5
	16		16

THE FOREIGN LANGUAGE REQUIREMENT:

This requirement, indicated for majors in Applied Music and in History and Theory, may be satisfied in one of three ways:

(1) by meeting the language requirements of the B.A. degree;*

(2) by passing an intermediate examination in French, German, Italian or Spanish;

(3) by securing in high school and/or college the equivalent of 14 credits in French, German, Italian, or Spanish.

In special cases, with approval of the faculty of the School of Music, any language accepted by the College of Letters and Science for the B.A. degree may be used to satisfy the foreign language requirement of the B.M. degree.

MAJOR IN SCHOOL MUSIC:

The major in School Music Vocal Emphasis requires 70 credits in music, 32 in Letters and Science, 19 in education, with 9 credits elective. In the Instrumental Emphasis, the distribution is 72 hours in music, 32 in Letters and Science, 19 in education, with 7 elective. The courses comprising these credit hours are listed in the sequences below. This major also demands meeting the qualifications for the University Teachers' Certificate (see page 41), participation in various musical organizations, and the attainment of specified levels in applied music. These special requirements are outlined in the following sections.

UNIVERSITY TEACHERS' CERTIFICATE:

This certificate qualifies the candidate for a license to teach music in the elementary and secondary schools of Wisconsin and many other states. It is awarded by the School of Education on completion of certain professional education courses (as listed in the sequences following) and on recommendation of the School of Music indicating that the student (1) has achieved sufficient competence in music to enable him to meet the problems of music teaching in the schools; (2) that he is schooled in methods of subject-matter presentation and group management; (3) that he shows personal qualities giving promise of success as a leader in music activities. The student must also meet the speech proficiency requirement as prescribed by the School of Education,** and must complete a teaching minor in an academic field, i.e., 15 credits in some one subject other than music.

The Bachelor of Music degree in School Music is not awarded unless the student meets the requirements for the University Teachers' Certificate and vice versa.

---

* These may be met:
  a. by attainment examination;
  b. by accumulation of credits;
  c. by a combination of these two methods.

** See School of Education bulletin, dated 1953-1955, pages 19 and 20.

PARTICIPATION REQUIREMENTS IN THE SCHOOL MUSIC MAJOR:

All students majoring in School Music are expected to be members of choral and instrumental performing groups (Band, Orchestra, and Chorus) throughout the four years of the course. In the vocal emphasis, these participation requirements are:

1. Not less than three years in choral groups.
2. One year in either Band or Orchestra.

In the instrumental emphasis the requirements are:

1. Not less than two years in Band plus one year in Orchestra, or not less than two years in Orchestra plus one year in Band.
2. One year in a choral organization.

ATTAINMENT REQUIREMENTS IN THE SCHOOL MUSIC MAJOR:

School Music majors are expected to achieve certain minimum levels of proficiency in individual performance. Students with reasonably good background at the time of entrance to the University can achieve these levels within the four years of the course. Students lacking such background should plan to devote extra time in order to achieve the indicated proficiency. Following are the minimum attainment requirements for majors in School Music in each of the two emphases:*

Vocal emphasis

1. Music 72b (fourth-semester voice)
2. Music 61b (second-semester pianoforte)

Instrumental emphasis

1. Music 73b (fourth-semester string or wind instrument)
2. Music 55b (Elementary pianoforte—fourth semester)

MAJOR IN SCHOOL MUSIC—VOCAL

RECOMMENDED SEQUENCE FOR DEGREE AND CERTIFICATE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Music 11a—First-year theory	4	Music 11b—First-year theory	4
Music 20a—Appreciation and history of music	2	Music 20b—Appreciation and history of music	2
Applied Music	2	Applied Music	2
Music 85, 86, 87	1	Music 85, 86, 87	1
English 1a	3	English 1b	3
L & S electives	4	L & S electives	4
Physical Education	0	Physical Education	0
Military Training	0	Military Training	0
	16		16

SOPHOMORE YEAR

Music 21a—Second-year theory	4	Music 21b—Second-year theory	4
Music 30a—Music in the Baroque era	2	Music 30b—Music in the Classic era	2
Music 65a or 75a	2	Music 65b or 75b	2
Applied Music	2	Applied Music	2
Music 85, 86, 87	1	Music 85, 86, 87	1
English	3	English	3
L & S electives	3	Speech 1a	3
Physical Education (women only)	0	Physical Education (women only)	0
Military Training	0	Military Training	0
	17		

* Students whose degree of advancement enables them to meet the indicated proficiency levels in applied music without enrolling in the courses prescribed, may elect other music courses in lieu of the courses indicating proficiency levels.

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
Music 9a—Chamber music in performance	1	Music 9b—Chamber music in performance	1
Music 38—Vocal technic and song literature	2	Music 40b—Music in the post-Romantic era	2
Music 40a—Music in the Romantic era	2	Music 76b—Conducting	2
Music 76a—Conducting	2	Applied Music	2
Applied Music	2	Music 85, 86, 87	1
Music 85, 86, 87	1	Education 75—The nature and direction of learning	5
Education 73—The child: his nature and his needs	3	L & S electives	3
Education 74—The school and society	3		
	16		16

SENIOR YEAR

Music 34a—Arranging	2	Music 34b—Arranging	2
Music 85, 86, 87	1	Music 85, 86, 87	1
Applied Music	2	Applied Music	2
Education 4—Music education for elementary schools	4	Music 138	2
Electives	7	Education 5—Music education for secondary schools	4
		L & S electives	3
		Electives	2
	16		16

MAJOR IN SCHOOL MUSIC—INSTRUMENTAL

RECOMMENDED SEQUENCE FOR DEGREE AND CERTIFICATE

FRESHMAN YEAR

Music 11a—First-year theory	4	Music 11b—First-year theory	4
Music 20a—Appreciation and history of music	2	Music 20b—Appreciation and history of music	2
Applied Music	2	Applied Music	2
Music 85, 86, 87	1	Music 85, 86, 87	1
English 1a	3	English 1b	3
L & S electives	4	L & S electives	4
Physical Education	0	Physical Education	0
Military Training	0	Military Training	0
	16		16

SOPHOMORE YEAR

Music 21a—Second-year theory	4	Music 21b—Second-year theory	4
Music 30a—Music in the Baroque era	2	Music 30b—Music in the Classic era	2
Music 65a—Instrumental technics	2	Music 65b—Instrumental technics	2
Applied Music	2	Applied Music	2
Music 85, 86, 87	1	Music 85, 86, 87	1
English	3	English	3
Speech 1a	3	L & S electives	3
Physical Education (women only)	0	Physical Education (women only)	0
Military Training	0	Military Training	0
	17		17

JUNIOR YEAR

Music 38—Vocal technic and song literature	2	Music 40b—Music in the post-Romantic era	2
Music 40a—Music in the Romantic era	2	Music 75b—Instrumental technics	2
Music 75a—Instrumental technics	2	Music 76b—Conducting	2
Music 76a—Conducting	2	Applied Music	2
Applied Music	2	Music 85, 86, 87	1
Music 85, 86, 87	1	Education 75—The nature and direction of learning	5
Education 73—The child: his nature and his needs	3	L & S electives	3
Education 74—The school and society	3		
	17		17

SENIOR YEAR

Music 9a—Chamber music in performance	1	Music 9b—Chamber music in performance	1
Music 34a—Arranging	2	Music 34b—Arranging	2
Music 85, 86, 87	1	Music 85, 86, 87	1
Applied Music	2	Applied Music	2
Education 4—Music education for elementary schools	4	Education 5—Music education for secondary schools	4
L & S electives	3	Electives	5
Electives	2		
	15		15

MAJOR IN APPLIED MUSIC OR HISTORY AND THEORY COMBINED WITH SCHOOL MUSIC AND THE UNIVERSITY TEACHERS' CERTIFICATE

Students whose major is Applied Music or History and Theory, who wish to combine high competence in these fields with preparation for teaching music in the elementary or secondary schools, may add to the requirements for their majors the professional courses prescribed for the School Music major and thus receive the B.M. degree with a double major, including the University Teachers' Certificate. Such a program will demand more than the four years prescribed for the B.M. degree with one major. The necessary extra time may be given either by attendance during a fifth year, or by attendance at summer sessions during the usual four years of study. Special supplementary material showing how the various double majors may be worked out either by the extra-year plan or by summer session attendance will be supplied by the School of Music on request.

TEACHING MINOR IN SCHOOL MUSIC

Students who qualify for the University Teachers' Certificate with some major other than music, may elect music as one of their minor teaching subjects. This minor includes 22 credits in music, plus 4 in methods of teaching music. The expected music credits are the following: 8 credits of music theory, 2 credits of conducting (76a), 4 credits of instrumental techniques (65 or 75) or 4 credits of voice (62), 6 credits in music organizations (85, 86, or 87), 2 credits elective. The courses in methods of teaching music are Education 4, Music education for elementary schools, and Education 5, Music education for secondary schools, 2 credits each.

Requirements for the Bachelor of Arts Degree with a Major in Music:

The requirement for a major in Music in the Bachelor of Arts General Course may be satisfied by completion of from 32 to 40 credits in music as prescribed by the School of Music. From 4 to 10 credits must be in applied music. The following sequence is suggested:

Music 9—Chamber music in performance	2 credits
Music Theory	8 credits
Music 20—History and appreciation	4 credits
Music 30a—Music in the Baroque era	2 credits
Music 30b—Music in the Classic era	2 credits
Music 40a—Music in the Romantic era	2 credits
Music 40b—Music in the post-Romantic era	2 credits
Music electives—of which from 4 to 10 credits shall be in applied music	10 credits
Total	32 credits

Students electing this major appear before the Theory Assignment Committee and the Applied Music Assignment Committee for recommendations regarding enrollment in specific courses. Bachelor of Arts majors in music are not subject to the restrictions of the Twenty-Credits Rule regarding enrollment in music courses; i.e., they may elect more than 20 credits and may also elect music courses in the freshman and sophomore years that are usually open only to candidates for the Bachelor of Music degree during those years.

MUSIC COURSES FOR NON-MUSIC MAJORS

Courses in music history and literature are open to students from other departments, schools and colleges without restriction other than meeting indicated prerequisites and securing approval by the proper administrative officer of the department or school in which the student is enrolled. These courses are: Music 9, Chamber music in performance; Music 20, Appreciation and history of music; Music 23, Opera; Music 24, The symphony;

Music 30, Music in the Baroque and Classic eras; Music 40, Music in the Romantic and post-Romantic eras; and any of the advanced courses in music literature and history for which the student has adequate musical background.

Regulations regarding election of music vary somewhat through the various divisions of the University and students not in the School of Music wishing to elect music should check the provisions with the proper official within their own schools. Within the College of Letters and Science, students not enrolled in the School of Music may elect courses in music theory, applied music, and music organizations (Orchestra, Band, and Chorus) under the following conditions:

1. A total of 20 credits may be elected in these three categories.
2. Credits in music organizations (Orchestra, Band, Chorus) may total 6.
3. Courses in music theory and literature may be elected by sophomores, juniors, and seniors.
4. Credits in applied music up to a total of 10, may be elected by juniors and seniors.
5. Students who plan to major in Elementary Education may elect approved applied music (piano and voice) in the freshman and sophomore years.
6. Students electing courses in music theory, applied music or any music organization for the first time appear before the appropriate auditioning committee for recommendation and assignment, i.e., the Theory Assignment Committee, the Applied Music Assignment Committee, or the directors of the various musical organizations (Orchestra, Band, and Choruses).

MUSIC COURSES FOR OCCUPATIONAL THERAPY MAJORS AND FOR MAJORS IN COMMUNITY LEADERSHIP IN RECREATION

Many courses in music (piano, voice, band, orchestral instruments, conducting, theory, music history and appreciation) are useful as resource courses in these two majors. Lists of such music courses, prepared in collaboration with major advisers in the two programs, may be secured on request from the School of Music or from the major department concerned.

UNIVERSITY ORCHESTRAS

The University Symphony Orchestra of ninety players rehearses standard symphonic literature, and gives frequent programs on the campus and elsewhere in the state. Membership is open to students from any school or department of the University.

A second orchestra, known as the Training Orchestra, is made up of players who cannot meet the exacting standards of the University Symphony Orchestra, or who do not wish to give as much time to rehearsal as the symphonic group demands. This orchestra rehearses standard compositions and shorter pieces of less difficulty than those of the University Symphony.

Students enroll in either orchestra with or without credit by signing up for Music 85. The credit granted is one credit hour per semester.

CHORAL ORGANIZATIONS

Four major choral groups offer the opportunity for first-hand experience with masterworks of choral literature. The A Cappella Choir of sixty voices gives major attention to unaccompanied choral singing. The Men's Chorus and Women's Chorus, slightly smaller in size, give experience in singing serious compositions, together with lighter works, arranged for these media. The University Chorus of over two hundred voices prepares standard oratorios and cantatas for presentation, frequently with the assistanec of the University Symphony Orchestra. Membership in all choral organizations is open to students from any department of the University with or without credit. One credit per semester may be secured as Music 86.

UNIVERSITY BANDS

The university bands are composed of the Concert Band, the Badger Band and the Cardinal Band. The enrollment, which is limited to 200, is open to all students. Members of all three bands make up the personnel of the Marching Band which performs at football games in the fall and military reviews in spring.

The Concert Band gives major attention to the study and performance of serious band music in concerts on the campus plus an annual tour of the state which takes place between semesters.

The Badger and Cardinal Bands, made up chiefly of freshmen and sophomores, serves as training for the Concert Band. These two bands also play one concert each year and appear frequently at athletic events and military functions.

Freshman and sophomore men may elect band to satisfy the military requirement. Credit for band may be earned in the amount of one credit per semester as Music 87.

CONCERTS AND RECITALS

Numerous concerts and recitals are given throughout the school year by students, faculty members, visiting artists and various campus musical organizations — orchestra, bands, choruses and ensembles. The famous Pro Arte Quartet gives eight concerts in Madison annually, assisted frequently by members of the School of Music faculty and other visiting artists. The Wisconsin Union Concert Series brings internationally known individual artists and musical groups to the campus for a series of five concerts each year. On occasion the School of Music and the Wisconsin Players of the Department of Speech combine to produce standard musico-dramatic works.

XXV. SCHOOL OF SOCIAL WORK

ARTHUR P. MILES, DIRECTOR, PROFESSOR OF SOCIAL WORK

ORGANIZATION. The Social Work program of the University of Wisconsin is organized under the School of Social Work, which was created in 1952. The School of Social Work is an administrative unit of the College of Letters and Science.

PURPOSE AND PLAN. The *undergraduate program* in Social Work is intended to give the student a basic liberal education combined with a well-rounded selection of courses from the social sciences. Undergraduate students majoring in Social Work are candidates for either the Bachelor of Science (General Course) or Bachelor of Arts (General Course) and are classified and registered as such. For more information about these courses, see pages 42 and 45; for details on the major in Social Work, see page 231.

GRADUATE PROGRAM. The professional course in Social Work is exclusively graduate. It is a two-year program leading to the professional degree of Master of Science in Social Work. For more detailed information about the graduate program, see the bulletins of the School of Social Work and the Graduate School.

DEPARTMENTS OF INSTRUCTION

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

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

Not all of the courses listed in the following pages will be offered regularly. However, required courses will be given regularly, and most of the others will be given at such frequent intervals that a student should have no great problem in making out a satisfactory program of studies. Should a student desire to ascertain in advance whether a particular subject will be given he should consult the chairman of the department; otherwise he may rely on the semester time table which will be published at the opening of each new semester.

AMERICAN INSTITUTIONS

The College of Letters and Science offers an undergraduate major in American Institutions within the Division of Social Studies. For the requirements in this major, see page 61.

ANTHROPOLOGY

For an undergraduate major in Anthropology, see Sociology and Anthropology, page 215. For courses in Anthropology, see page 219.

ART HISTORY AND CRITICISM

PROFESSORS HAGEN, KIENITZ, WATROUS, *chairman*.

The department offers studies in the history of art based upon aesthetic analysis, i.e., criticism and interpretation. Students unfamiliar with the history of art do not usually elect an advanced course before they have taken an introductory course; courses 22 and 54 are designed to familiarize the student with the principal art trends (architecture, sculpture, and painting) from prehistoric to contemporary current art. Courses offered in the 100-group treat in a more specific way with subjects introduced and broadly sketched in the survey group. All courses not only serve majors in art history, but are of general cultural interest and may supplement the work done in other departments in the Division of Humanities, and Art Education and Applied Art. A selection from the courses listed below is offered each year in adequate sequence.

MAJOR. 26 credits in art history; in addition, a reading knowledge of one of the following foreign languages: French, German, Italian, or Spanish, as evidenced by the passing of an intermediate attainment examination (students should satisfy this by taking the

examination at one of the times scheduled in the University Calendar); and 12 credits in college history.

HISPANIC STUDIES AS A FIELD OF CONCENTRATION. Students interested in this major field should consult the entry under Hispanic Studies.

22. ELEMENTS OF THE FINE ARTS. I, II; 3 cr. Analysis of the elements that contribute to the making of a work of art in: architecture, sculpture, and painting. Prerequisite: Sophomore standing. Mr. Kienitz.

50. EGYPTIAN, GREEK, AND CHRISTIAN ART. I; 3 cr. The great originative styles of Egypt, Hellas, and the Christian West in architecture, sculpture, and painting. Prerequisite: Sophomore standing. Not offered 1954–55. Mr. Hagen.

54. RENAISSANCE TO MODERN ART. I, II; 3 cr. Representative masters in the historical development of European painting, sculpture, and architecture from the fifteenth century to the present day. Prerequisite: Sophomore standing. Not offered 1954–55. Mr. Watrous.

101. HISTORY OF THE GRAPHIC ARTS. I; 3 cr. A survey of the chief works of art in woodcut, engraving, etching, and lithography from the fifteenth century to the present. Prerequisite: Sophomore standing. Not offered 1954–55 and in alternate years. Mr. Watrous.

102. THE HISTORY OF SATIRE IN THE GRAPHIC ARTS. Sem; 3 cr. A history of satirical commentary in printmaking, including satirical graphics of Brueghel, Hogarth, Gillray, Cruikshank, Rowlandson, Goya, Daumier, Toulouse-Lautrec, Bellows, and Grosz. Prerequisite: Consent of instructor. Not offered 1954–55. Mr. Watrous.

103. MODERN GRAPHIC ARTS: 1850 TO 1950. Sem; 3 cr. European and American leaders in printmaking of the last one hundred years, including Whistler, Toulouse-Lautrec, Gauguin, Redon, Munch, Kollwitz, Orozco, Hayter, and others. Prerequisite: Consent of instructor. Not offered 1954–55. Mr. Watrous.

106. NINETEENTH-CENTURY PAINTING IN EUROPE. I; 3 cr. A survey of the history of European painting from 1800 to 1900. Prerequisite: A semester course in art history. Mr. Kienitz.

107. ART HISTORY OF THE THEATER AND THE STAGE FROM ANTIQUITY TO THE PRESENT. II; 2 cr. The history of theatrical architecture and stagecraft, including scenery, costumes, lighting, etc. Prerequisite: Sophomore standing. Mr. Hagen.

110. PROSEMINAR. I, II; 2 cr. An introduction to the critical study of single personalities, movements, or problems drawn from Oriental and Occidental art. Prerequisite: Consent of instructor. Mr. Kienitz.

116. TWENTIETH-CENTURY PAINTING IN EUROPE. II; 3 cr. Painting from 1900 through Fauvism and Surrealism. Prerequisite: Junior standing. Mr. Kienitz.

130. FINE ARTS OF CHINA. I; 3 cr. A survey of the development of painting, sculpture, and related arts in China from the T'ang to the Ch'ing dynasties. Prerequisite: Sophomore standing. Mr. Kienitz.

131. AMERICAN ARCHITECTURE. I; 3 cr. A survey of the development of the American house from the colonial beginnings to 1900. Prerequisite: Sophomore standing. Mr. Kienitz.

132. CHINESE POTTERY AND PORCELAIN. 1; 3 cr. A study of the techniques and styles of Shang pottery, Han ware, and porcelain from the T'ang to the Ch'ing times. Prerequisite: Sophomore standing. Mr. Kienitz.

133. HISTORY OF CHINESE PAINTING. I; 3 cr. Schools of painting from the Han to the Ch'ing dynasties. Prerequisite: Junior standing. Mr. Kienitz.

135. CURRENT AMERICAN ARCHITECTURE. II; 2 cr. A survey of the domestic architecture

in the United States, with special attention to the work of Frank Lloyd Wright. Prerequisite: Sophomore standing. Mr. Kienitz.

139. Development of Modern Architecture. I; 3 cr. A survey of European architecture, domestic and public, from 1800 to current times. Prerequisite: Sophomore standing. Mr. Kienitz.

140. The Craft of Old Master Drawings. I; 3 cr. Studies in the technical resources of the artist and their art historical significance. Prerequisite: Consent of instructor. Not offered 1954–55. Mr. Watrous.

142. The Historical Techniques of Painting. II; 3 cr. Studies in media and processes of painting, with special reference to their evolution and art historical importance. Prerequisite: Consent of instructor. Not offered 1954–55. Mr. Watrous.

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

146. Proseminar. I, II; 2 cr. Special studies, which change from semester to semester, but are related to the general field of drawing and painting. Prerequisite: Consent of instructor. Not offered 1954–55. Mr. Watrous.

148. The Paintings and Graphic Arts of Germany, 1450–1550. II; 3 cr. The leaders in German painting and graphics from Stephen Lochner and the Master ES to Dürer, Grünewald, Cranach, and Altdorfer. Prerequisite: Sophomore standing. Not offered 1954–55. Mr. Watrous.

151. Italian Painting of the Renaissance. I; 3 cr. More specifically, the history of the Schools of Florence and Rome, from Giotto to Raphael and Michelangelo. Prerequisite: Sophomore standing. Mr. Hagen.

153. Representative Painters of the Seventeenth Century. II; 3 cr. Caravaggio, Rubens, Rembrandt, Velasquez, and Poussin. Prerequisite: Sophomore standing. Mr. Hagen.

155. Dutch and Flemish Masters from van Eyck to Peter Brueghel. II; 3 cr. Masters of painting in the Netherlands of the late middle ages and renaissance including van Eyck, van der Weyden, Bouts, van der Goes, Memling, Bosch, the Antwerp mannerists, and Brueghel. Offered 1955–56 and in alternate years. Prerequqisite: Sophomore standing. Mr. Watrous.

156. British Painting from Holbein to the Pre-Raphaelites. I; 2 cr. Prerequisite: Art History 54 or one semester course in Art History. Not offered 1954–55. Mr. Hagen.

157. Patterns and Principles of Spanish Art. I; 2 cr. The history of Spanish painting from the twelfth century to the beginning of the nineteenth century, as well as an inquiry into the national character of Spanish art. Prerequisite: Sophomore standing. Mr. Hagen.

159. Development of American Art. II; 3 cr. The history of painting in America from 1670 to the present day. Prerequisite: Junior standing. Mr. Hagen.

160. Proseminar: The Uses of Art History for the Creative Artist. I, II; 2 cr. Not offered 1954–55. Mr. Watrous.

206. Seminar. Modern European painting, sculpture, and architecture. Yr; 2 cr. Mr. Kienitz.

210. Seminar. Yr; 2 cr. Mr. Hagen.

ASTRONOMY

Professor Huffer, Whitford, *chairman;* Assistant Professor Code.

The introductory courses 1 and 17 both carry credit toward the laboratory science requirement; course 1 offers somewhat fuller discussion and more extensive laboratory prac-

tice. Both are open to freshmen who have entered the University with the minimum mathematical preparation. (See Admission Requirements.) Courses 101 and 102, which do not require previous study of astronomy, may be taken separately. Courses numbered 116 and above are given according to demand, usually in alternate years.

1. General Astronomy. I, II; 5 cr. Planets, stars, and galaxies, with consideration of the methods by which information about their nature has been obtained. Laboratory exercises on models; naked-eye and telescopic observations. Prerequisite: One year each of high-school algebra and geometry. Staff.

6. Navigation and Practical Astronomy. II; 3 cr. Theory and practice of navigation. Use of charts, compass, sextant and engineer's transit. Prerequisite: A course in trigonometry. Mr. Huffer.

17. Survey of Astronomy. I, II; 3 cr. The physical nature of the universe: the solar system, the Milky Way, external galaxies. Constellation study and telescopic observations. Prerequisite: One year each of high-school algebra and geometry. Staff.

101. Astrophysics: The Solar System. I; 3 cr. The motions and physical properties of the members of the solar system. Prerequisites: Mathematics 101a, Physics 1b. Mr. Whitford.

102. Astrophysics: Stellar Astronomy. II; 3 cr. The stars: distances and motions; physical state as shown by analysis of radiation. Structure of the galaxy; extragalactic systems. Prerequisites: Mathematics 101a, Physics 1b. Mr. Whitford.

116. Celestial Mechanics. I, II; 3 cr. A mathematical study of the problems of two bodies, and of three or more bodies. Application to the orbits of binary stars, comets, and planets. Prerequisite: A course in calculus. Mr. Huffer.

122. Extragalactic Systems. I or II; 2–3 cr. Determination of distance; luminosity; distribution in space. Nebular types and stellar content. Rotation and mass. Velocity-distance relation. Mr. Whitford.

202a. Theoretical Astrophysics. I; 3 cr. Transfer of radiation through matter; the continuous spectrum; model stellar atmospheres; formation of absorption lines in stellar atmospheres. Prerequisites: Physics 210 and Physics 113, or consent of instructor. Mr. Code.

202b. Theoretical Astrophysics. II; 3 cr. Abundances of elements in stellar atmospheres. Non-equilibrium radiation. Planetary nebulae. Radiative transfer through interstellar matter; 21 cm. hydrogen emission. Prerequisite: Astronomy 202a or consent of instructor. Mr. Code.

203. Stellar Interiors. I or II; 3 cr. Equilibrium of gas spheres. Stellar models. Energy generation by thermonuclear reactions. Degenerate stars. Pulsating stars. Evolutionary paths on the Hertzsprung-Russell diagram. Prerequisite: Consent of instructor. Mr. Code.

220. Seminar: Astrophysical Topics. I or II; 2 cr. Prerequisite: Consent of instructor. Staff.

An additional course on galactic structure, and one on binary stars will be offered if demand warrants.

BACTERIOLOGY

The courses in the Departments of Medical Microbiology and Agricultural Bacteriology are accepted as regular Letters and Science courses. For descriptions of these courses see the bulletins of the College of Agriculture and the Medical School. Requirements for a major in Bacteriology may be found on page 66.

BIOLOGICAL ASPECTS OF CONSERVATION

The College of Letters and Science offers an undergraduate major in Biological Aspects of Conservation. Requirements for this major are found on page 77.

BIOLOGY

Study of the biological sciences is conducted in the independent though co-ordinated Departments of Botany, Zoology, Anatomy, Physiology, Physiological Chemistry, Agronomy, Biochemistry, Genetics, Horticulture, Pathology and Medical Microbiology, Pharmacology and Toxicology, Plant Pathology, Soils, 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.)

BOTANY

Professors Backus, Curtis, Raper, Skoog, Stauffer, *chairman;* Associate Professors Allen, Evans, Fisk, Newcomb, Thomson; Assistant Professors Clarke, Cottam, Gerloff, Sauer; Instructor Millington; Curator Greene; Lecturer Duncan.

Major. 30 credits, including Botany 1 or 17 and an elementary course in zoology. High-school mathematical preparation is required. Botany 24 may not be counted as an advanced course toward the major. Zoology 6 or 106 may be counted toward the major. A student who majors in the department and attains a grade-point average of 2.0 or above may be permitted to undertake an independent research problem and write a thesis during his or her senior year. Such a student should confer with his adviser or with the chairman of the department in regard to the feasibility of electing a thesis. An I.L.S. student considering Botany as a major should consult the departmental chairman as to requirements.

1. General Botany. I, II; 5 cr. Introduction to structure, physiology, classification, ecology, heredity, and evolution of plants. This course or Botany 17 is preliminary to all advanced work except Botany 24 and 160. This course together with Botany 2 or Zoology 1 may be used to satisfy the requirement of a year course in laboratory science for the bachelor's degree. Mr. Clarke, Mr. Sauer and staff.

2. Advanced General Botany. II; 5 cr. Identification, morphology and relationships of the major plant groups. Lectures deal with the development of botanical science. Prerequisite: Botany 1 or 17. Mr. Clarke and staff.

17. Survey of Botany: Nature of the Plant World. I; 3 cr. Identification, structure, and life histories of representative plants throughout the plant kingdom. Open to all students excepting those who have taken Botany 1 or its equivalent. Mr. Evans and staff.

24. Economic Botany. II; 2 cr. Plants upon which man's civilization is dependent for food, fiber, shelter, medicines and other purposes; their source, preparation, and uses. Lecture and readings. Prerequisites: Sophomore standing and a college course in science. Mr. Sauer.

100. Senior Thesis. Yr; 2–3 cr. An independent research topic should be selected, if possible, before the close of the junior year. Staff.

101. Diseases of Plants (Same as Plant Pathology 101). I; 3 cr. Prerequisites: Plant Pathology 7 or Agricultural Bacteriology 1, and Botany 104. Mr. Walker, Mr. Pound.

103. Taxonomy and Ecology of Algae. II; 3 cr. Emphasis on local fresh-water forms. Prerequisite: Botany 1 or 17. Offered 1954–55 and in alternate years. Mr. Evans.

104. Fungi. I; 3 cr. An introduction to mycology with emphasis on morphology and taxonomy. Prerequisite: Botany 1 or 17. Mr. Backus.

107. Gymnosperms. Sem; 3 cr. Prerequisite: Botany 1 or 17.

108. Morphology of Angiosperms. II; 3 or 4 cr. A general survey of the development, structures, life history, and relationships of the flowering plants. Prerequisites: Botany 1 or 17 and junior standing. Miss Fisk.

112. Bryophytes. II; 3 cr. Prerequisites: Botany 1 or 17. Offered 1955–56 and in alternate years. Mr. Evans.

113. Pteridophytes. Sem; 3 cr. Prerequisite: Botany 1 or 17.

116. Fundamentals of Cytology (Same as Zoology 116). I; 3 cr. Microscopic structure, chemical composition and function of cytoplasmic and nuclear components. Mitosis and meiosis. Relations to heredity, reproduction, development and cellular physiology. Prerequisites: A college course in zoology or botany, Chemistry 1a, junior standing. Mr. Ris.

117. Structure of Economic Plants. I; 3 cr. The developmental anatomy of seed plants of economic importance. Prerequisite: Botany 1 or 17. Miss Fisk.

129. Classification of Cultivated and Native Plants. I; 3 cr. A survey of the families and representative genera of flowering plants using keys and manuals. Lecture and laboratory. Prerequisite: Botany 1 or 17. Mr. Thomson.

130. Identification and Classification of Seed Plants. II; 3 cr. Identification and classification of native seed plants using keys and manuals. Laboratory and field. Prerequisite: Botany 1 or 17. Mr. Thomson.

131. Dendrology. II; 2 cr. Identification of evergreen and deciduous woody plants, both native and cultivated, using keys and manuals. Laboratory and field. Prerequisite: Botany 1 or 17. Mr. Thomson.

132. Plant Anatomy. II; 3 cr. The development and structure of the vegetative and reproductive organs of the seed plant. Emphasis on wood anatomy and on the structure of the plant in relation to its environment. Prerequisite: Botany 1 or 17. Miss Fisk.

146. Plant Physiology. II; 4 cr. The general physiology of seed plants: methods used in demonstrating and determining rates of plant processes; nutrition; adjustment to environment; factors influencing growth and development. Prerequisites: Botany 1 or 17 and some elementary knowledge of the principles of physics and chemistry. Not open to freshmen. Mr. Stauffer.

153. Microtechnique. I; 3 cr. Training in the preparation of plant material for study, with emphasis on practice in killing, imbedding, sectioning, and staining. Prerequisite: Botany 1 or 17. Mr. Evans.

155. Advanced Microtechnique. II; 3 cr. Emphasis on techniques which supplement standard paraffin methods; adaptation of procedures to meet individual needs. Prerequisite: Botany 153 or consent of instructor. Mr. Evans.

157. Mechanisms of Evolution. II; 2 cr. Genetic factors in evolution (mutation, selection, random variation of genotype frequencies); their quantitative relations; evidence for these factors in natural populations. Prerequisite: Genetics 6, or Zoology 6 or 106, or consent of instructor.

158. Recent Plant Migration and Evolution. I; 2 cr. The changing geography and heredity of wild, weed, and domesticated plants during post-glacial time. Prerequisite: Botany 1 or 17. Mr. Sauer.

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

161. Field Collections and Identification. I; 2–4 cr. Lectures, laboratory, and field trips. Students must consult the instructor in May for equipment and directions for collecting plants in the summer. Prerequisite: Botany 129.

162. Advanced Taxonomy. I; 2 cr. Principles underlying taxonomy of vascular plants; problems and practices in classification and nomenclature; relation of modern taxonomy to other fields of biology. Prerequisite: Botany 161 or consent of instructor.

163. Identification and Classification of Grasses. I; 2 cr. Emphasis on native grasses of Wisconsin. Prerequisite: Botany 129 or consent of instructor.

164. Principles of Plant Ecology. II; 3 cr. Plants and plant associations in relation to their physical and biotic environment. Lectures, laboratory, and field trips. Prerequisite: Botany 1 or 17. Mr. Curtis, Mr. Cottam.

165. Ecological Methods. I; 3 cr. Methods of collecting, compiling, and analyzing data on the association, dispersion, and environment of plants. Lectures, laboratory, and field trips. Prerequisites: Botany 164 and an elementary knowledge of statistics. Not offered 1954–55. Mr. Cottam.

166. Plant Conservation. I; 2 cr. Problems and methods in the preservation and restoration of the native flora, with emphasis on ecological life histories. Offered 1954–55 and in alternate years. Prerequisite: Botany 164. Mr. Curtis.

167. Identification of Aquatic Plants. I; 3 cr. Practical experience in identification of aquatic angiosperms. Prerequisite: Botany 129 or consent of instructor.

169. Advanced Plant Ecology. I; 3 cr. Plant communities, their structure, developmental processes and history. Lectures and field trips. Prerequisites: Botany 164 and courses in taxonomy and statistics, or consent of instructor. Mr. Curtis.

174. Growth of Plants. I; 2 cr. Lect.; 0–2 cr. Lab. Lectures on the concepts and techniques employed in the study of growth and development with emphasis on the functions of growth substances. Laboratory: selected problems related to lecture topics. Prerequisite: Botany 146. Mr. Skoog.

175. Metabolism of Plants. I; 2 cr. Structure of cell wall and protoplasm in relation to function; cellular processes including respiration and organic acid metabolism, carbohydrate interconversions, and photosynthesis. Prerequisites: Botany 146 and organic chemistry. Mr. Newcomb and Mr. Stauffer.

176. Nutrition of Plants. II; 4 cr. Lecture and laboratory course. The mineral nutrition of plants. Prerequisite: Botany 146. Mr. Skoog, Mr. Gerloff.

177. Physiology of the Fungi. I; 4 cr. Organic and mineral nutrition, growth and metabolism, and phenomena of variation and correlation in the fungi. Lectures and laboratory. Prerequisites: Botany 104 and 146 or equivalent. Mr. Allen.

180. Advanced Botanical Problems. I, II; 2–5 cr. Individual work dealing with advanced phases of botany not taken up in the regular courses. Prerequisite: Consent of instructor. Staff.

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

214. Seminar in General Botany. Yr; 1 cr. per semester. Staff.

215. Seminar in Plant Physiology. Yr; 1 cr. per semester. Mr. Allen, Mr. Gerloff, Mr. Newcomb, Mr. Skoog, Mr. Stauffer.

216. Seminar in Plant Ecology. Yr; 1 cr. per semester. Mr. Curtis, Mr. Cottam.

217. Seminar in Mycology. Yr; 1 cr. per semester. Mr. Backus, Mr. Allen, Mr. Raper.

220. ADVANCED MYCOLOGY. Yr; 2 or 3 cr. Lectures, laboratory, and field work. Prerequisite: Botany 104 or equivalent. Mr. Backus.

248. PHYSIOLOGICAL METHODS AND MATERIALS. I; 3 cr. Primarily a laboratory course applying physical methods in the study of plant processes. Prerequisite: Botany 146 or consent of instructor. Mr. Stauffer, Mr. Newcomb.

250. CYTOLOGY. I; 3 or 4 cr. Cell structure: descriptive, leading up to cytochemical, cytophysical and physiological aspects. Prerequisite: Graduate standing; open to seniors by consent of instructor.

251. CYTOGENETICS. II; 3 or 4 cr. The cell considered as the basis of heredity. Prerequisite: Graduate standing; open to seniors by consent of instructor.

CHEMISTRY

PROFESSORS DANIELS, *chairman,* FERRY, HALL, HIRSCHFELDER, HOLT, JOHNSON, MCELVAIN, MELOCHE, SCHUETTE, SORUM, WILDS, WILLARD, WILLIAMS; ASSOCIATE PROFESSORS ALBERTY, BENDER, BLAEDEL, CURTISS, IHDE, KING, KLEIN, LARSEN; ASSISTANT PROFESSORS CORNWELL, GOERING, GOSTING, MARGRAVE, VAN TAMELEN; INSTRUCTOR SHAIN.

REQUIREMENTS FOR THE MAJOR

To be accepted as a major in Chemistry, a student must have a grade-point average of 1.5 or better in chemistry courses taken in his first two years and must have had high-school mathematical preparation. Since a minimum of 80 credits in subjects outside the major subject is required for graduation, it follows that no more than 40 credits of chemistry courses may be counted toward graduation.

COURSE NUMBER	TITLE OF COURSE	CREDITS
Chemistry 4a and 4b	General Chemistry and Qualitative Analysis	8–10
Chemistry 11	Quantitative Analysis	8–10
Chemistry 120, 122	Organic Chemistry Lectures	6
Chemistry 121, 123	Organic Chemistry Laboratory	4
Chemistry 130*	Physical Chemistry Lectures	6
Chemistry 131	Physical Chemistry Laboratory	4
Advanced Chemistry	Electives to total 40 cr.	0–4
	Total Credits	40

1a. GENERAL CHEMISTRY. I, II; 5 cr. Introductory college chemistry. (Open anly to students who have not had a year of high-school chemistry. Cannot be elected by students who are repeating a college general chemistry course.) 2 hrs. lect., 4 hrs. lab., 2 hrs. disc. Staff.

5. GENERAL CHEMISTRY. I, II; 3 cr. Introductory college chemistry. Prerequisite: A course in high-school chemistry. The subject matter is equivalent to Chemistry 1a, the introductory concepts being covered more rapidly and with different laboratory experiments. Serves as a prerequisite for Chemistry 1b. 2 hrs. lect., 2 hrs. lab., 1 hr. disc. Staff.

1b. GENERAL CHEMISTRY AND QUALITATIVE ANALYSIS. I, II; 5 cr. Continuation of Chemistry 1a or Chemistry 5. 2 hrs. lect., 4 hrs. lab., 2 hrs. disc. Prerequisite: Chemistry 1a, 2a, 4a or 5. Staff.

2a. GENERAL CHEMISTRY. I; 4 cr. Introductory college chemistry. For freshmen in engineering only. 2 hrs. lect., 4 hrs. lab., 1 hr. quiz. Mr. Holt and staff.

---

* NOTE: Mathematics through Math. 21 and Physics 31 are prerequisites for Chemistry 130.

2b. General Chemistry and Qualitative Analysis. II; 4 cr. Continuation of Chemistry 2a. Prerequisite: Chemistry 1a, 2a, 4a or 5. Mr. Holt and staff.

3. Qualitative Analysis and Problems. II; 1 cr. Prerequisites: Concurrent registration in Chemistry 1b or 4b and consent of instructor. Staff.

4a. General Chemistry. I; 5 cr. Introductory college chemistry. For chemistry course students, chemistry majors, chemical engineers and students majoring in the applications of chemistry; for example, biochemistry and bacteriology (may be elected by any student meeting the prerequisites). 2 hrs. lect., 4 hrs. lab., 2 hrs. quiz. Prerequisites: High-school chemistry and elementary algebra. Mr. Sorum and staff.

4b. General Chemistry and Qualitative Analysis. II; 5 cr. Continuation of Chemistry 4a. Prerequisite: Chemistry 1a, 2a, 4a, 5 or equivalent. Mr. Sorum and staff.

10. Elementary Quantitative Analysis. I, II; 3–5 cr. For all students except the groups mentioned under Chemistry 11a. (Replaces Chemistry 12, 14, 15 and 16.) 2 hrs. lect., 3–9 hrs. lab. Mr. Blaedel, Mr. Hall, Mr. Meloche, Mr. Shain and staff.

11a. Elementary Quantitative Analysis. I, II; 3–5 cr. For chemistry course students, chemistry majors, chemical engineers and those with equivalent preparation. Prerequisite: Chemistry 4b or equivalent. 2 hrs. lect., 3–9 hrs. lab. Mr. Blaedel, Mr. Hall, Mr. Meloche, Mr. Shain and staff.

11b. Intermediate Quantitative Analysis. I, II; 3–5 cr. For chemistry course students and chemistry majors. Prerequisite: Chemistry 11a or equivalent. 2 hrs. lect., 3–9 hrs. lab. Mr. Blaedel, Mr. Hall, Mr. Meloche, Mr. Shain and staff.

98. Senior Seminar. I, II; 1 cr. Staff.

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

100. Senior Thesis. Yr; 2–6 cr. An introduction to chemical research. The work represents an independent and original study done under the direction of a member of the staff. Recommended for seniors majoring in chemistry. Staff.

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

107. History of Chemistry. Sem; 2 cr. Prerequisite: Chemistry 11, 120 or consent of instructor. Mr. Ihde.

113. Water Analysis. I; 1 cr. An eight-week course devoted to the sanitary chemical analysis of water and sewage. Prerequisite: Chemistry 11 or consent of instructor. Mr. Schuette.

116. Contemporary Organic Analysis. I; 2 cr. Prerequisite: Chemistry 119 or consent of instructor. Mr. Schuette.

119. Organic Analysis. I; 3 cr. Functional groups and the semi-micro determination of elements. Prerequisites: Chemistry 11a and 120. Lecture and laboratory. Mr. Schuette.

120. Organic Chemistry. Sem; 3 cr. Introductory lecture course. Prerequisite: Chemistry 1a, 2a, 4a or 5. Courses 120 and 121 should be taken concurrently. Mr. McElvain, Mr. Klein, Mr. Johnson, Mr. Wilds, Mr. van Tamelen, Mr. Goering.

121. Organic Chemistry. Sem; 2 cr. Introductory laboratory course. Prerequisite: Credit or concurrent registration in Chemistry 120. Lab. 6 hrs. Mr. Klein, Mr. van Tamelen, Mr. Goering and staff.

122. Organic Chemistry. Sem; 3 cr. Intermediate lecture course. Prerequisite: Chemistry 120. Courses 122 and 123 should be taken concurrently. Mr. McElvain, Mr. Johnson, Mr. Wilds, Mr. van Tamelen, Mr. Goering, Mr. Klein.

123. Organic Chemistry. Sem; 2 cr. Intermediate laboratory course. Prerequisite: Credit or concurrent registration in Chemistry 122. Lab. 6 hrs. Mr. Klein, Mr. van Tamelen, Mr. Goering and staff.

124. Advanced Organic Chemistry. I; 3 cr. Prerequisite: Chemistry 122. Mr. Johnson, Mr. Wilds.

125. Advanced Organic Chemistry Laboratory. Yr; 1–3 cr. Organic preparations and techniques. Intended primarily for a student not ready to begin research. Prerequisite: Chemistry 123. Mr. McElvain, Mr. Klein, Mr. Johnson, Mr. Wilds, Mr. Goering, Mr. van Tamelen.

126. Characterization of Organic Compounds. I; 4 cr. A study of homologous reactions, separation and identification of organic compounds. Designed as an aid to research involving organic compounds. Prerequisites: Chemistry 122 and 123. Conference and laboratory. Mr. McElvain, Mr. Goering.

129. Introductory Physical Chemistry. Summer; 2–3 cr. Prerequisites: College algebra, Chemistry 11b or consent of instructor. Staff.

130. Physical Chemistry. Yr; 3 cr. Prerequisites: Chemistry 1 and 11; Physics 1 or 31, calculus or consent of instructor. Courses 130 and 131 should be taken concurrently. Mr. Daniels, Mr. Williams, Mr. Alberty, Mr. Bender, Mr. Cornwell, Mr. Ferry.

131. Physical Chemistry Laboratory. Yr; 1–3 cr. Prerequisite: Credit or concurrent registration in Chemistry 130. Lab. 3–9 hrs. Mr. Alberty, Mr. Bender, Mr. Cornwell, Mr. Curtiss, Mr. Ferry.

134. Advanced Survey of Physical Chemistry. I; 3 cr. Prerequisites: Chemistry 130 and 131. Mr. Bender.

135. Chemical Thermodynamics. II; 3 cr. Prerequisites: Chemistry 130 and 131. Mr. Bender.

136. Chemical Kinetics. I; 2 cr. Prerequisite: Chemistry 130. Mr. Daniels.

137. Introduction to Quantum Mechanics. I; 3 cr. Prerequisites: Physics 106b and differential equations, or consent of instructor. Mr. Curtiss.

146. Chemistry of Foods and Their Adulteration. II; 2 cr. Critical study of foods from the standpoint of (1) fundamental basis of nutritional value and (2) character and legal status of adulteration. Prerequisite: Chemistry 120. Mr. Schuette.

147. Chemistry of Foods and Their Adulteration. II; 1–3 cr. A laboratory course to accompany, if desired, Chemistry 146. Prerequisites: Chemistry 11a and 146, or concurrent registration in Chemistry 146. Lab. 3–9 hrs. Mr. Schuette.

149. Colloid Chemistry. I; 3 cr. Prerequisites: Chemistry 130 and 131. Mr. Williams.

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

155. Advanced Quantitative Analysis. II; 2 cr. Prerequisites: Chemistry 11 and senior standing. Mr. Hall.

156. Inorganic Chemistry. II; 3 cr. Prerequisite: Senior standing. Mr. Larsen, Mr. King.

157. Advanced Inorganic Chemistry. I; 2 cr. The compounds and reactions of the common elements. Prerequisite: Graduate standing or consent of instructor. Mr. Holt.

158. Theoretical Inorganic Chemistry. II; 2 cr. Prerequisites: Chemistry 130 and 157 or consent of instructor. Staff.

159. Advanced Inorganic Chemistry. I; 2 cr. The chemistry of the less familiar elements. Prerequisite: Chemistry 158 or consent of instructor. Mr. Larsen.

160. Inorganic Preparations. I, II; 2–5 cr. Prerequisite: Chemistry 11b. Staff.

161. The Phase Rule. II; 2 cr. Prerequisite: Chemistry 130. Mr. Sorum.

165. Radiochemistry. II; 3 cr. Prerequisite: Chemistry 130 or consent of instructor. Mr. Willard.

180. Advanced Independent Study. I, II; *cr. Open only to superior students. (See Section 18, page 41.)

200–206. Research in Chemistry. Yr; *cr. Staff.

223. Advanced Organic Chemistry. II; 3 cr. Prerequisite: Chemistry 124. Mr. McElvain, Mr. Johnson, Mr. Wilds.

224. Advanced Organic Chemistry. I; 1–2 cr. Prerequisite: Chemistry 223. Mr. Link, Mr. Goering.

225. Advanced Organic Chemistry. II; 2 cr. Prerequisite: Chemistry 223. Mr. van Tamelen, Mr. Klein.

230. Advanced Physical Chemistry. Yr; 4 cr. Prerequisite: Chemistry 130b. Mr. Ferry, Mr. Bender, Mr. Alberty, Mr. Hirschfelder, Mr. Daniels.

233. Experimental Studies of Molecular Structure. II; 3 cr. An introduction to experimental methods for the determination of molecular structures, with particular emphasis on microwave and radiofrequency spectra. Prerequisite: Credit or concurrent registration in Chemistry 137 or 230, or in Physics 106. Mr. Cornwell.

234. Statistical Mechanics. II; 3 cr. Prerequisite: Chemistry 230 or consent of instructor. Mr. Curtiss, Mr. Hirschfelder.

235. The Transport Properties and the Equation of State of Fluids. Yr; 2 cr. Prerequisites: Elementary thermodynamics, differential equations. Mr. Curtiss.

238. Advanced Quantum Chemistry. II; 3 cr. Prerequisite: Chemistry 137 or Physics 212a or Chemistry 230a with consent of instructor. Mr. Hirschfelder, Mr. Curtiss.

239. Seminar in Physical Chemistry. Yr; 0 cr. Prerequisite: Chemistry 130. Staff.

247. Seminar in Organic Chemistry. Yr; 0 cr. Mr. McElvain, Mr. Klein, Mr. Johnson, Mr. Wilds, Mr. Goering, Mr. van Tamelen.

249. The Physical Chemistry of the Proteins. II; 2 cr. Prerequisite: Chemistry 149 or consent of instructor. Mr. Williams, Mr. Alberty.

250. The Chemistry of High Polymers. II; 3 cr. Prerequisites: Chemistry 130 and 131. Mr. Ferry.

252. Seminar in Analylical Chemistry. Yr; 0 cr. Mr. Blaedel, Mr. Hall, Mr. Meloche, Mr. Shain.

254. Seminar in Foods and Sanitation. II; 1 cr. Mr. Schuette.

263. Seminar in Inorganic Chemistry. Yr; 0 cr. General Chemistry staff.

265. Selected Topics in Inorganic Chemistry. I; 2 cr. High temperature chemical reactions. Mr. Margrave. II; 2 cr. Equilibria and mechanism in solution reactions. Mr. King

CHINESE

(See Linguistics, page 172.)

CLASSICS

PROFESSORS AGARD, *chairman*, FOWLER, MACKENDRICK; ASSOCIATE PROFESSOR HOWE; ASSISTANT PROFESSOR HEIRONIMUS.

ATTAINMENT EXAMINATIONS. See Section 16, page 38. The normal preparation for the intermediate examination in Greek includes Greek 1 and 10; in Latin, Latin 1, 10, and 11. For the proficiency examination in Greek it includes Greek 1, 10, 102, and 106 or 108; in Latin, Latin 1, 10, 11, 102, and 103 or 104.

MAJOR. In Greek, 24 credits, exclusive of Greek 1; in Latin, 25 credits beyond Latin 1b (or two years of high-school Latin), 17 credits beyond Latin 11 (or four years of high-school Latin). For admission to a Greek or Latin major a student must have secured a grade-point average of at least 2.5 in his college Greek or Latin courses, and must present 8 credits in a second foreign language. For the teaching major and minor see School of Education.

GENERAL COURSES IN CLASSICS

The purpose of these courses is to give students who have had little or no Latin or Greek an understanding of the relation of classical culture to our own. Knowledge of the languages is not required, and no foreign language credit is given.

38. ORIGINS OF GREEK AND LATIN MEDICAL TERMS. I, II; 3 cr. Mr. Howe.

41. GREEK LIFE AND LITERATURE. II; 2–3 cr. Greek literature in translation, with adequate regard to its social background. For 3 credits, additional reading and a final paper. Open to freshmen. Mr. Agard.

42. ROMAN LIFE AND LITERATURE. II; 2–3 cr. Latin literature in translation, with adequate regard to its social background. For 3 credits, additional reading and a final paper. Open to freshmen. Mr. MacKendrick.

51. CLASSICAL MYTHOLOGY. II; 2 cr. A survey of classical myths and their influence on later literature and art. Open to freshmen. Mr. Agard.

112. THE CLASSICAL BACKGROUND OF ENGLISH LITERATURE. II; 2–3 cr. A critical comparison of selected masterpieces from English and Classical literature in translation. Prerequisite: One of English 30, 32, 33, 40 or equivalent. Mr. MacKendrick.

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. Mr. Agard.

133. EARLY CHRISTIANITY AND THE GRAECO-ROMAN WORLD. I; 2–3 cr. Prerequisite: Sophomore standing. Mr. Howe.

CLASSICAL HUMANITIES TUTORIALS

15. ROMAN HISTORY AND LATIN LITERATURE. Yr; 3 cr. Open to freshmen in the Classical Humanities course. Staff.

16. GREEK ART AND LITERATURE. Yr; 3 cr. Prerequisite: Sophomore standing in the Classical Humanities course. Mr. Agard.

GREEK

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

10. HOMER, PLATO, NEW TESTAMENT. Yr; 3 cr. Selections from Homer's *Iliad*, Plato's *Dialogs*, the *New Testament*. Prerequisite: Greek 1. Mr. Agard.

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

101. GRADUATE RAPID READING. Yr; 3 cr. Prerequisite: Consent of instructor. Mr. Agard.

102. GREEK DRAMA AND LYRIC POETRY. Yr; 3 cr. Euripides' *Medea*, Sophocles' *Antigone*, and selections from Aeschylus, Aristophanes, and the lyric poets. Prerequisite: Greek 10. Mr. Howe.

103. GREEK PROSE COMPOSITION. I; 2 cr. Prerequisite: Consent of instructor. Mr. Heironimus.

105. ARISTOPHANES. I; 3 cr. Close reading of four plays, with attention to Aristophanes' lyric genius and his political opinions. Prerequisite: Greek 102. Mr. MacKendrick.

106. HERODOTUS AND THUCYDIDES. Yr; 3 cr. Close reading and critical comparison: history as art and history as science. Prerequisite: Greek 102 or concurrent registration. Mr. MacKendrcik.

107. ATTIC ORATORS. Yr; 3 cr. Selected masterpieces from Antiphon to Hypereides, with emphasis upon the contribution of rhetoric to the intellectual life of the Fourth Century. Prerequisite: Greek 102. Mr. MacKendrick.

108. PLATO. Sem; 3 cr. The *Republic:* its pre-Socratic background and its relation to Athenian institutions. Prerequisite: Greek 102 or concurrent registration. Mr. MacKendrick.

109. ARISTOTLE. Sem; 3 cr. Wallace's *Selections* and the *Politics*, as a critique of Plato and as contributions to the life of the *polis*. Prerequisite: Greek 102 or concurrent registration. Mr. MacKendrick.

180. DIRECTED READING. Upper-group majors may secure a limited number of credits for reading under the guidance of a member of the department. See Section 18, page 41.

200. INDIVIDUAL RESEARCH. Yr; *cr. Staff.

201. PROSEMINAR. I; 1 cr. Staff.

210. GREEK EPIGRAPHY. II; 2–3 cr. Mr. Edson.

211. GREEK DRAMA. Yr; 3 cr. Mr. Agard.

225. COMPARATIVE GRAMMAR OF GREEK AND LATIN. Sem; 3 cr. The relation of Greek to Latin within the Indo-European family of languages; the origins and development of the sounds and forms with reference to syntax. Mr. Fowler.

226. GREEK DIALECTS. Sem; 3 cr. Prerequisite: Greek 225. Mr. Fowler.

227. HOMER: A LINGUISTIC ANALYSIS. Sem; 1 cr. An analysis of portions of the Homeric poems with the object of determining the dialectal variation. Prerequisites: Greek 225 and 226. Mr. Fowler.

230. GREEK SEMINAR. Yr; 2 cr. Staff.

LATIN

1a. ELEMENTARY LATIN. I; 4 cr. Study of forms and syntax, with simple translation, equivalent to a year of high-school Latin. Mr. Fredricksmeyer.

1b. CAESAR. II; 4 cr. Translation of easy prose, including selections from the *Gallic War;* analysis of English derivatives. Prerequisite: Latin 1a or one year of high-school Latin. Mr. Fredricksmeyer.

8. RAPID READING. 4 cr. This course is planned for students who have had two years of high-school Latin, but have not studied Latin for several years. It combines an intensive review of Latin grammar and vocabulary with extensive reading from several authors. This

course is also recommended as a non-credit review for graduate students who are preparing for Latin reading examinations. Mr. Howe.

10. VERGIL. I; 4 cr. Selections from the *Aeneid.* Prerequisite: Latin 1b or two years of high-school Latin. Open to students who have read Cicero, but not to students who have read Vergil. Staff.

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

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

101a. INTERMEDIATE LATIN COMPOSITION. I; 2 cr. A survey of Latin syntax and idioms. Prerequisite: Latin 102 or concurrent registration. Mr. Heironimus.

101b. ADVANCED LATIN COMPOSITION. II; 3 cr. Prerequisite: Latin 101a. Mr. Heironimus.

102. GENERAL SURVEY. Yr; 3 cr. Selections from Plautus, Terence, Lucretius, Catullus and Horace, the Elegists, and Silver Latin, illustrating the social, political, and intellectual life of the Republic and Early Empire. Prerequisites: Latin 10 and 11 or four years of high-school Latin. Mr. MacKendrick.

103. PLINY AND MARTIAL. I; 3 cr. Letters of Pliny and epigrams of Martial, illustrating various phases of Roman life. Prerequisite: Latin 21. Mr. Heironimus.

104. SALLUST AND LIVY. II; 3 cr. Selections illustrating the national experience of the Roman people. Prerequisite: Latin 21. Mr. Heironimus.

105. CICERO'S ORATIONS: ADVANCED COURSE. Sem; 3 cr. Cicero in relation to the politics of his age. Lectures, translation, oral reports. The orations read will vary from year to year. Prerequisite: Latin 104 or concurrent registration. Mr. MacKendrick.

107. CICERO'S PHILOSOPHICAL WORKS. II; 3 cr. The *Somnium Scipionis, Tusculans* I, *De Natura Deorum* and *De Officiis* I–II in their relation to Cicero's political theory and practice. Lectures, translations, oral reports. Prerequisite: Latin 104 or concurrent registration. Mr. MacKendrick.

108. CICERO'S LETTERS. I; 3 cr. Prerequisite: Latin 104.

109. ROMAN DRAMA. II; 3 cr. Prerequisite: Latin 104.

110. LUCRETIUS. I; 3 cr. The *De Rerum Natura;* its relation to ancient philosophy. Prerequisite: Latin 104. Mr. Howe.

111. VERGIL. I; 3 cr. Emphasis on *Eclogues, Georgics,* and *Aeneid* VII–XII: Alexandrianism, the Augustan National Program, and the literary epic. Prerequisite: Latin 104 or concurrent registration. Mr. MacKendrick.

115. ROMAN BIOGRAPHY. I; 3 cr. Suetonius' *Caesar* and *Augustus,* the *Agricola* of Tacitus, biographies by Nepos, the *Historia Augusta.* Prerequisite: Latin 104. Mr. Heironimus.

116. CAESER: ADVANCED COURSE. II; 3 cr. The *Gallic* and *Civil Wars,* illustrated, with reference to their political background. Prerequisite: Latin 104 or consent of instructor. Mr. MacKendrick.

118. ROMAN SATIRE. II; 3 cr. Satires of Horace, Persius and Juvenal. Satire as a literary genre; social conditions at Rome during the Empire. Prerequisite: Latin 104. Mr. Heironimus.

119. TACITUS. II; 2–3 cr. Prerequisite: Latin 104. Mr. Howe.

130. MEDIEVAL LATIN. I; 2 cr. Mr. Heironimus.

131. RENAISSANCE LATIN. II; 2 cr. Selections from representative authors of various countries, ranging from Petrarch to Milton. Translation, collateral reading, and reports. Prerequisites: Latin 10 and 11 or 4 years of high-school Latin. Mr. Heironimus.

180. DIRECTED READING. (See GREEK 180.)

200. INDIVIDUAL RESEARCH. Yr; *cr. Staff.

201. PROSEMINAR. I; 1 cr. Staff.

210. LATIN EPIGRAPHY. II; 2 cr. Mr. MacKendrick.

225. COMPARATIVE GRAMMAR OF GREEK AND LATIN. (See GREEK 225.)

226. ITALIC DIALECTS. Sem; 2 cr. The languages of the Italic branch of Indo-European, exclusive of Latin. Oscan and Umbrian; grammar; detailed study of inscriptions. Brief survey of the other dialects. Offered II, 1954–55 and in alternate years. Prerequisite: Latin 225. Mr. Fowler.

231. SURVEY OF LATIN LITERATURE. Yr; 3 cr. Mr. Heironimus.

233. LATIN SEMINAR. Yr; 2 cr. Staff.

TEACHERS' COURSE

THE TEACHING OF LATIN. See School of Education.

COMPARATIVE LITERATURE

PROFESSORS ORSINI, *chairman*, FULCHER, MACKENDRICK, MITCHELL, HAUGEN; ASSOCIATE PROFESSOR ALBERSON; ASSISTANT PROFESSOR BLOCK.

Subjects in comparative literature fall into two general classes: those in which the readings are mainly in English translation, and those in which an easy reading knowledge of one or more foreign literatures is required. Undergraduates majoring in the department must be able to do a portion of this work in at least one language other than English. There is also provision for graduate work in comparative literature, as outlined in the bulletin of the Graduate School. None of the subjects in this department is 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 47 credits, including the following:

(a) 21 credits in courses in the Department of Comparative Literature, including Course 7 or Course 9 or its equivalent. Course 165 is also required. In the senior year 2 to 4 credits may, in the judgment of the adviser, be taken as independent work. The result of this independent work is to be shown by a thesis or documented paper. Courses 100 and 181 are available for such work.

(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 10, Vergil; Greek 10, Homer, Plato, New Testament; English 37, Shakespeare (English 40 is not accepted toward the major); French 21, Elementary survey; German 20, Classical and modern writers; Scandinavian 21, Survey of Norwegian literature; Spanish 21, Elementary survey; Italian 21, Elementary survey.

(c) 12 credits in related courses in at least two of the following departments: art history, philosophy, history.

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.

7a and 7b. MASTERPIECES OF WESTERN LITERATURE. 3 cr. An introdution to critical reading through the study of some of the major works of European literature. The first semester is concerned with ancient and medieval writings; the second with literature from the Renaissance to the present day. Prerequisite: Sophomore standing. Mr. Block.

9. BOOKS THAT HAVE MADE CIVILIZATION. Yr; 3 cr. Homer to the 20th century. Prerequisite: Sophomore standing. Mrs. Alberson.

67. DRAMA FROM IBSEN TO PRESENT. Yr; 2 cr. In translation. Offered 1954–55 and in alternate years. Prerequisite: Sophomore standing. Mr. Mitchell.

68. THE NOVEL IN THE MODERN WORLD. Yr; 2 cr. The English, Continental, and American novel, 1875–1930, in translation. Offered 1954–55 and in alternate years. Prerequisite: Sophomore standing. Mr. Fulcher.

In the following courses, 100 to 184, junior standing is required for majors, and one foreign language is necessary; for others, special arrangement may be made.

101. LEGENDARY LITERATURES OF ASIA AND EUROPE. Yr; 3 cr. The legendary literatures paralleled by selections from modern literature as a means of studying the psychology of ethnic groups. Mrs. Alberson.

102. RENAISSANCE EPIC AND ROMANCE. II; 3 cr. A study of the epic and related forms as the romance and pastoral poetry, their development in Latin, Italian, Portuguese, and French and their culmination in Ariosto, Tasso, Camoëns, Spencer and Milton. Mrs. Alberson.

112. CLASSICAL BACKGROUNDS OF ENGLISH LITERATURE. II; 3 cr. A critical comparison of selected masterpieces from English and Classical literature in translation. Prerequisite: One of English 30, 32, 33, 40 or equivalent. Offered 1955 and in alternate years. Mr. MacKendrick.

119. THE NINETEENTH CENTURY. II; 3 cr. The leading authors of Europe and America in the 19th century.

120. THE NOVEL IN THE EIGHTEENTH CENTURY. 3 cr. A study of major developments with special attention to Prévost, Fielding, Voltaire, Sterne, Diderot and Goethe. Prerequisite: Junior standing. Mr. Block.

121. THE NOVEL FROM ROMANTICISM TO REALISM. 3 cr. A study of major developments from 1800 to 1870 with special attention to Balzac, Stendhal, Flaubert, Dostoevsky and Tolstoy. Prerequisite: Junior standing. Mr. Block.

123. TRAGIC DRAMA IN EUROPE, 1770–1850. II; 3 cr. Twelve European Dramas of the Romantic Age, with an excursion into modern plays (G. B. Shaw, etc.). Offered 1954 and alternate years. Mr. Henel.

145. ITALIAN RENAISSANCE BACKGROUND TO EUROPEAN LITERATURE. Yr; 2–3 cr. The great writers and their influence: Petrarch, Boccaccio, Lorenzo de Medici, Politian, Castiglione, Machiavelli, Ariosto. Mr. Orsini.

146. DRAMA AND STAGE DURING THE EUROPEAN RENAISSANCE. II; 2–3 cr. The relationship between stage conditions and the drama, as it developed from ancient times to Renaissance Comedy and Tragedy. Mr. Orsini.

147. DRAMA I. ANCIENT TO RENAISSANCE. I; 2 cr. Mr. Orsini.

148. DRAMA II. RENAISSANCE TO THE PRESENT. II; 2 cr. Mr. Block.

165. Literary Criticism. Yr; 3 cr. The development of critical theories from Aristotle to the 20th century. Readings in representative critics. Mr. Orsini.

173. Literary Type: Biography. I; 3 cr. The history of the development of biography; followed by a comparative study of the varieties of modern biographical writing. Mrs. Alberson.

174. Autobiography. II; 3 cr. A study of the world's great autobiographies. Mrs. Alberson.

176. The Romantic Movement in France, Germany and England. Yr; 3 cr. From Rousseau to Goethe and Chateaubriand. Ability to read German or French necessary. Mr. Block.

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

181. Proseminar. Yr; 2 or more cr. Individual studies for seniors. Prerequisite: Consent of instructor. Mrs. Alberson.

209. Great Books of World Literature. Yr; 2 cr. A study of the ideas and philosophies found in the great books of the world exclusive of English. Ten books a semester will be chosen for study. This course is planned for graduate students and is not open to those who have had Comparative Literature 9 or its equivalent. Privilege of attending lectures in Comparative Literature 9 is granted if desired. Mrs. Alberson.

271. Seminar: Problems of Comparative Literature. Yr; 2–3 cr. The subject varies from year to year. Mr. Orsini.

LITERATURES IN TRANSLATION

The following courses deal with individual foreign literatures in English translation. They are offered by the departments of French, German, Italian, Spanish, Scandinavian and Slavic Languages for students not having a command of the foreign language who may wish to acquaint themselves with the best in those literatures. As such they are highly recommended and they carry credit as electives. They do not carry credit in the language departments; neither do they carry credit toward a major or a minor in Comparative Literature. For Greek and Latin literature in translation, see Classics.

31a. Survey of Nineteenth-Century Russian Literature. I; 2–3 cr. Background, development and the principal works of Russian literature exclusive of the drama from Pushkin to Tolstoy. Prerequisite: Sophomore standing. Mr. Zawacki.

31b. Survey of Nineteenth-Century Russian Literature. II; 2–3 cr. A continuation of Comparative Literature 31a, but may be taken as a separate course. Prerequisite: Sophomore standing. Mr. Zawacki.

32. Masterpieces of Polish Literature. Sem; 2–3 cr. The principal works of Polish literature, their literary importance and social significance. Prerequisite: Sophomore standing. Mr. Zawacki.

40. Masterpieces of Russian Drama. Sem; 2–3 cr. The principal dramas in Russian literature, their social function and their literary significance. Prerequisite: Sophomore standing. Mrs. Gasiorowski.

41. Greek Life and Literature. (See General Classics 41.)

42. Roman Life and Literature. (See General Classics 42.)

48a. Contemporary Russian Literature. I; 2–3 cr. The background and the representative works of Russian literature from 1880 to 1917. Prerequisite: Sophomore standing. Mrs. Gasiorowski.

48b. CONTEMPORARY RUSSIAN LITERATURE. II; 2–3 cr. Russian literature from 1917 to the present, a continuation of Comparative Literature 48a, but may be taken as a separate course. Prerequisite: Sophomore standing. Mrs. Gasiorowski.

50. FRENCH MASTERPIECES IN TRANSLATION. Yr; 2 cr. Lectures, class discussion, and assigned readings. First semester: The Song of Roland, Chrétien de Troyes, Rabelais, Montaigne, Corneille and Molière. Second semester: Racine, Rousseau, Voltaire, Balzac, Flaubert, Baudelaire, Rostand, and Camus or Mauriac. Prerequisite: Sophomore standing. Mr. Harris.

51. CLASSICAL MYTHOLOGY. (See GENERAL CLASSICS 51.)

53. ITALIAN MASTERPIECES IN TRANSLATION. Yr; 2 cr. Lectures, class discussion, 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. Prerequisite: Sophomore standing. Mr. Rossi.

55. SPANISH AND PORTUGUESE MASTERPIECES IN TRANSLATION. Yr; 2 cr. Prerequisite: Sophomore standing.

56. LATIN-AMERICAN LITERATURE IN ENGLISH TRANSLATION. Sem; 2 cr. Mr. Rosaldo.

61. SURVEY OF PRE-NINETEENTH-CENTURY RUSSIAN LITERATURE. Sem; 2–3 cr. Prerequisite: Sophomore standing. Mr. Foljewski.

65. CHINESE IMAGINATIVE LITERATURE. Yr; 3 cr. Miss Chou.

70. SCANDINAVIAN CLASSICS. Yr; 2–3 cr. (See SCANDINAVIAN LANGUAGES 70.) Mr. Haugen.

71. LIFE AND LITERATURE IN THE VIKING AGE. Sem; 2 cr. Mr. Haugen.

75. GERMAN CLASSICS IN TRANSLATION. Yr; 2 cr. Selected masterpieces of German literature in English. Lectures, assigned readings, discussions, and topics. First semester, the *Nibelungenlied* to Schiller; second semester, Goethe to modern times. Offered 1954–55. Prerequisite: Sophomore standing. Mr. Naumann.

77. NORWEGIAN LITERATURE FROM RENAISSANCE TO REALISM. (See SCANDINAVIAN LANGUAGES 77.) Mr. Haugen.

91. TRENDS IN RUSSIAN CULTURE AND LITERATURE. Sem; 2–3 cr. The development of Russian culture within the framework of Russian literature. Prerequisite: Sophomore standing. Mrs. Gasiorowski.

92. INTRODUCTION TO SLAVIC CULTURES AND LITERATURES. Sem; 2–3 cr. Origins; linguistic problems of leadership; Slavs in the world of today. Prerequisite: Sophomore standing. Mr. Foljewski.

131. IBSEN AND STRINDBERG. Sem; 2 cr. (See SCANDINAVIAN LANGUAGES 131.) Mr. Haugen.

135. SCANDINAVIAN CLASSICS. Yr; 2–3 cr. (See SCANDINAVIAN LANGUAGES 135.) Mr. Haugen.

143. CERVANTES AND THE SPANISH GOLDEN AGE. Yr; 3 cr. Life and the works of Cervantes; historical developments in sixteenth- and seventeenth-century Spain relating to literature; influence of Cervantes in foreign literatures. Offered 1954–55. Mr. Singleton.

CONSERVATION

(See Biological Aspects of Conservation, page 77.)

CONTEMPORARY TRENDS

103. CONTEMPORARY TRENDS. II; 3 cr. A nontechnical consideration of the sciences, emphasizing atomic energy, and the social sciences, stressing national and international problems. Lectures and assigned reading. Prerequisite: Senior standing or consent of instructor. Mr. McCamy and Committee.

ECONOMICS

PROFESSORS BRONFENBRENNER, EARLEY, ELLSWORTH, GLAESER, GROVES, MORTON, PERLMAN, THATCHER, TRIPP, WITTE; ASSOCIATE PROFESSORS MORGAN, ROTWEIN, YOUNG, *chairman;* ASSISTANT PROFESSORS CAMERON, STOCKFISCH, WILMOT; INSTRUCTOR BRIDGMAN; LECTURER BRANDEIS.

MAJOR

For a major in Economics, high-school mathematical preparation and at least 30 credits in economics are required, including the following:

1. Economics 1a and 1b (General economics) and Economics 130 (Economic statistics).
2. At least *three* intermediate courses from the following list:
   Economics 105—Money and banking
   Economics 124a—Public finance—taxation
   Economics 142—Public utilities
   Economics 150—Economic theory
   Economics 156—International trade
   One course in Field III—Economic history and institutions
   One course in Field VI—Labor
3. Concentration in one of the fields I through VIII (into which course work is divided on the following pages) by one of these two options: (1) completion of three courses in one field, or (2) writing a thesis for 4 credits in the senior year by arrangement with a supervising professor in addition to completing two courses in one of the fields I through VIII.

No more than one course may be counted to meet both requirements (2) and (3). In allocating courses to fields, a course may be counted in either its primary or secondary listing but not in both. Students must achieve at least a *C* average in the major for graduation.

APPLICATION OF ECONOMICS TO SPECIAL COURSES

SCHOOL OF COMMERCE. Many of the courses in economics are also listed by the School of Commerce and carry credit for degrees from that School. For information about the courses and requirements of the School of Commerce, consult its bulletin or Dean Fayette H. Elwell.

AGRICULTURAL ECONOMICS. The work in Agricultural Economics is offered in the College of Agriculture by the Department of Agricultural Economics, of which Professor Raymond J. Penn is chairman. The courses listed in Field II, however, may be taken for economics credit by Letters and Science students, outside of the Twenty-Credits Rule.

INDUSTRIAL RELATIONS. No program leading to a special degree in industrial relations is offered in any department of the University. The courses listed in Field VI are not vocational, but have value as preparation for practical work in dealing with labor and industrial relations problems in business, labor, and government. For information about courses in industrial relations offered in other departments of the University, consult the Director of Industrial Relations Center of the University.

TRAINING IN ECONOMIC STATISTICS. A sequence of courses in economics, commerce, agricultural economics, sociology and mathematics has been arranged for those who desire to prepare for statistical positions, both during the undergraduate and graduate work. A list of required and suggested courses may be obtained from Assistant Dean E. A. Gaumnitz of the School of Commerce, who is in charge, or from the Office of the Department of Economics.

COURSES OF INSTRUCTION IN ECONOMICS

INDEPENDENT WORK

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

180. INDEPENDENT WORK IN ECONOMICS. I, II, or Yr; *cr. See page 41 of this bulletin for requirements and procedure. Staff.

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

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

INTRODUCTORY COURSES

1a. GENERAL ECONOMICS. I, II; 4 cr. Introduction to the organization and development of the American economy, with special reference to business, agriculture, labor and finance; principles of production and exchange; the pricing system and its functions; and the relevant contemporary economic problems and policies. Prerequisite: Sophomore standing. Mr. Stockfisch, Mr. Wilmot.

1b. GENERAL ECONOMICS. I, II; 4 cr. The distribution of income; the determinants of total economic activity; stability and security; public expenditures, taxation, and debts; government regulation of economic activity; America's economic role in world affairs; comparative economic systems such as capitalism, socialism and communism. Prerequisite: Economics 1a. Mr. Stockfisch, Mr. Wilmot.

I. ECONOMIC THEORY

118. INSTITUTIONAL ECONOMICS. II; 3 cr. (See GROUP III, ECONOMIC HISTORY AND INSTITUTIONS.)

131. WAGE DETERMINATION. II; 3 cr. (See GROUP VI, LABOR.)

150. ECONOMIC THEORY. I, II; 3 cr. Nature, purposes of economics. Relations of theory to facts, institutions, investigation. Survey of contemporary consumption, production, pricing, resources allocation, distribution theory. Undergraduates and graduates have different sections. Prerequisites: For undergraduates, two courses in economics. Mr. Earley, Mr. Rotwein.

154. RISK AND PROFIT. 3 cr. Nature of economic risk; relation to profit. Functions and operations of the price system. Capital theory. A functional explanation of variations in business profits. Prerequisite: Economics 1b or 105. Mr. Morton.

181. BUSINESS CYCLES. I, II; 3 cr. History and description, leading theories, the Keynesian system, savings and investment, measurement of income, output and employment, forecasting, policy. Prerequisite: Economics 1a; Economics 105 recommended. Mr. Morgan.

182. ECONOMIC CONTROL. II; 3 cr. Reading and discussion of outstanding works presenting different solutions to the problem of control of resource allocation and of employment. Prerequisites: Two courses in economics. Mr. Ellsworth.

183. DISTRIBUTION OF INCOME. I, II; 3 cr. Theory of wages, interest, rent and profits under pure and imperfect competition. Statistical data on distribution. "Exploitation" and "maldistribution" problems. Prerequisite: Economics 150 or concurrent registration. Mr. Bronfenbrenner.

184. THE ECONOMICS OF IMPERFECT COMPETITION. II; 3 cr. Price and output under noncompetitive conditions. Analysis of effects of product differentiation and related problems. Prerequisites: Two courses in economics. Mr. Rotwein.

192. MONEY, INCOME, AND PRICES. I; 3 cr. (See GROUP IV, FINANCE.)

193. FULL EMPLOYMENT POLICIES. 3 cr. (See GROUP IV, FINANCE.)

194. Wealth and Income. 2 or 3 cr. (See Group VIII, Statistics.)

197. Mathematical Economics. I; 3 cr. Mathematical techniques used in economic analysis. Historical illustrations of their application. Prerequiiste: Graduate standing or two years of college mathematics. Mr. Bronfenbrenner.

201. Development of Economics. Yr; 2 cr. A critical survey of economic thought from the mercantilists to recent writers with emphasis upon the "classical tradition" in the broad sense of that term. Prerequisite: Graduate standing. Mr. Earley.

202. Historical and Institutional Economists. II; 3 cr. The development of economics from the Greeks to the present time with emphasis upon economists using the historical and institutional approach to economic problems. Prerequisite: Graduate standing. Mr. Glaeser.

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

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

221. Land Economic Theory. II; 2 cr. (See Group II, Agricultural Economics.)

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

250. Seminar in Economic Theory. Yr; 2 cr. Critical discussion of debatable topics in the field of economic theory. Prerequisites: Graduate standing and Economics 150 or equivalent. Mr. Stockfisch.

253. Seminar in International Economics. Yr; 2 cr. (See Group V, International Economics.)

281. Seminar in Business Cycle Theory. II; 2 cr. Critical examination of recent theoretical literature; individual research in selected topics of current interest. Prerequisite: Graduate standing. Mr. Morgan.

297. Seminar in Mathematical Economics and Econometrics. 2 cr. (See Group VIII, Statistics.)

II. AGRICULTURAL ECONOMICS

4. Introduction to the Economics of Agriculture. II; 3 cr. A general introduction to the economics of agriculture; economic problems and principles in its organization; the place of agriculture in modern life; general relation of government to agriculture. Prerequisite: Economics 1a. Mr. Clodius.

106. Basic Economic Data in Agriculture. I; 3 cr. A survey of major agricultural data bodies from federal and state sources; their origins, characteristics, elements of organization and processing and sources. Prerequisite: Economics 1b or Economics 4. Mr. Ebling.

107. Agricultural Data Systems and Methods. II; 3 cr. A critical analysis and evaluation of the various systems and methods used in providing data on agriculture; historical development of systems and methods. Prerequisite: Economics 106 or consent of instructor. Mr. Ebling.

111. Advanced Farm Management. I; 3 cr. Economic analysis of practical farm operations with case studies; attention to farm planning and basic theoretical concepts. Prerequisite: Senior standing. Mr. Day.

117. Outlines of Land Economics. I; 3 cr. Economic principles underlying utilization and conservation of land or natural resources. Prerequisites: Economics 1a and junior standing. Mr. Loomer, Mr. Penn.

125. MARKETING AGRICULTURAL PRODUCTS. I; 3 cr. Principles and practices of agricultural marketing; market prices and costs; case studies. Prerequisite: Economics 1a. Mr. Schaars.

126. ECONOMICS OF AGRICULTURAL PROCESSING INDUSTRIES. I; 3 cr. Economic theory of production, pricing and market control applied to agricultural processing; government regulations and public policy; case studies. Prerequisite: A course in marketing or the equivalent. Mr. Clodius.

127. CO-OPERATION. I, II; 3 cr. Analysis of marketing organizations, methods and theory underlying producer and consumer co-operatives at home and abroad. Prerequisite: Junior standing. Mr. Bakken, Mr. Schaars.

128. MARKETING DAIRY PRODUCTS. I; 3 cr. Economic factors involving marketing milk and milk products; trade channels, market organizations, sales, pricing plans, costs, regulation, consumer demand. Prerequisites: A course in economics and a course in agricultural marketing or consent of instructor. Mr. Cook.

129. CO-OPERATIVE MANAGEMENT PROBLEMS. II; 2 cr. Consideration of business structure of co-operative associations; problems involving organization, membership relations, financing, trade and sales practices, administrative policies. Prerequisite: Economics 127 or equivalent. Mr. Schaars.

152. FARMER MOVEMENTS. I; 3 cr. History of farmers' efforts to improve their status through organizations designed to control markets and influence legislation. Prerequisite: Economics 1a or consent of instructor. Mr. Penn.

155. PRICES OF AGRICULTURAL PRODUCTS. II; 3 cr. Analysis and interpretation of factors affecting agricultural prices; study of price movements; price policy. Prerequisite: Economics 1b. Mr. Halvorson.

162. AGRICULTURAL POLICIES. II; 2 cr. Policies adopted by governmental, agricultural and other agencies affecting the economic position of agriculture; current policy problems. Prerequisite: Senior standing. Mr. Penn and staff.

210. SEMINAR IN THE ECONOMICS OF AGRICULTURAL PRODUCTION. I; 2 cr. Economic analysis and research procedure applied to the organization of agricultural production in relation to the farm business. Prerequisite: Graduate standing. Mr. Day, Mr. Staniforth.

211. SEMINAR IN FARM MANAGEMENT. II; 2 cr. History and development of farm management; survey and evaluation of research and research methods. Prerequisite: Graduate standing. Mr. Day, Mr. Staniforth.

221. LAND ECONOMIC THEORY. II; 2 cr. Economics of land utilization, theories of rent, principles of land valuation and taxation. Prerequisite: Graduate standing. Mr. Loomer.

225. SEMINAR IN AGRICULTURAL MARKETING. I; 2 cr. Basic problems; organization and methods of marketing research; review of economic literature in marketing; marketing legislation. Offered in 1954–55 and alternate years. Prerequisite: Graduate standing. Mr. Schaars.

226. SEMINAR IN LAND PROBLEMS. Yr; 2 cr. Land tenure and utilization research and policy problems. Prerequisite: Graduate standing. Mr. Loomer, Mr. Penn.

227. SEMINAR IN LEGAL-ECONOMIC ASPECTS OF CO-OPERATIVES. II; 2 cr. Relationship of economic and legal problems in co-operative organization, similarities and differences with general corporation law. Prerequisite: Graduate standing. Mr. Bakken, Mr. Stedman.

228. SEMINAR IN THEORY OF MARKETS AND MARKETING. II; 2 cr. Studies of the historical development of markets, modern market institutions such as auctions, clearing houses, exchanges, and boards of trade. Prerequisite: Graduate standing. Mr. Bakken.

229. SEMINAR IN ADVANCED AGRICULTURAL ECONOMICS. II; 3 cr. The field of agricultural

economics with respect to its origins and main issues. Prerequisite: Graduate standing. Mr. Parsons.

255. SEMINAR IN PRICE ANALYSIS. II; 2 cr. Application of statistical and other methods involved in analyzing agricultural price and related problems. Prerequisite: Economics 196 or equivalent. Mr. Halvorson.

III. ECONOMIC HISTORY AND INSTITUTIONS

118. INSTITUTIONAL ECONOMICS. I; 3 cr. The institutional organization of economic society, with special attention given to the bearing of constitutional law upon the changing structure. Interrelations between institutional theories and policies. Prerequisites: Graduate standing or senior standing and two courses in economics. Mr. Glaeser.

119. EVOLUTION OF INDUSTRIAL SOCIETY. I; 3 cr. Guilds, mercantile capitalism, industrial capitalism, finance capitalism, and management capitalism viewed as institutional framework for economic activity. Prerequisites: Economics 1a and junior standing. Mr. Perlman.

120. SOCIAL SECURITY. I; 3 cr. Deals with all aspects of social security, including old-age security, health insurance, workmen's compensation, unemployment insurance, social assistance. Prerequisites: Economics 1a and junior standing or major in social work. Mr. Witte.

133. FINANCIAL HISTORY OF THE UNITED STATES. I; 3 cr. (See GROUP IV, FINANCE.)

134. ECONOMIC HISTORY OF THE UNITED STATES. I; 3 or 4 cr. Evolution of the American economy from household manufacturing to large-scale industry. Development of agriculture, transportation and trade. Analysis of merchant, industrial and finance capitalism. Changing role of government in the economy. Prerequisite: Economics 1a. Miss Brandeis.

140a. ECONOMIC HISTORY OF MODERN EUROPE. I; 3 cr. A survey of the economic development of Europe from the early modern period to approximately 1850, with primary emphasis on the establishment of an industrial civilization in England. Prerequisite: Economics 1a or a course in Modern European History. Mr. Cameron.

140b. ECONOMIC HISTORY OF MODERN EUROPE. II; 3 cr. A continuation of 140a which, however, is not a prerequisite. Emphasis on industrial developments on the Continent, and on the economic backgrounds and consequences of wars and revolutions. Prerequisite: Economics 1a or a course in Modern European History. Mr. Cameron.

143. STRUCTURE OF THE AMERICAN ECONOMY. I, II; 3 cr. Major aspects of economic structure. Problems of consumption, distribution, location, and business organization. Prerequisite: Economics 1a. Mr. Rotwein.

144. CAPITALISM AND SOCIALISM. II; 3 cr. (See GROUP VI, LABOR.)

145. AMERICAN LABOR HISTORY. I, II; 3 cr. (See GROUP VI, LABOR.)

146. GOVERNMENT AND BUSINESS. I, II; 3 cr. General survey of governmental activities affecting business with emphasis upon aspects not dealt with in other courses. Prerequisites: Economics 1a and junior standing. Mr. Witte.

152. FARMER MOVEMENTS. I; 3 cr. (See GROUP II, AGRICULTURAL ECONOMICS)

158. LARGE-SCALE ENTERPRISE. II; 3 cr. The modern industrial structure; competition and concentration; combinations and cartels; economic and legal restrictions upon size. Prerequisite: Economics 1a. Mr. Wilmot.

160. ECONOMIC PROBLEMS OF UNDERDEVELOPED AREAS. I; 3 cr. (See GROUP V, INTERNATIONAL ECONOMICS.)

161. EUROPEAN ECONOMIC AND CULTURAL DEVELOPMENT. II; 3 cr. A case study of the industrialization of continental Europe. Population, food supply, resources, technology

and capital formation, social structure, and government policy. Prerequisites: A course in Modern European History and Economics 1a. Mr. Cameron.

166. ECONOMICS OF POPULATION. 3 cr. Changes in the size and location of populations, as related to levels of income and business activity. Prerequisites: Junior standing and Economics 1a or Sociology 1 or 2. Mr. Morgan.

173. ECONOMICS OF CONSUMPTION. II; 3 cr. Consumer choice and the economic order. Consumption and saving and their effects upon income and employment. Monopoly and advertising and the consumer. Prerequisite: Economics 1b or consent of instructor. Mr. Rotwein.

190. MONOPOLIES AND CARTELS. I; 3 cr. A study of the nature, structure, extent, policies, effects, and control of domestic monopolies, international cartels, and international commodity agreements (except in labor, public utilities and transportation). Prerequisites: Economics 1a and junior standing. Mr. Wilmot.

220. SEMINAR IN SOCIAL SECURITY. Yr; 2 cr. The history, present status, current problems, trends in social security in the United States and abroad. Prerequisite: Graduate standing. Mr. Miles, Mr. Witte.

240. SEMINAR IN MODERN EUROPEAN ECONOMIC HISTORY. Yr; 2 cr. Prerequisite: Graduate standing. Mr. Cameron.

246. ROLE OF GOVERNMENT IN THE ECONOMY. Yr; 2 cr. Historical and current over-all relations between government and business. Prerequisite: Graduate standing. Mr. Witte.

258. IMPERFECT COMPETITION AND THE LAW. II; 2 cr. Related legal and economic problems on the control of monopoly, business practices, and prices. Prerequisites: Graduate standing and consent of instructor. Mr. Stedman, Mr. Earley, Mr. Rotwein.

260. SEMINAR: SOCIO-ECONOMIC CHANGE IN UNDERDEVELOPED AREAS. II; 2 cr. (See GROUP V, INTERNATIONAL ECONOMICS.)

IV. FINANCE

103. FINANCIAL INSTITUTIONS. I or II; 3 cr. Our financial institutions as an integrated system, including savings banks, trust, savings and loan companies, etc.; consumption finance, agricultural finance, government credit institutions. Interrelationships. Market structure. Economic functions. Adequacy. Prerequisite: Economics 105. Mr. Earley.

105. MONEY AND BANKING. I, II; 3 cr. Monetary and banking principles and practice; price theories; banking systems and their operation. Prerequisite: Economics 1a. Mr. Morton.

110. INVESTMENT PRINCIPLES. I, II; 3 cr. The investor with relation to problems of financing business and governments. Principles underlying the determination of investment policy for both individual and institutional investors. Prerequisite: Economics 137. Mr. Fraine, Mr. Graner.

124a. PUBLIC FINANCE—TAXATION. I, II; 3 or 4 cr. Specific taxes which make up the national, state, and local systems with special emphasis upon the practical social problems involved. Prerequisites: Economics 1a and junior standing. Mr. Groves.

124b. PUBLIC FINANCE—TAXES, DEBTS, EXPENDITURES. I, II; 3 cr. Social security taxes; revenue other than taxes; federal-state-local fiscal relationships; public expenditures; public debts; fiscal policy. Prerequisite: Economics 124a or consent of instructor. Mr. Groves.

133. FINANCIAL HISTORY OF THE UNITED STATES. 3 cr. Monetary and financial institutions and practices from colonial times to the present. Federal, state and municipal finance. Tariff legislation and its financial implications. Prerequisites: Economics 1a and junior standing. Mr. Morton.

137. Corporation Finance. I, II; 3 cr. Corporate organization and control; corporation securities; management of fixed capital, working capital, income; reserve, surplus, dividend policies; investment banking and securities market; failure and reorganization. Prerequisite: Economics 1a. Mr. Graner.

153. International Finance. I; 3 cr. (See Group V, International Economics.)

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

188. Federal Tax Policies. II; 3 cr. Problems of over-all fiscal policy, including budget and debt management. Prerequisites: Economics 105 and 124a. Mr. Bronfenbrenner.

191. The Credit System. II; 3 cr. Operations and policies of commercial and central banks. Domestic and international credit relationships. Prerequisite: Economics 105. Mr. Morton or Mr. Earley.

192. Money, Income and Prices. I; 3 cr. Monetary standards, the value of money, monetary equilibrium, employment, output and prices, monetary policy and public finance. Prerequisite: Economics 105. Mr. Morton or Mr. Earley.

193. Full Employment Policies. 3 cr. Monetary, banking, credit and fiscal policies. Monopoly, competition and the national debt. Price rigidities, flexibilities, and policies affecting output and employment. Prerequisite: Economics 1b or 105 or graduate standing. Mr. Morton.

203. Seminar in Economics of Credit Institutions. I or II; 2 cr. Individual research, seminar reports and group discussion of selected economic problems related to the structure and functioning of the financial system. Prerequisites: Graduate standing and one of Economics 103, 191 or 192 or equivalent. Mr. Earley.

205. Banking and Monetary Theory. Yr; 2 cr. Monetary policy; prices, capital formation, and economic activity. Liquidity, solvency, the gold standard, managed currency, stability, inflation and deflation. Prerequisites: Graduate standing, a course in economic theory and the equivalent of Economics 191 or 192. Mr. Morton.

224. Seminar in Public Finance. Yr; 2 cr. Advanced study of public finance problems and literature; research. Subject matter changes from year to year; seminar may be repeated. Prerequisites: Graduate standing and Economics 124 or consent of instructor. Mr. Groves.

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. Prerequisite: Consent of instructor. Mr. Fraine, Mr. Graner.

V. INTERNATIONAL ECONOMICS

141. Economic Problems of the Far East. II; 3 cr. Economic history of southeast Asia following contact with western civilization. Present problems of population, development, capital formation, and forms of economic organization. Prerequisites: Economics 1a and junior standing. Mr. Bronfenbrenner.

151. Economic Problems of Latin America. I or II; 2 cr. A study of the economic characteristics of the principal Latin-American countries, and of the leading economic problems which confront them. Prerequisite: Economics 1a. Mr. Ellsworth, Mr. Morgan.

153. International Finance. I; 3 cr. Theory and recent experience in currency standards, international banking, exchange fluctuations, and exchange controls. International monetary co-operation, and special topics. Prerequisite: Economics 156; Economics 105 recommended. Mr. Morgan.

156. International Trade. I, II; 3 cr. Development of international trade and finance, and theory applied to them since mercantilist times; major current problems in international economic relations. Prerequisite: Economics 1a. Mr. Ellsworth, Mr. Morgan.

157. International Economic Policy. II; 2–3 cr. Policies relating to trade, balance of payments, employment, with special emphasis on recent developments and on the role played by the U. S. Prerequisite: Economics 156. Mr. Ellsworth.

160. Economic Problems of Underdeveloped Areas. I or II; 3 cr. Problems of development of selected areas; agricultural technology, economic institutions and population pressure; consumption, savings and capital formation; principles of economic development. Prerequisites: Senior standing and two courses in economics. Mr. Ellsworth, Mr. Morgan, Mr. Parsons.

253. Seminar in International Economics. Yr; 2 cr. Individual or group research on chosen topics; group discussion of procedures and results. Prerequisites: Graduate standing and Economics 256. Mr. Ellsworth.

256. Advanced International Economics. Yr; 2 cr. Reading and discussion of some landmarks in the theoretical literature of international economics. Prerequisites: Graduate standing, Economics 156 and 153 or consent of instructor. Mr. Ellsworth.

260. Seminar: Socio-Economic Change in Underdeveloped Areas. II; 2 cr. Social and economic factors relating to stability, growth and change in the non-western areas of the contemporary world. Prerequisites: Graduate standing and consent of instructor. Mr. Barnett, Mr. Ellsworth, Mr. Hart, Mr. Morgan, Mr. Parsons, Mr. Rubin.

VI. LABOR

119. Evolution of Industrial Society. I; 3 cr. (See Group III, Economic History and Institutions.)

120. Social Security. I; 3 cr. (See Group III, Economic History and Institutions.)

122. Labor Problems. I, II; 3 cr. The problems of labor in the American "market economy" with special regard to the group organizations of labor and management, their interrelations and relations to the government. Prerequisites: Economics 1a and junior standing. Mr. Young.

123. Labor Legislation. II; 3 or 4 cr. Government regulation of labor conditions: child labor, wage and hour laws; accident and unemployment compensation; old-age insurance; the law of collective bargaining. Prerequisites: Economics 1a and junior standing. Miss Brandeis.

131. Wage Determination. II; 3 cr. The economic and institutional forces which determine wages; wage theories; wages in relation to other aspects of the economy and social order. Prerequisites: Senior standing and Economics 122 or 145. Mr. Tripp.

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. A major emphasis on the Marxian theoretical system and its critique. Prerequisites: Economics 1a and senior standing. Mr. Perlman.

145. American Labor History. I, II; 3 cr. The American labor movement's historical experiment with the temper of the American community, the political and legal institutions, and with the psychology of labor. Labor's contributions to collective democracy. Prerequisites: Economics 1a and junior standing. Mr. Perlman, Mr. Young.

147. Foreign Labor Movements. I; 3 cr. Labor movements of the most important countries. Historical, descriptive and analytical. Emphasis on the inter-action between the trade union and political organizations. Prerequisites: Economics 1a and junior standing. Mr. Perlman, Mr. Young.

148. The Economics of Collective Bargaining. I; 3 cr. Major problems in present-day collective bargaining; practical aspects and economic implications. Prerequisite: Economics 1b or consent of instructor. Mr. Tripp.

172. Industrial Conflict. I; 3 cr. Critical analysis of the issues in industrial conflict, such as seniority, discipline, man-effort, wage conflicts, strikes. Prerequisite: Economics 1b or a labor course or consent of instructor. Mr. Tripp.

174. The Labor Market. I; 3 cr. Economic and social processes determining employment; unemployment problems; full employment; theory of employment; policies for control of employment and unemployment. Prerequisite: Economics 1a. Mr. Tripp.

220. Seminar in Social Security. Yr; 2 cr. (See Group III, Economic History and Institutions.)

222. Seminar in Labor. Yr; 2 cr. Research seminar in the problems of organized labor in industry and in labor history. Prerequisite: Graduate standing. Mr. Perlman, Mr. Young.

248. Seminar in Collective Bargaining. Yr; 2 cr. Legal and economic aspects of current issues in collective bargaining. Prerequisite: Graduate standing. Mr. Tripp.

249. Government and Labor. I or II; 2 cr. Basic and current problems in labor legislation and the government's role in industrial relations. Prerequisite: Graduate standing. Mr. Witte.

VII. PUBLIC UTILITIES

135. Economics of Transportation. I; 3 cr. History and growth of all forms of transportation: their organization and operation, economic characteristics and present position in the economic system. General principles of pricing and rate and service regulation. Prerequisite: Economics 1a. Mr. Thatcher.

136. Economics of Transportation. II; 3 cr. Continuation of Economics 135, with emphasis on the basic considerations underlying current problems of regulation and operation. Prerequisite: Economics 135 or consent of instructor. Mr. Thatcher.

142. Public Utilities. I, II; 3 cr. The development of public utilities in the United States. The institutional basis of public utility regulation. Regulatory agencies, their instrumentalities and policies. Public and private initiative in the planning and execution of policies for the conservation and utilization of natural resources. Prerequisite: Economics 1a. Mr. Glaeser.

189. Industrial and Commercial Traffic Principles. I; 3 cr. Principles and practices applicable to all carriers and problems peculiar to each type—railroad, highway, water and air. Among topics considered are: carrier's liability, freight classification, freight rates, etc. Transit privileges and government regulation. Prerequisite: Economics 135 or consent of instructor. Mr. Thatcher.

195. Public Utility Management. II; 3 cr. Survey of management problems. Accounting and statistical controls. Economics of regulated monopoly price, cost analyses and differential rates. Financial policies. Labor problems. Prerequisite: Economics 142. Mr. Glaeser.

266. Seminar in Public Utilities. Yr; 2 cr. Research in the field of public utilities. All forms of public utility enterprise will be stressed, including transportation. Emphasis will be upon changing and emerging problems. Prerequisite: Graduate standing or consent of instructors. Mr. Glaeser, Mr. Thatcher.

VIII. STATISTICS

130. Economic Statistics. I, II; 3 cr. Sources of statistical data, tabulation, charts graphs, averages, dispersion, sampling and probability, index numbers, trends, seasonal variation, economic cycles, correlation. Prerequisite: Economics 1a. Mr. Gaumnitz.

132. Statistical Economics. I, II; 3 cr. Applications of methods to problems of the students' interest. Study of reports and forecasts of business firms, bureaus, agencies. Prerequisite: A course in statistics. Mr. Gaumnitz.

194. Wealth and Income. I or II; 2 or 3 cr. Wealth and income and their principal components in the United States; some international comparisons. Relationship to economic welfare. Problems in definition and measurement. Prerequisites: Economics 1b and a course in statistics. Mr. Bronfenbrenner.

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

197. Mathematical Economics. I; 3 cr. (See Group I, Economic Theory.)

230. Seminar in Statistical Research. Yr; 2 cr. Co-operative research in one or more economic problems, each member of the class concentrating on a selected phase of the common subject. Prerequisite: Graduate standing. Mr. Gaumnitz.

255. Seminar in Price Analysis. II; 2 cr. (See Group II, Agricultural Economics.)

297. Seminar in Mathematical Economics and Econometrics. Yr; 2 cr. Mathematical formulation and statistical testing of economic theory. Prerequisite: Graduate standing or consent of instructor. Mr. Bronfenbrenner.

IX. SPECIAL COURSES

139. Principles of Insurance. I, II; 3 cr. Designed (1) to precede advanced work in insurance and prerequisite thereto, and (2) to acquaint the non-specialist with the economic and social services of the institution of insurance. Prerequisite: Economics 1a. Mr. Center.

179. Urban Land Economics. I, II; 3 cr. The institutional background of real property, economics of urbanization, forces of demand for urban land, factors of supply, the building industry, real estate credit, the real estate market, cyclical fluctuation, rents and prices, real estate market analysis, city growth and structure, value and valuation, urban land problems of housing, city planning, land-use control and urban redevelopment. Prerequisites: Economics 1a and junior standing. Mr. Ratcliff, Mr. Andrews.

279. Seminar in Urban Land Economics. Yr; 2 cr. Special management problems and public policy issues relating to land development and land utilization in urban areas. Prerequisite: Graduate standing or consent of instructor. Mr. Ratcliff.

The following courses may be taken for credit by Letters and Science students under the Twenty-Credits Rule (see Section 17, page 39) without special permission of the dean. These courses do not count toward the major in Economics.

Commerce 43. Business Ethics.
Commerce 109. Commercial Law.
Commerce 111. Industrial Management.
Commerce 121. Fire and Casualty Insurance.
Commerce 138. Life Insurance.
Commerce 168. Highway Transportation.
Commerce 169. Air Transportation.
Commerce 171. Personnel Management.
Commerce 178. Housing Problems.

ENGLISH

PROFESSORS CASSIDY, CLARK, DORAN, DOREMUS, ECCLES, FULCHER, HOFFMAN, HUGHES, *chairman,* LACY, POCHMANN, POOLEY, QUINTANA, RODMAN, WALLERSTEIN, WHITE, WILEY; ASSOCIATE PROFESSORS SEARLES, WOODRING; ASSISTANT PROFESSORS ENCK, PRESSON, THOMAS, WHITLEY; INSTRUCTORS BLANCHARD, CLEVELAND, DIAMOND, GLECKNER, HEDGES, JEROME, SWANDER.

MAJOR. A minimum of 24 credits in advance of all required courses (that is, in advance of English 1, 2, 3, 11, 30, 32, 33, and 40) in freshman and sophomore English. These 24 credits must include (1) one, and only one, of the following: 37, 136, 137; (2) two of the following, one of which must be either Chaucer or Milton: 57, 129, 131, 156, 157, 160, 161, 162; (3) at least one of the following: 112, 114, 132, 133, 134, 135, 138, 139b, 150, 169, 174.

No senior thesis in English is now required, though any student whose grades in English courses taken at the University of Wisconsin average *B* may write a senior thesis. The senior thesis will carry 4 credits, normally spread over two semesters.

Candidates for the English major must have maintained a 2.5 grade-point average in their courses in that subject during the freshman and sophomore years. Students intending to choose English as their major study are urged to complete the introductory course (30, 32, 33 or 40) not later than the close of the sophomore year. 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. Prerequisites: An average of 3.5 grade-points per credit for the first four semesters and the written recommendation of three sophomore instructors. For further information consult the chairman of the department.

WRITING CLINIC. The aim of the Writing Clinic is to provide diagnosis and remedial work for students whose writing is judged unsatisfactory by instructors outside the English Department. Since facilities are limited, instructors are urged to refer such students to the Clinic as early as possible in the semester. Consult Mrs. Jerome, 363 Bascom Hall.

TEACHING MAJOR AND MINOR. See School of Education.

COMPOSITION COURSES

0. SUB-FRESHMAN ENGLISH. I, II; 0 cr. A noncredit course on the pre-college level in fundamentals of writing; open only to students not admitted to English 1a. Mr. Lacy and staff.

1a. FRESHMAN ENGLISH. I, II; 3 cr. All entering freshmen in all colleges are assigned, on the basis of performance in placement tests, to appropriate courses in Freshman English For the great majority of students this assignment is English 1a. (Students who receive a grade of *A* in English 1a will have completed the Freshman English requirement.) Mr. Lacy and staff.

1b. FRESHMAN ENGLISH. I, II; 3 cr. Prerequisite: English 1a. A passing mark in English 1b completes the Freshman English requirement. But any grade in English 1b is provisional: if subsequently a student is reported deficient or careless in English composition, he may be required to take additional work in that subject. Mr. Lacy and staff.

2. INTERMEDIATE COMPOSITION. I, II; 3 cr. Prerequisite: Completion of Freshman English requirement. The main emphasis is on various types of exposition. Mr. Rodman and staff.

3. INTRODUCTION TO CREATIVE WRITING. I, II; 3 cr. Prerequisite: Completion of Freshman English requirement. Mr. Whitley and staff.

9. NONCREDIT COURSE IN PRACTICAL ENGLISH FOR FOREIGN STUDENTS. I; II. For further information consult the instructors. Mr. Wiley and staff.

11. FRESHMAN ENGLISH. I, II; 3 cr. Students are assigned to this course on the basis of placement tests. Successful completion of this one-semester course fulfills the Freshman English requirement. Mr. Lacy and staff.

23. ENGLISH LANGUAGE IN AMERICA. Sem; 3 cr. The development of the distinctive characteristics and regional types of present-day United States speech. Mr. Cassidy.

105. CREATIVE WRITING. Yr; 2 or 3 cr. Prerequisite: Consent of instructor. Miss White.

106. CREATIVE WRITING. Yr; 2 or 3 cr. Prerequisite: Consent of instructor. Mr. Fulcher.

107. CREATIVE WRITING. Yr; 2 or 3 cr. Prerequisite: Consent of instructor. Mr. Enck.

128. ADVANCED COMPOSITION. I, II; 3 cr. Prerequisite for B.S. candidates: Completion of English 2 or 3. Open only to students in the School of Education. Required of all English majors in the School of Education. Course includes practice in criticism of student writing. Mrs. Thomas.

INTRODUCTORY LITERATURE COURSES

Students may fulfill the B.A. and B.S. requirements of 6 credits in sophomore literature by taking two semesters of work from the courses hereinafter described—30, 32, 33, 40. To complete the sophomore requirement, a student may offer any combination of semester courses with the exception that 30 and 33 may not in any way be combined.

30. SURVEY OF ENGLISH LITERATURE. Yr; 3 cr. An appreciative study of representative work by the most outstanding English writers, set against historical background. Prerequisite: Completion of Freshman English requirement. Miss Wallerstein and staff.

32. CONTEMPORARY LITERATURE. Yr; 3 cr. An approach to literature through significant and representative modern prose and poetry. Prerequisite: Completion of Freshman English requirement. Mr. Fulcher, Mr. Lacy, Mr. Wiley and staff.

33. ENGLISH LITERATURE AND MODERN CIVILIZATION: SOME ASPECTS. Yr; 3 cr. Shakespearean and contemporary drama, the satire of Swift and Orwell, novels of the nineteenth and twentieth centuries, and a few of the greater English poets from the time of Blake to the present are taken up, not necessarily in chronological order. Prerequisite: Completion of Freshman English requirement. Mr. Quintana, Mr. Woodring and staff.

40. AMERICAN LITERATURE. Yr; 3 cr. An introductory survey of the major spokesmen of Americanism. Prerequisite: Completion of Freshman English requirement. Mr. Clark, Mr. Pochmann, Mr. Hoffman and staff.

ENGLISH LANGUAGE AND LITERATURE

23. AMERICAN ENGLISH. Sem; 3 cr. The English language in America since the seventeenth century; development of distinctive characteristics of vocabulary, pronunciation, and grammar, and establishment of regional varieties within the United States. Mr. Cassidy.

37. SHAKESPEAREAN DRAMA. Yr; 3 cr. A broad course for undergraduates. Miss White.

57. MILTON. Sem; 3 cr. All of Milton's English poetry is read and some of his prose. Either 57 or 157 (which see) is offered yearly. Mr. Hughes, Mr. Quintana.

68. THE NOVEL IN THE MODERN WORLD. Does not give credit in English. (See COMPARATIVE LITERATURE 68.) Offered 1954–55 and in alternate years. Mr. Fulcher.

99. INDEPENDENT READING. Yr; *cr. Independent reading under adequate direction for undergraduates not candidates for honors. For further information consult the chairman.

100. Senior Thesis. Yr; 2 cr. Students must register with the secretary of the department for indivdiual theses.

108. British Drama, 1660–1860. Sem; 3 cr. Plays, playwrights, and theaters from Restoration to sentimental comedy, from heroic to Gothic tragedy, from Dryden to Shelley. Mr. Mitchell.

109. British Drama, 1860 to the Present. Sem; 3 cr. Melodrama, realism, high comedy and the social play, including Robertson, Jones, Pinero, Gilbert, Wilde, Shaw, Galsworthy, and contemporary playwrights. Mr. Mitchell.

112. Hawthorne, Melville, and Mark Twain. Sem; 3 cr. Their literary personalities and range of ideas. Mr. Pochmann.

114. Poe, Emerson, and Whitman. Sem; 3 cr. Study of their ideas and literary theories in relation to their times. Mr. Pochmann.

115. English Drama Before Shakespeare. Sem; 3 cr. Medieval and Renaissance drama including Marlowe and other predecessors of Shakespeare. Mr. Eccles.

116. English Drama in the Time of Shakespeare. Sem; 3 cr. The chief English dramatists, excluding Shakespeare, from 1593 to the closing of the theaters in 1642. Mr. Eccles.

120. Old English. 3 cr. (required of candidates for the M.A.): The elements of Old English grammar, with selected readings. Mr. Cassidy, Mr. Presson.

121. Middle English. Sem; 3 cr. The language and literature of England in selected texts from the Norman Conquest to Chaucer. Mr. Cassidy.

122. Beowulf. Sem; 3 cr. Mr. Cassidy.

123. History of the English Language. Sem; 3 cr. Standards of usage and pronunciation; development of the English vocabulary. If taken by candidates for the teachers' certificate it should be taken in the junior year. Mr. Cassidy.

124. History of the English Language for Teachers. Sem; 3 cr. Open only to majors in the School of Education, who may take either English 123 or 124. Mr. Pooley, Mr. Presson.

125. Contemporaries and Immediate Successors of Chaucer. Sem; 3 cr. Selections from *Piers Plowman,* the Pearl Poet, Gower, Wiclif, Lydgate, and others; maturity of the Middle Ages, and foreshadowings of the Renaissance in England. Mr. Cassidy, Mr. Presson, Mr. Hughes.

127. Recent English Literature. Yr; 3 cr. A course dealing with modern English literature from the late Victorian period down to the present. Mr. Fulcher, Mr. Wiley.

129. Swift and His Contemporaries. Sem; 3 cr. Three fourths of the course is devoted to a study of Swift; for purposes of comparison, Defoe and Pope are briefly considered. Mr. Quintana.

130. Metric Principles of English Poetry. Sem; 1 to 3 cr. Principles of English versification. A study of the verse or music in English poetry. Principal work done in class. Those who wish to do some writing to try out the verse forms will elect more than 1 credit. Miss Wallerstein.

131. Chaucer. Sem; 3 cr. *The Canterbury Tales, Troilus and Criseyde.* Study of changing literary, linguistic, and intellectual traditions. Mr. Cassidy, Mr. Hughes, Mr. Presson.

132. Victorian Prose. Sem; 3 cr. Survey of the major English prose writers, 1830–1900, and their relation to the literary history of the period. Mr. Doremus.

133. Intellectual Opinion in 19th-Century England, as Reflected in Literature.

Sem; 3 cr. A consideration of the social, religious, and aesthetic implications of various intellectual movements in the latter part of the 19th century in England. Mr. Woodring.

134. ROMANTIC POETRY. Sem; 3 cr. English poetry from Wordsworth to Keats; certain essays—literary and critical—by the writers of the time are also considered. Mr. Woodring.

135. VICTORIAN POETRY. Sem; 3 cr. English literary history 1830–1900 with special attention to poetry and a consideration of various aesthetic and intellectual movements. Mr. Doremus.

136. ELIZABETHAN DRAMA INCLUDING SHAKESPEARE. Yr; 3 cr. Twenty-three plays by Shakespeare and fifteen of the best plays by his contemporaries. Mr. Eccles.

137. SHAKESPEARE. Yr; 3 cr. About half the plays of Shakespeare are read, eight of which are studied in detail. Miss Doran.

138. ROMANTIC CRITICS AND ESSAYISTS. Sem; 3 cr. The major prose-writers of the Romantic Movement (especially Coleridge, Hazlitt, DeQuincey) with particular attention to their critical method and the development of their aesthetic theory. Not offered 1954–55.

139. THE ENGLISH NOVEL. Yr; 3 cr. Richardson to Hardy. Offered 1955–56 and in alternate years. Mr. Fulcher.

140. SPOKESMEN OF AMERICAN IDEALS. Sem; 3 cr. The ideas and ideals of those who were spokesmen, from 1787 to 1900, of the distinctively American and democratic way of life. Mr. Clark.

148. LITERARY ASPECTS OF THE ENGLISH BIBLE. Yr; 3 cr. Epic stories, poetry, etc., in historical background. 148a: Old Testament. 148b: Old Testament (completed), Apocrypha, New Testament. Miss Doran.

150. AMERICAN FICTION. Sem; 3 cr. Studies of Cooper, Hawthorne, Melville, Howells, Mark Twain, Bret Harte, James, Crane, and Frank Norris. Mr. Clark.

156. EARLY SEVENTEENTH CENTURY. Sem; 3 cr. Poetry and prose from 1600 to 1660. John Donne, Ben Jonson, and the poets who stem from them and from Spenser; the chief prose writings in a period of great intellectual change (Bacon, Sir Thomas Browne, Hobbes, etc.); the new poetry. Miss Wallerstein.

157. MILTON. Sem; 3 cr. Either 157 or 57 (which see) is offered yearly. Mr. Quintana.

160. THE SIXTEENTH CENTURY. Sem; 3 cr. A survey of English non-dramatic literature and of the thought embodied in that literature, from Sir Thomas More through Spenser to John Donne. Mr. Hughes.

161. LITERATURE 1660–1745. Sem; 3 cr. The chief writers of the neo-classical period; Dryden, Bunyan, Steele and Addison, Swift, Pope, Defoe. Miss Wallerstein.

162. LITERATURE 1745–1798. Sem; 3 cr. The chief literary figures of this period—Fielding, Johnson, Goldsmith—are studied in some detail. Consideration given to other poets—Gray, Collins, Crabbe, Blake—and to other prose writers like Hume and Burke. Mr. Quintana.

163. INTELLECTUAL OPINION DURING THE ENLIGHTENMENT IN ENGLAND AS REFLECTED IN LITERATURE. Sem; 3 cr. A consideration of the chief intellectual trends in the civilization of England from the mid-17th century to the close of the 18th century. Mr. Quintana.

165. ENGLISH LITERARY CRITICISM. Sem; 3 cr. The outstanding documents in English literary criticism from Sidney's *Apology* to T. S. Eliot's *Selected Essays* are analyzed for their permanent and intrinsic value as well as for their historical interest. Mr. Hughes.

166. AMERICAN LITERARY CRITICISM. Sem; 3 cr. Survey of the development of American critical theory from the Puritans to contemporary times combining analysis of theory with practice in critical writing. Mr. Pochmann.

169. MAJOR AMERICAN POETS. Sem; 3 cr. The development, range of ideas, and poetic theory of Freneau, Bryant, Whittier, Emerson, Poe, Longfellow, Lowell, Holmes, Dickinson, Lanier, Whitman, Lindsay, and Robinson. Mr. Clark.

170. CONTEMPORARY AMERICAN LITERATURE, 1914 TO THE PRESENT. Yr; 3 cr. A survey of modern American literature, with principal attention to the major developments in fiction, poetry, and criticism. Mr. Hoffman.

171. MAJOR DEVELOPMENTS IN CONTEMPORARY AMERICAN POETRY. Sem; 3 cr. A study of certain developments in modern American poetry, including the Imagists and their successors, T. S. Eliot, Hart Crane, and the Fugitive poets and critics. Offered 1954–55 and in alternate years. Mr. Hoffman.

173. THE RISE OF A NATIONAL LITERATURE IN AMERICA, 1775–1836. Sem; 3 cr. The attempt, from the Founding Fathers of the Revolutionary Period through Irving, Bryant, and Cooper, to produce a literature devoted to the American scene and democratic ideals. Offered 1954–55 and in alternate years. Mr. Clark.

174. MAJOR AMERICAN PROSE WRITERS. Sem; 3 cr. The genetic development, range of ideas, literary theory, relevant scholarship, and criticism of Irving, Hawthorne, Poe, Emerson, Thoreau, Lowell, Holmes, and Mark Twain. Mr. Pochmann.

180. READING FOR HONORS. Yr; *cr Independent reading under direction for undergraduates who are candidates for honors in English. See Section 18, page 41. For further information consult the chairman.

185. INTRODUCTION TO PHONETICS. Sem; 3 cr. Study of the production of speech sounds with some practice in the use of phonetic transcription. Mr. Cassidy.

186. ADVANCED PHONETICS. Sem; 3 cr. Special studies in phonetics adjusted to the tastes and interests of students electing the course. Mr. Cassidy.

188. A CRITICAL STUDY OF AN OUTSTANDING FIGURE OF CONTEMPORARY ENGLISH LITERATURE. Sem; 3 cr. The subject of this course differs from year to year. (Offered 1950–51 by Mr. Wiley as "Conrad and Henry James," in 1951–52 by Mr. Hoffman as "D. H. Lawrence," in 1952–53 by Mr. Fulcher as "G. B. Shaw," in 1953–54 by Mr. Enck as "Henry James and James Joyce," and in 1954–55 by Miss Wallerstein as "W. B. Yeats.")

190. AMERICAN LITERATURE, 1880–1914. Sem; 3 cr. The rise of realism, the West in American literature, the quest for social justice, and other ideas and forms of the period from 1880 to 1914. Mr. Clark.

191. LITERATURE OF COLONIAL AMERICA, 1607–1775. Sem; 3 cr. Survey of American literature from 1607 to 1775: John Smith through Benjamin Franklin, with emphasis on the Puritan heritage and the emergence of democratic and liberal ideals. Mr. Pochmann.

The following courses, exclusively for graduate students, are offered from time to time according to demand. For advance information consult the chairman.

200. RESEARCH IN ENGLISH. Yr; *cr. Research in connection with the doctoral thesis. Consult the chairman.

202. MAIN PROBLEMS OF SCHOLARSHIP IN THE LITERATURE OF THE SIXTEENTH CENTURY. Sem; 3 cr. Mr. Hughes.

203. MAIN PROBLEMS OF SCHOLARSHIP IN AMERICAN LITERATURE. Sem; 3 cr. Mr. Clark.

204. MAIN PROBLEMS OF SCHOLARSHIP IN THE LITERATURE OF THE SEVENTEENTH CENTURY. Sem; 3 cr. Miss Wallerstein.

205. MAIN PROBLEMS OF SCHOLARSHIP IN ELIZABETHAN AND JACOBEAN DRAMA. Sem; 3 cr. Mr. Eccles.

206. Main Problems of Scholarship in the Literature of the Eighteenth Century. Sem; 3 cr. Mr. Quintana.

207. Main Problems of Scholarship in the Romantic Period. Sem; 3 cr. Mr. Woodring.

208. Main Problems of Scholarship in the Victorian Period. Sem; 3 cr.

209. Milton. Sem; 3 cr. Mr. Hughes.

210. Seminar in One of the Older Fields in English Literature. Yr; 2 cr.

211. Main Problems of Scholarship in the English Literature of the Twentieth Century. Sem; 3 cr.

227. Seminar in the English Language. Yr; 2 cr. Mr. Cassidy.

231. Main Problems of Chaucerian Scholarship. Sem; 3 cr. Mr. Hughes.

232. Seminar in Chaucer. Sem; 2 cr. Mr. Hughes.

233. Seminar in Shakespeare. Yr; 2 cr. Miss Doran, Mr. Eccles, Miss White.

234. Seminar in Nineteenth-Century English Literature. Yr; 2 cr. Mr. Whitley, Mr. Woodring.

236. Seminar in Seventeenth-Century English Literature. Yr; 2 cr. Miss Wallerstein.

237. Seminar in Medieval English Literature—A Study of Literary Forms and Types. Yr; 3 cr. Miss White.

238. Seminar in Eighteenth-Century English Literature. Yr; 2 cr. Mr. Quintana.

240. Seminar in American Literature. Yr; 2 cr. Mr. Clark, Mr. Pochmann.

241. Seminar in Twentieth-Century American Literature. Yr; 2 cr. Mr. Hoffman.

244. Advanced Seminar in English Literature. Yr; 2 cr.

248. Bibliography and Methods of Research. Sem; 3 cr. A course designed to train graduate students in the processes of literary investigation. Miss Doran.

280. Research in English. Yr; *cr. Independent reading under adequate direction, presumably not in connection with the doctoral thesis. Consult the chairman.

TEACHERS' COURSE

The Teaching of English. See School of Education.

FINE ARTS

(See Art History, page 100.)

FOREST PRODUCTS

These courses are given in co-operation 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 courses here listed may be elected by juniors and seniors in Letters and Science with the consent of the dean.

101. Properties of Wood. I; 5 cr. Structure and properties of wood, with special reference to its use in light building construction. Staff.

103. Chemistry Applied to Forest Products. II; 2 cr. Industrial chemical processes that use wood and wood waste. Prerequisites: Chemistry 120, 121, 122, 123. Offered 1955–56 and in alternate years. Staff.

119. Fungus Deterioration of Forest Products. I; 2 cr. (Same as Plant Pathology 119.) Offered 1954–55 and in alternate years. Dr. Lindgren.

200. Research in Forest Products. Yr; *cr. Staff.

FRENCH AND ITALIAN

Professors Bandy, Harris, *chairman*, Lévêque, Rogers, Rossi, Tucker; Associate Professors Bottke, Glauser, Kroff, Palmeri; Assistant Professors Galpin, Mercier, Milligan.

Each of the first four semester courses in French and Italian (1a, 1b, 10a, 10b) is the equivalent of one unit (one year) of high-school work. Thus, students may begin the study of the language in college or continue it at any level for which they are prepared. Freshmen and transfer students who continue a language studied in high school or in another college are assigned to courses on the basis of their performance on a placement test (see page 38).

French 15 and Italian 15 are practice courses which are designed to be taken concurrently with the basic second-year course (French 10 or Italian 10).

French 25, 124, 127, 190, and Italian 116 provide intermediate and advanced training in writing and speaking.

French 22 is an introductory course which is prerequisite to advanced courses in French literature. Italian 21 is similarly designed to be introductory to other courses in Italian literature, although students receiving a grade of *A* in fourth-semester Italian should go directly into the advanced courses in literature.

French 48 and 150 provide an introduction to the study of French civilization. The literature courses numbered above 100 afford training in the various periods and genres of French and Italian literature. Courses numbered above 200 are of the seminar type and are intended for graduate students, but properly prepared seniors may be admitted by special permission. Courses in literature, dealing with centuries and genres, and two seminars in literature, and one in philology, are normally offered every year; other courses from time to time. For courses conducted in French, the title is given in French.

For special course for reading knowledge of French for graduate students, consult Extension Division.

For Attainment Tests (Intermediate and Proficiency), see page 38.

Major. In French, 28 credits in advance of 1b. These must include French 22a and b (6 cr.) or equivalent introductory course in literature, and at least 9 credits of courses numbered above 100, including 4–6 credits in a literature course taken during the senior year. A thesis (4 cr.) may be substituted for this last requirement. In Italian, 24 credits in advance of 1b.

By faculty requirement, students choosing a foreign-language major must present at least 8 credits in a second foreign language.

A certificate of Oral Proficiency in French is awarded to those who pass the qualifying examination or who demonstrate the necessary command of the spoken language at the French House. It is required of all teaching majors and minors.

Those who expect to continue work for advanced degrees should note that knowledge of another foreign language is required for the M.A., and that for satisfactory work in Romance philology some knowledge of Latin is indispensable. Both Latin and German, as well as another Romance language, are required for the Ph.D. and should be acquired as early as possible.

Teaching Major and Minor. See School of Education.

Major in French Area Studies. Designed for those with linguistic interest who desire a broad background to fit themselves for vocational use of French in fields other than teaching or international relations. For the latter they would normally take the Major in Inter-

national Relations with Specialization in French Area Studies (see page 75). The general requirements will be those of the B.A. (Social Studies), with intermediate knowledge of a second foreign language. Supplementary training will almost always be necessary along the line of special professional interest, and may involve typing, stenography, accounting, or other business subjects. Students who do not offer two years of French from high school will have little opportunity for free electives, but the program proposed is well diversified.

French, 28 credits beyond 1b: French 22, Elementary survey, 6 credits; 8 credits of composition and conversation, including at least one semester in 124 or 127; French 150, French civilization, 4 credits; French 120, Advanced French translation, 2–3 credits; passing grade on the Oral Proficiency Test.

Residence in the French House or taking meals there is strongly recommended, and may, upon recommendation of the chairman, replace 2 credits of courses in conversation.

Besides the regular requirements in English and science and another foreign language, the following are especially recommended for general background:

History, 12 credits. (History 3a–3b, European civilization, or 2a–2b, Modern European history; 136, 138, 6–9 credits; History 139, 145 or 113 if 136 or 138 not available.)

Political Science, 6–9 credits. (Political Science 7, American government and politics; 121a and b, Foundations of foreign policy; 118, International law; 128, Governments of Continental Europe.)

Economics 1a, General economics, 4 credits; 105, Money and banking, 3 credits.

Philosophy, 6 credits. (Philosophy 1, Introduction to philosophy.)

Art History, 6 credits. (Art History 54, Renaissance to modern art; 106, Modern European painting.)

Geography, 6 credits. (Geography 7, Economic geography; 107, Geography of the Mediterranean region; 147, Geography of the Mediterranean borderlands.)

Journalism 120, 2 credits.

French House. *La Maison Française,* intended especially for training in speaking French, is maintained by the department. It is open to women students for room and board, and both men and women rooming elsewhere may take their meals there. Young French women reside in the house to aid in conversation and preside at the tables where only French 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 applications for rooms should be directed to the Chairman, Department of French and Italian, and sent well in advance, both for summer session and regular year.

Italian Table. An Italian table is conducted several times a week whenever there is sufficient demand. Inquiries should be addressed to Professor Rossi.

Clubs. French and Italian Clubs at the University give students the opportunity to hear talks and see films about the country whose language they are studying, and to converse in the language in which they are interested. Modern and classical plays are presented in public from time to time.

FRENCH

LANGUAGE

1a. First-Semester French. I, II; 4 cr. For students who have had no previous training in the language. Oral practice, grammar, reading. A. "Intensive" sections emphasize the oral approach. They meet eight hours a week including four hours of oral practice in small groups, which partly replaces home study. M. Lévêque and staff. B. Other sections meet four times a week and require proportionately more home study. Mr. Milligan and staff.

1b. SECOND-SEMESTER FRENCH. I, II; 4 cr. Continuation of French 1a. A. Eight hours a week. B. Four hours a week. Prerequisite: French 1a or one year of high-school French. M. Lévêque, Mr. Milligan and staff.

10a. THIRD-SEMESTER FRENCH. I, II; 3–4 cr. Careful study of selections from standard French prose writers and material about France; grammar review with oral practice; outside reading for content only. Those who elect the course for 4 credits have two additional hours per week of oral practice in small groups. Prerequisite: French 1b or two years of high-school French. Mr. Bottke and staff.

10b. FOURTH-SEMESTER FRENCH. I, II; 3–4 cr. Continuation of French 10a. Prerequisite: French 10a or three years of high-school French. Mr. Bottke and staff.

15a. CONVERSATION AND COMPOSITION (Elementary Level). I, II; 2 cr. Development of oral facility based on situations met in every-day life. Not open to those who have completed French 10b, except by special permission. Prerequisite: French 1b or two years of high-school French. Mr. Kroff and staff.

15b. CONVERSATION AND COMPOSITION (Elementary Level). I, II; 2 cr. Continuation of French 15a. Not open to students who have completed French 10b or passed the intermediate attainment test, except by special permission. Prerequisite: French 15a or consent of course chairman. Mr. Kroff and staff.

25a. CONVERSATION AND COMPOSITION (Intermediate Level). I, II; 2 cr. Development of facility in oral and written French. Based on selections about French civilization. Prerequisite: French 10b with grade of *B*, one semester of French 15, or consent of chairman of the course. Mr. Kroff and staff.

25b. CONVERSATION AND COMPOSITION (Intermediate Level). I, II; 2 cr. Continuation of French 25a. Prerequisite: French 25a or grade of *A* in French 15. Mr. Kroff and staff.

48. FRANCE OF TODAY. II; 2 cr. Survey of principal cultural, political and social developments in contemporary France, as reflected in current newspapers, magazines and books. Lectures, assigned readings, reports. Recommended for students in international relations, history and journalism. Open to others with permission of instructor. Prerequisites: French 10b and sophomore standing. Mr. Kroff.

80. SUPERVISED INDIVIDUAL READING. Yr; 2 cr. Of third-year level. For "upper-group" majors in other departments who wish to study in their major field, using French texts. The work must be planned with the major professor and have the approval of the Chairman of the Department of French and Italian and of the Dean.

120. TRANSLATION OF DIPLOMATIC AND TECHNICAL FRENCH. II; 2–3 cr. Training in accurate rendering of typical material in different fields. Recommended for those preparing for government service. Prerequisite: Three years of college French or consent of instructor. Mr. Milligan.

124. COURS MOYEN DE CONVERSATION ET DE COMPOSITION. Yr; 2 cr. Révision rapide et orale de la syntaxe et d'un vocabulaire pratique. Exercices d'application. Causeries fondées sur des textes contemporains. Rédactions. Prerequisites: French 25a and b or consent of instructor. Mlle Mercier.

127. COURS SUPÉRIEUR DE CONVERSATION ET DE COMPOSITION. Yr; 2 cr. Exercices de syntaxe et de vocabulaire pratique. L'art de s'exprimer sur des sujets variés, au moyen de rédaction et de causeries. Lecture de revues et journaux contemporains. Prerequisite: French 124 or consent of instructor. Mlle Mercier.

190. FRENCH PHONETICS. I, II; 2 cr. Theory of French sounds; phonetic transcription; practice in pronunciation. Required of teaching majors and minors. Prerequisite: Three years of college French. Mr. Bottke.

191. Diction Française. II; 2 cr. Interprétation orale de textes en prose et en vers. Esthétique de la langue parlée: rythme, harmonie des sons, articulation, intonation et voix. Prerequisite: French 190 or concent of instructor. Mlle Mercier.

227. Cours de Traduction et de Composition Litteraire. Yr; 1 cr. Traduction d'anglais en français de fragments d'œuvres littéraires, compositions originales et essais. M. Lévêque.

METHODS

101. Materials and Methods of Research. Yr; 1 cr. Training in the collecting, organizing and editing of research materials. Recommended for first-year graduate students. Mr. Tucker.

126. Explication de Textes. (See under Literature.)

For a course on training teachers of foreign language see Education 187.

PHILOLOGY

141. History of the French Language. Yr; 2 cr. Lectures, assigned readings, and analysis of texts of each century from the *Strassburg Oaths* to the present. Prerequisite: French 22. Mr. Harris.

240. Old French. Yr; 2 cr. Introductory seminar. Historical grammar and close study of the *Chanson de Roland,* the *Lais* of Marie de France, *Aucassin et Nicolete,* etc. Mr. Harris.

244. Old Provençal. Yr; 2 cr. Historical grammar and close study of the principal *troubadours.* Mr. Harris.

273. Romance Philology. Yr; 2 cr. Mr. Kasten.

LITERATURE

Both semesters of French 22 (or equivalent) are prerequisite to all other courses in French literature. French 22b may be taken before French 22a.

22a. Elementary Survey of French Literature (17th and 18th century authors). I, II; 3 cr. Masterpieces in the novel, drama, poetry and essay. Lectures, discussion, exercises in translation and interpretation. Prerequisite: French 10b or equivalent. Mr. Tucker and staff.

22b. Elementary Survey of French Literature (19th and 20th century authors). I, II; 3 cr. Masterpieces in the novel, drama, poetry and essay. Lectures, discussion, exercises in translation and interpretation. Prerequisite: French 10b or equivalent. Mr. Tucker and staff.

50. French Masterpieces in Translation. Yr; 2 cr. Lectures, assigned reading and discussion of outstanding works in various *genres* from the Middle Ages to the present. Does not give credit in French. (See Comparative Literature 50.) Mr. Harris.

100. Thesis. Yr; 2 cr. Majors who elect to write a thesis will consult the chairman of the department.

126. Explication de Textes. I; 2 cr. Reading of texts, prose and poetry, with a careful study of the contents, author, background, etc. Mr. Bandy.

132. French Literature of the Eighteenth Century. Yr; 2 cr. Literary and philosophical trends of the Age of Enlightenment with special emphasis on Montesquieu, Voltaire, Diderot and Rousseau. Offered 1955–56 and in alternate years. Mr. Tucker.

133. Victor Hugo. I; 2 cr.

134. Balzac. II; 2 cr.

*136a. FRENCH NOVEL. Sem; 3 cr. The French novel during the first half of the 19th century. with special emphasis on Stendhal and Balzac. Offered 1954–55. Mr. Rogers.

*136b. FRENCH NOVEL. Sem; 3 cr. The French novel during the second half of the 19th century, with special emphasis on Flaubert and Zola. Offered 1954–55. Mr. Rogers.

137. MOLIÈRE. I; 2 cr. M. Lévêque.

139. LA LITTÉRATURE FRANÇAISE DU XVII^{e} SIÈCLE. Yr; 3 cr. Le premier semestre est consacré à l'étude des oeuvres antérieures au règne personnel de Louis XIV; le deuxième à celle des écrivains de l'âge du Grand Roi. Offered 1954–55 and in alternate years. M. Lévêque.

143. LE THÈATRE FRANÇAIS DU XIX SIÈCLE. I; 3 cr. L'évolution du théâtre moderne et ses rapports avec les tendances intellectuelles et sociales de l'époque. Mr. Kroff.

144. LE THÈATRE EN FRANCE DE 1900 A NOS JOURS. II; 3 cr. Analyse de pièces caractéristiques des tendances nouvelles. Étude de l'evolution de la mise en scène. Actrices et acteurs principaux. Mlle Mercier.

145. FRENCH LITERATURE OF THE SIXTEENTH CENTURY. Yr; 2 cr. Offered in 1954–55 and in alternate years. Mr. Glauser.

*148. FRENCH NOVEL. Sem; 3 cr. The 20th-century French novel, with special emphasis on Proust and Gide. Offered in 1955–56 I. Mr. Rogers.

150. HISTOIRE DE LA CIVILISATION FRANÇAISE. Yr; 2 cr. Etude du développement politique, social, intellectual artistique et littéraire de la nation française, des origines à l'époque contemporaine. M. Lévêque.

157. LA POÉSIE FRANÇAISE DES XIX^{e} ET XX^{e} SIÈCLES. Yr; 2 cr. Offered 1955–56 and in alternate years. Mr. Glauser.

165. MASTERPIECES OF FRENCH LITERATURE (1100–1750). I; 2 cr. A close study of outstanding works from the *Chanson de Roland* (in modern French) to Voltaire. Lectures, readings, discussion, reports. Mr. Milligan.

166. MASTERPIECES OF FRENCH LITERATURE (after 1750). II; 2 cr. A close study of outstanding works from Rousseau to Gide. Lectures, readings, discussion, reports. Mr. Milligan.

180. ADVANCED INDEPENDENT READING. Yr; *cr. For upper-group students in lieu of a regular course. Plan of work must be approved by Chairman of the Department of French and Italian, and by the student's major professor. Reports and examination. Consult chairman.

200. INDIVIDUAL RESEARCH. Yr; *cr. Research in connection with doctoral dissertation. Staff, on consultation with chairman of department.

226. SEMINAR. LA CRITIQUE LITTÉRAIRE EN FRANCE. Yr; 2 cr. Mr. Glauser.

232. SEMINAR. EIGHTEENTH-CENTURY STUDIES. Yr; 2 cr. Offered in 1954–55 I. Mr. Tucker.

233. SEMINAR. CHATEAUBRIAND AND HIS CONTEMPORARIES. Yr; 2 cr. Mr. Galpin.

239. SEMINAR. LES MORALISTES DU VIII^{e} SIECLE. Yr; 2 cr. Pascal, La Rochefoucauld, La Bruyère. M. Lévêque.

242. SEMINAR. OLD FRENCH EPIC POETRY. Yr; 2 cr. The origin and development of the *Chanson de Geste*. Special study of one of the epic cycles. Mr. Harris.

243. SEMINAR. OLD FRENCH ROMANCES. Yr; 2 cr. Studies in Arthurian literature: The Tristan legend or Chrétien de Troyes. Mr. Harris.

250. SEMINAR. THE RENAISSANCE IN FRANCE. Yr; 2 cr. Mr. Glauser.

---

* NOTE: French 136a, 136b and 148 will be given in successive semesters beginning I, 1954–55.

252. SEMINAR. ANCIENT FRENCH DRAMA. Yr; 2 cr. A survey of the medieval French drama from its beginning, with special attention to the 14th-century Miracle Plays and to the 15th-century Farces. Mr. Harris.

253. SEMINAR. FRENCH LITERATURE. Yr; 2 cr. Le Thèâtre à l'époque classique. M. L'Évêque.

255. SEMINAR. TWENTIETH-CENTURY FRENCH LITERATURE. Yr; 2 cr. Representative authors of the 20th century.

256. SEMINAR. ROMANTICISM. Yr; 2 cr. Offered in 1954–55. Mr. Bandy.

257. SEMINAR. BAUDELAIRE AND POE. Yr; 2 cr. Mr. Bandy.

ITALIAN

LANGUAGE

1a. FIRST-SEMESTER ITALIAN. I, II; 4 cr. For students who have not studied Italian. Mr. Rossi and staff.

1b. SECOND-SEMESTER ITALIAN. I, II; 4 cr. Prerequisite: Italian 1a or one year of high-school Italian. Mr. Rossi and staff.

10a. THIRD-SEMESTER ITALIAN. I; 3 cr. Intensive class reading of modern Italian plays, novels, and short stories; study of idioms, conversational exercises. Mr. Rossi.

10b. FOURTH-SEMESTER ITALIAN. II; 3 cr. Continuation of Italian 10a. Mr. Rossi.

15. ELEMENTARY COMPOSITION AND CONVERSATION. Yr; 2 cr. Grammar review with oral and written exercises. Supplementary course to be taken with Italian 10a and 10b, or with consent of instructor. Mr. Galpin.

80. SUPERVISED INDIVIDUAL READING. Yr; 2 cr. Of third-year level. For upper-group students in other departments who wish to study in their major field, using Italian texts. The work must be planned with the major professor and have the approval of the chairman of the department and of the dean.

116. ADVANCED COMPOSITION AND CONVERSATION. Yr; 2 cr. Prerequisite: Italian 15 with grade of *B*. Mr. Rossi.

171. INTRODUCTION TO ITALIAN PHILOLOGY. I; 2 cr. Derivation of the Italian language from Vulgar Latin; elementary phonology and morphology; reading of texts. Mr. Bottke.

172. EARLY ITALIAN WRITERS. II; 2 cr. Italian literature before Dante. Mr. Bottke.

LITERATURE

Two years of Italian in college, or the equivalent, are prerequisite to advanced courses in Italian, except by special permission of the instructor.

21. ELEMENTARY SURVEY. Yr; 3 cr. Translation, assigned reading, study of literary aspects of work read, and literary history. Mr. Rossi.

53. ITALIAN MASTERPIECES IN TRANSLATION. Yr; 2 cr. Does not give credit in Italian. (See COMPARATIVE LITERATURE 53.) Mr. Rossi.

100. SENIOR THESIS. Yr; 2 cr. Mr. Rossi.

102. MODERN ITALIAN LITERATURE. Yr; 2 cr. Especially Carducci, D'Annunzio, Pascoli, Fogazzaro, Verga, and Pirandello. Conducted in Italian. Mr. Galpin.

122. IL RISORGIMENTO. Yr; 3 cr. Studio degli scrittori che ispirarono la lotta per la rinascita italiana nel Settecento e Ottocento. Mr. Rossi.

123. IL TEATRO ITALIANO. Yr; 3 cr. Lo sviluppo del teatro italiano dalle origini al presente. Da tenere nel 1956–57. Mr. Rossi.

131. Lineamenti de Letteratura Italiana. Yr; 3 cr. Studio dei maggiori scrittori italiani dal Duecento al Novecento. Da tenere nel 1955–56. Mr. Rossi.

136. Modern Italian Novel. Yr; 2 cr. First semester: *I Promessi Sposi* and the Romantic school. Second semester: Nievo to the present. Mr. Galpin.

152. Il Rinascimento. Yr; 3 cr. Dal Petrarca all'*Arcadia,* con particolare rilievo dato ai poemi cavallereschi, al Machiavelli e al Guicciardini. Mr. Rossi.

160. Dante's *Divina Commedia.* Yr; 3 cr. Lectures on Dante's life and times, reading of the *Divine Comedy,* commentory, discussions, reports. Mr. Rossi.

161. Il Trecento. Yr; 2 cr. Especially Petrarch, Boccacio, and and the minor works of Dante. Mr. Galpin.

180. Advanced Independent Reading. Yr; *cr. For upper-group students in lieu of a regular course. Plan of work must be approved by chairman of the department, and by the student's major professor. Reports and examination. Consult chairman.

200. Individual Research. Yr; *cr. Research in connection with the doctoral dissertation. Mr. Rossi.

FRESHMAN FORUM

Freshman Forum. Yr; 1 cr. A weekly lecture and forum discussion of current problems and opportunities in many fields. Open only to freshmen. Staff.

GEOGRAPHY

Professors Clark, Hartshorne, Robinson, *chairman,* Stone, Trewartha; Associate Professors Alexander, Sterling; Assistant Professors Finley (also Extension), Hammond, Olmstead.

In its study of the distribution, variations and interrelations of the natural and cultural features of the world, geography contributes toward an understanding of nations and areas. The character of any area is the result produced in a particular natural environment by the particular people or peoples who have lived there through successive periods of time. Their utilization of its complex of resources at any time depends on the culture of its people, on the previous development of the area, and on its relations with other areas.

The geography of any region therefore involves a complex association of features of the natural environment, such as landforms, soils and climate and of cultural features, such as farms, cities and states. Thus, the field of geography overlaps the natural and social sciences.

For students planning to do limited and unspecialized work in the field of geography, the following courses are recommended: Geography 1 or 6 or 7 and a course in physical geography, or Geography 5 or 17 and a course in cultural geography.

For students planning to do limited work in cultural geography, the following courses are recommended: Geography 1 or 6 or 7 and a course in regional, systematic cultural, or historical geography.

The student who desires a more thorough study of the natural environment because of a general interest in earth science, or to provide a foundation for specialization in geography, or in order to fulfill the laboratory requirement in natural science, may elect the two-semester course 2a–b. Course 17 is a briefer survey of the topics covered in more detail in course 2a–b; Geography 5 is identical with Geography 17 except that it omits laboratory work, and thus does not satisfy the requirement in laboratory natural science; Geography 5 does, however, carry natural science credit.

Major. An undergraduate major requires a minimum of 30 credits. An introductory course in cultural geography (1 or 6 or 7) and an elementary course in physical (2a–b or 5

or 17) geography will normally be followed by a selection of courses on areas, topics, and techniques.

HISPANIC STUDIES AND AMERICAN INSTITUTIONS AS FIELDS OF CONCENTRATION. Students interested in these major fields should consult pages 68, 69 and 70.

I. CULTURAL GEOGRAPHY

INCLUDED WITHIN THE DIVISION OF SOCIAL STUDIES

A. Introductory

1. INTRODUCTION TO GEOGRAPHY. I, II; 3 cr. (2 cr. for seniors.) A preliminary consideration of the distributions of cultural and physical features of the world and of the geographic principles underlying selected current world problems. Open to freshmen; not open, except by permission of the instructor, to students who have completed any other college geography. Mr. Stone and staff.

6. THE WORLD: PEOPLES AND REGIONS. 3 cr. Introduction to cultural geography through the study of representative and significant regions and nations. Open to freshmen. Mr. Olmstead and staff.

7. ECONOMIC GEOGRAPHY. 3 cr. A world survey of resource utilization; types of agriculture, extractive and manufacturing industries, transportation and trade, in relation to the distribution of population, human techniques, and resource potentials. Open to freshmen. Mr. Alexander and staff.

NOTE: Students may not elect for credit more than one of the following courses: Geography 1 or 6 or 7.

B. Courses on Particular Areas

Each of the following courses covers the physical features, resources, peoples, land utilization and economic development of the different regions and countries included in the area named.

101. GEOGRAPHY OF NORTHWESTERN AND CENTRAL EUROPE. 3 cr. Prerequisite: Sophomore standing. Mr. Hartshorne.

102. GEOGRAPHY OF SOUTH AMERICA. 3 cr. Prerequisite: Sophomore standing. Mr. Sterling.

103. GEOGRAPHY OF ANGLO-AMERICA. I, II; 3 cr. U. S., Canada, and Alaska; emphasis on the United States. Prerequisite: Sophomore standing. Mr. Olmstead.

104. GEOGRAPHY OF WISCONSIN. 2 cr. Prerequisite: Sophomore standing. Mr. Finley.

107. GEOGRAPHY OF THE MEDITERRANEAN AND MIDDLE EAST. 3 cr. The countries bordering the Mediterranean Sea, and those of Southwest Asia. Prerequisite: Sophomore standing. Mr. Sterling.

108. GEOGRAPHY OF THE SOVIET UNION. 3 cr. Prerequisite: Junior standing. Mr. Hartshorne.

110. GEOGRAPHY OF THE FAR EAST. 3 cr. Emphasis on Japan and China. Prerequisite: Junior standing. Mr. Trewartha.

111. GEOGRAPHY OF MIDDLE AMERICA. 3 cr. Mexico, Central America and the West Indies. Prerequisite: Sophomore standing. Mr. Sterling.

112. CONTEMPORARY PROBLEMS OF LATIN AMERICA. 3 cr. A topical survey of problems involved in current programs to bring about more effective resource utilization and higher levels of living in underdeveloped parts of Latin America. Prerequisite: Sophomore standing. Mr. Sterling.

119. GEOGRAPHY OF THE NORTHERN LANDS. 3 cr. A regional analysis of the significance of the Subarctic and Arctic parts of North America, Europe, and Asia to the present and future world population distribution. Prerequisite: 3 cr. in geography or consent of instructor. Mr. Stone.

153. GREAT LAKES-TO-ATLANTIC REGION OF NORTH AMERICA. 3 cr. Analysis of original resource base, settlement and development of land use, and current land-use problems in the area north of the Ohio and Potomac and east of the Mississippi. Prerequisite: Junior standing. Mr. Olmstead.

ADVANCED COURSES ON AREAS

The following courses cover phases or parts of the geography of the continents named by more advanced study than in the 100-group courses. They are open to graduate students, and by permission to advanced undergraduate majors in the department, and to qualified majors in allied fields. None of these is offered regularly.

201. NORTHWESTERN OR CENTRAL EUROPE. Mr. Hartshorne.

202. LATIN AMERICA. Mr. Sterling.

203. NORTH AMERICA. Mr. Hammond, Mr. Olmstead, Mr. Stone.

210. JAPAN AND CHINA. Mr. Trewartha.

211. MEXICO. Mr. Sterling.

SEMINARS ON AREAS

The following courses are for graduate students who carry out individual research on problems or topics in the area named.

251. SEMINAR ON THE GEOGRAPHY OF EUROPE. 2–3 cr. Mr. Hartshorne.

252. SEMINAR ON THE GEOGRAPHY OF LATIN AMERICA. 2–3 cr. Mr. Sterling.

253. SEMINAR ON THE GEOGRAPHY OF ANGLO-AMERICA. 2–3 cr. Mr. Olmstead, Mr. Stone.

260. SEMINAR ON THE GEOGRAPHY OF THE FAR EAST. 2–3 cr. Mr. Trewartha.

264. SEMINAR: PROBLEMS IN THE GEOGRAPHY OF AFRICA. 2–3 cr.

269. SEMINAR ON THE NORTHERN LANDS. 3 cr. Mr. Stone.

290. INTERDEPARTMENTAL SEMINAR IN LATIN-AMERICAN PROBLEMS. 2–3 cr. An interdisciplinary inquiry into selected topical or regional problems of Latin America. Prerequisites: Graduate standing and consent of the committee in charge. Mr. Sterling and members of other co-operating departments.

C. Courses in Systematic Cultural Geography

21. INTERNATIONAL RELATIONS. (Identical with POLITICAL SCIENCE 21.) II; 3 cr. The geographic, economic, and political foundations of national power in the more important states and problem areas; efforts to deal with problems of conflicting national policies through international economic and political institutions. Prerequisite: Open only to freshmen with a previous course in political science or cultural geography, and to sophomores. (May not be taken for credit by students who have had I.L.S. 24, or Political Science 25 or 121.) Mr. Hartshorne, Mr. Pfankuchen.

121. FOUNDATIONS AND PROBLEMS OF INTERNATIONAL RELATIONS. (Identical with POLITICAL SCIENCE 121.) I; 3 cr. The geographic, economic, and political foundations of national power in the more important states and problem areas; efforts to deal with problems of conflicting national policies through international economic and political institutions. Prerequisite: Junior standing. (May not be taken for credit by students who have had I.L.S. 24, or Political Science 21 or 25.) Mr. Hartshorne, Mr. Pfankuchen.

123. AGRICULTURAL GEOGRAPHY. I; 3 cr. A study of the distribution, variations and significance of the major types of agriculture. Prerequisite: Junior standing. Mr. Olmstead.

124. POPULATION GEOGRAPHY: WORLD SURVEY. 3 cr. The regional contrasts in numbers, densities and qualities of population as evidenced in the several continents and the more important countries. Emphasis on the Far East, Europe and Anglo-America. Prerequisite: Junior standing. Mr. Trewartha.

125. POLITICAL GEOGRAPHY: WORLD SURVEY. 3 cr. The areal characteristics and territorial problems of states, including internal regional relations, border disputes, and colonial areas. Emphasis on Europe and North America. Prerequisite: Junior standing. Mr. Hartshorne.

126. GEOGRAPHY OF TRANSPORTATION. 3 cr. Description and analysis of the major transportation means in terms of their routes, traffic, terminals, and carriers; analysis of major transportation regions. Emphasis on the United States with some attention to foreign regions. Prerequisite: Junior standing. Mr. Alexander.

127. GEOGRAPHY OF MANUFACTURING. 3 cr. Description and analysis of the location of representative manufacturing industries; analysis of major areas of manufacturing. More emphasis on the United States than on foreign regions. Prerequisite: Geography 6 or 7. Mr. Alexander.

128. CONSERVATION OF NATURAL RESOURCES. I, II; 3 cr. The distribution and use of natural resources, conservation techniques applied to them, and problems of public policy that arise in the effective management of our resources. Prerequisite: Sophomore standing. Mr. Finley and staff.

129. URBAN GEOGRAPHY. 3 cr. Description and analysis of the locations and regional functions of cities. Analysis of representative American and foreign cities. Prerequisite: Geography 6 or 7. Mr. Alexander.

NOTE: A supplementary course to economic geography and dealing with distribution of mineral resources is Geology 150—Economic aspects of geology.

271. SEMINAR IN POPULATION GEOGRAPHY. 2–3 cr. Mr. Trewartha.

272. SEMINAR IN SETTLEMENT GEOGRAPHY. 2–3 cr. Staff.

273. SEMINAR IN PROBLEMS OF AGRICULTURAL GEOGRAPHY. 2–3 cr. Mr. Olmstead.

274. SEMINAR IN FRONTIER SETTLEMENT. 3 cr. Mr. Stone.

275. SEMINAR IN PROBLEMS OF POLITICAL GEOGRAPHY. 2–3 cr. Mr. Hartshorne.

276. SEMINAR IN PROBLEMS OF TRANSPORTATION GEOGRAPHY. 2–3 cr. Mr. Alexander.

277. SEMINAR IN PROBLEMS OF MANUFACTURAL GEOGRAPHY. 2–3 cr. Mr. Hartshorne, Mr. Alexander.

279. SEMINAR IN PROBLEMS OF URBAN GEOGRAPHY. 2–3 cr. Mr. Alexander.

D. Courses in Historical Geography

122. INTRODUCTION TO HISTORICAL GEOGRAPHY. I; 3 cr. The physical and human geography of selected areas of the Old World in significant periods of prehistory and early history of man. Prerequisite: Sophomore standing. Mr. Clark.

146. HISTORICAL GEOGRAPHY OF THE UNITED STATES AND CANADA. II; 3 cr. The changes in the lands themselves and in the geographical bases of economies through four centuries. Prerequisite: Sophomore standing. Mr. Clark.

147. HISTORICAL GEOGRAPHY OF THE MEDITERRANEAN BORDERLANDS. 3 cr. The changes in natural and cultural geography and in the use and significance of resources from Greco-Roman times until the beginning of overseas expansion. Prerequisite: Sophomore standing. Mr. Clark.

222. Historical Geography of the Overseas Expansion of European Culture. 2–3 cr. Studies of change in the use of land and natural resources in selected areas of European colonization and settlement. Prerequisite: Graduate standing or consent of instructor. Mr. Clark.

296. Seminar in Historical Geography. 2–3 cr. Problems on a particular theme in the field—the theme changing each year offered. Prerequisite: Graduate standing. Mr. Clark.

II. PHYSICAL GEOGRAPHY (NATURAL ENVIRONMENT)

INCLUDED WITHIN THE DIVISION OF PHYSICAL SCIENCES

A. Introductory

2a. Physical Geography: The Natural Environment. I, II; 5 cr. Introduction to maps. Characteristics, distribution and geographical significance of the earth's surface relief and of water and mineral resources. Open to freshmen. Mr. Hammond and staff.

2b. Physical Geography: The Natural Environment. I, II; 5 cr. Characteristics, distribution and geographical significance of types of climate, vegetation and soils. Integration of the individual elements of the natural environment by regions. Prerequisite: Geography 2a. Open to freshmen. Mr. Clark and staff.

Note: Course 2a–b is a two-semester course replacing former courses 1 and 2. Neither semester is open for credit to students who have had either course 1 or course 2 in the past, or courses 5, 17, or I.L.S. 32.

5. Physical Earth and Its Resources. I, II; 3 cr. Characteristics, significance, and location of types of landforms, climate, vegetation, soils, mineral and water resources. Open to freshmen. Mr. Robinson and staff.

17. Survey of Physical Geography. I, II; 4 cr. Identical and concurrent with course 5 except that it has two hours of laboratory a week, grants 4 instead of 3 credits and can be counted for natural science laboratory credit. Mr. Robinson and staff.

Note: Students who have credit for course 1 or 2, as offered in previous years, or course 2a or 2b may not take for credit course 5 or 17. Those with credit for I.L.S. 32 (Earth science) may not receive credit for Geography 2a, 2b, 5 or 17.

B. Courses in Systematic Physical Geography

140. Climatology. 3 cr. The elements of climate, classification of climates, and the distribution of climatic types over the earth. Emphasis on the world pattern. Prerequisite: Junior standing or consent of instructor. Mr. Trewartha.

141. Climates of the Continents. 3 cr. Descriptive and explanatory analysis of the climatic characteristics of each of the continents. Emphasis on deviations from the world pattern. Prerequisite: Geography 140 or consent of instructor. Mr. Trewartha.

144. Oceanography. (See Meteorology 144.) Mr. Bryson.

160. Landform Analysis. I; 3 cr. The characteristics, representation, and significance of surface configuration. Types of terrain and their distribution over the earth. Prerequisites: Junior standing and consent of instructor. Mr. Hammond.

161. Landforms of the Continents. II; 3 cr. Regional analysis of the surface configuration of the United States and selected other areas, emphasizing those aspects of terrain especially significant in affecting utility of the land. Prerequisite: Geography 160. Mr. Hammond.

291. Seminar in Climatology. 2–3 cr. Mr. Trewartha.

295. Seminar in the Geography of Landforms. 3 cr. Mr. Hammond.

III. COURSES IN TECHNIQUES, METHODOLOGY AND TEACHING

A. Cartography and Air Photo Interpretation

131. Cartography and Graphics. 3 cr. The elements of cartography with emphasis on graphic presentation. Study and laboratory practice in presenting geographic, statistical, and other data on maps and charts for reproduction. Prerequisite: Sophomore standing. Mr. Robinson.

132. The Use and Evaluation of Maps. 3 cr. The development of competence in map use and appreciation; historical background; the great surveys; progress, coverage and quality of world mapping; the sources and handling of maps. Prerequisite: Junior standing. Offered 1955–56 and alternate years. Mr. Robinson.

134. Air Photo Interpretation. 3 cr. A study of the techniques of using aerial photographs as source materials for research in the social and physical sciences. Prerequisite: Sophomore standing. Mr. Stone.

181. Advanced Cartography. 3 cr. Advanced study of cartographic methodology including projectional analysis, symbolization, lettering, color and reproduction. Laboratory work in advanced construction techniques. Prerequisite: Geography 131 or consent of instructor. Offered 1954–55 and alternate years. Mr. Robinson.

184. Advanced Air Photo Interpretation. 3 cr. Advanced study of the techniques of using air photographs for research in a specific area. Field work is required. Prerequisite: Course 134 or consent of instructor. Mr. Stone.

281. Seminar in Cartography. 2–3 cr. Mr. Robinson.

284. Seminar in Air Photo Interpretation. 3 cr. Mr. Stone.

B. Graduate Research Training

235. Geographic Field Techniques. II; 4 cr. Office analysis and field tests of: (1) Planning for field work and (2) Methods of reconnaissance and detailed mapping of physical and cultural features. Prerequisite: Graduate standing; Geography 134 recommended. Mr. Sterling.

236. Library, Archival and Statistical Techniques of Geographic Research. I; 3 cr. Mr. Clark, Mr. Robinson.

238. History of Geographic Thought. II; 2 cr. The evolution of concepts concerning the nature, scope, and methodology of geography since classical times; major emphasis on the modern period. Mr. Hartshorne.

GEOLOGY

Professors Cameron, Cline, Emmons, Laudon, Tyler, *chairman*, Woollard; Associate Professors Gates, Judson; Assistant Professor Bailey; Instructor Rose.

The study of geology is ordinarily pursued for one of two purposes—to broaden and deepen the understanding and appreciation of the natural physical world in which we live and travel or to acquire a scientific understanding of the principles of earth behavior and history with a view to exploiting such knowledge as a professional career in any of the several branches of the study. The outlets for such training embrace the search for minerals including petroleum, by geologic and geophysical means, biologic and physical and chemical research in earth materials, industrial applications and teaching in those several fields.

As a cultural study, geology enhances the value of travel in that the natural physical surroundings are regarded as dynamic, changing aspects of our environment. The nonprofessional student also acquires a new yardstick for the measurement of our national mineral resources and learns to evaluate them as political entities in international affairs.

The philosophy gained from a study of more than two billion years of earth history and its relationship to the orderly development of life enjoys a universal appeal which is reflected from the press to classic literature. Knowledge gained through a study of historical geology is fundamental background for studies in anthropology, archaeology, ethnology, and the biologic sciences.

The professional geologist is advised to secure a broad training in the many phases of geology as an undergraduate and to choose his field of specialization within the profession as a graduate student. He may anticipate a considerable choice of occupational activities according to his inclinations, including laboratory research, field research, exploratory field reconnaissance or teaching. He will also have liberal opportunity to apply his training in the allied sciences—mathematics, physics, chemistry and biology. Students who hope to use their professional geologic training in exploratory field reconnaissance should be of sound physique and prepared to endure the privations of travel in remote parts of the world.

MAJOR. For a major the requirements include high-school mathematical preparation, a minimum of 30 credits in geology or a maximum of 40 credits, and formal course work in field training provided by the department or equivalent training elsewhere. (In the latter case, approval must be secured in advance from the department and from the Dean of the College.) For students wishing a survey of the field for general cultural purposes, courses 1, 7, 8, 17 and 22 are suggested. Course 1, General geology, is the principal introductory course. A short course in geology (17) is offered without prerequisites to students not intending to take further work in the subject. Students who take the short course may enter advanced courses by special arrangement. No substitutions may be made in the major without departmental recommendation.

GENERAL GEOLOGY

1a. GENERAL GEOLOGY. I, II; 5 cr. A study of the geologic processes in operation on and beneath the surface of the earth. Students who have taken Geology 17 may receive but 2 credits for the work of the first semester. Lecture, laboratory, and field trips. Mr. Laudon, Mr. Judson, Mr. Emmons.

1b. HISTORICAL GEOLOGY. I, II; 5 cr. A study of the physical history of the earth in relationship to the orderly development of life throughout geologic time. Lecture, laboratory, and field trips. Prerequisite: Geology 1a. Mr. Laudon.

1c. GENERAL GEOLOGY LABORATORY. Yr; 1 cr. The laboratory portion of Geology 1a. For major students with deficiencies in this field. Mr. Judson, Mr. Laudon.

1d. HISTORICAL GEOLOGY LABORATORY. Yr; 1 cr. The laboratory portion of Geology 1b. For students with deficiencies in this field. Mr. Laudon.

9a. ENGINEERING GEOLOGY. I; 3 cr. Elementary general geology with emphasis on engineering applications. Lecture and laboratory. Required of civil and mining engineers. Mr. Woollard.

9b. ENGINEERING GEOLOGY. II; 3 cr. Regional geology with emphasis on mineral occurrences. Lecture and laboratory. Required of mining engineers. Prerequisite: Geology 9a. Mr. Woollard.

11. MAPPING. II; 3–4 cr. Theory and techniques of geologic mapping. Mr. Cameron.

17. SURVEY OF GEOLOGY: PHYSICAL GEOLOGY. I, II; 3 cr. A brief study of minerals, rocks and the processes which create and modify the surface features of the earth. Not open to those who have had Geology 1 or 9. Field trips and laboratory study. Mr. Emmons.

100. SENIOR THESIS. Yr; 2–3 cr. Optional.

131. FIELD GEOLOGY. Summer; 4 cr. Designed to give experience in geologic mapping

and in solving stratigraphic, structural, sedimentologic and paleontologic problems in the field. Can be substituted for Geology 124. Prerequisite: Geology 11. Mr. Cline.

132. ADVANCED FIELD GEOLOGY. Summer; 4–8 cr. Student is assigned a field problem and required to develop his own analysis. Prerequisites: Geology 131 and consent of instructor. Mr. Cline.

135. HISTORY OF GEOLOGIC THOUGHT. I; 1 cr. A survey of the major concepts in geology from the earliest to modern times. Prerequisites: Geology 1 or 9, or 17; senior standing or consent of instructor. Mr. Judson.

163. UNDERGROUND WATER. II; 3 or 4 cr. A course covering factors controlling the occurrence and distribution of ground water, its quality and chemistry, amount and yield, methods of exploration and development. Lecture and independent investigation. Prerequisite: Geology 1, 9 or 17. Mr. Woollard.

180. ADVANCED INDEPENDENT READING. Prerequisite: Consent of instructor. Staff.

200. RESEARCH. Yr; * cr. Staff.

STRUCTURAL, METAMORPHIC AND ECONOMIC GEOLOGY

114. STRUCTURAL GEOLOGY. I; 5 cr. Earth structures are analyzed from the genetic and applied aspects. The laboratory consists of three-dimensional problems involving structural concepts. Prerequisite: Geology 1 or 9. Mr. Tyler.

115. METAMORPHIC GEOLOGY. II; 5 cr. A study of destructive and constructive processes including weathering, diagenesis and anamorphism. Rock suites illustrating the processes are studied in the laboratory. Prerequisites: Geology 1 or 9, and 6 or 7. Mr. Tyler.

117. PRINCIPLES OF PRE-CAMBRIAN GEOLOGY. I; 2 cr. The distribution, structure, stratigraphy and historical aspects of pre-Cambrian rocks. Given 1955–56 and in alternate years. Prerequisite: Geology 114. Mr. Tyler.

125a. CONDUCTED FIELD TRIP. II; 1 cr. In the semester following course 117, a ten-day trip is taken to the Lake Superior district. Mr. Tyler.

126b. CONDUCTED FIELD TRIP. II; 1 or 2 cr. A conducted field trip to selected mining districts of the central United States. The trip is preceded by a seminar in which the characteristics of the deposits to be visited are discussed. Prerequisite: Geology 151. Mr. Cameron.

150. MINERALS AS A PUBLIC PROBLEM. I; 2 cr. Distribution of mineral resources, problems of mineral supply and conservation, and mineral resources in relation to national and international policy. Mr. Cameron.

151. PRINCIPLES OF ECONOMIC GEOLOGY. I; 3–4 cr. The composition, structure, occurrence, origin and economic investigation of mineral deposits; problems of mineral deposition. Prerequisites: Geology 1, 9 or 6 (or concurrent registration in Geology 8 or 108) and Geology 114. Mr. Cameron.

152. NON-METALLIFEROUS DEPOSITS. II; 3 cr. Deposits of the more important industrial minerals and rocks, including coal; their origin and their economic and geologic characteristics. Prerequisite: Geology 151. Mr. Cameron.

153. METALLIFEROUS DEPOSITS. II; 3 cr. The geologic characteristics, occurrence, and origin of the deposits of the principal metals, and their economic features. Prerequisite: Geology 151. Mr. Cameron.

159. GENERAL GEOPHYSICS. I; 3 cr. A course in earth science covering the broader aspects of geophysics and its relation to earth structure and geology. Prerequisites: Geology 1 or 9, Mathematics 1b, and Physics 1. Mr. Woollard.

160. GEOPHYSICAL EXPLORATION II; 3 or 4 cr. An introductory course covering the

principles of the various geophysical methods used in subsurface exploration, methods of geologic interpretation and factors governing the selection of methods to be used. Lecture and field investigations. Prerequisites: Geology 1 or 9, Mathematics 3, Physics 1 (or equivalent). Mr. Woollard.

161a. MATHEMATICAL GEOPHYSICS. I; 3 cr. Theory of elastic and non-elastic deformation, elastic wave propagation, interpretation of seismological data in terms of earth structure and near surface geology. Prerequisites: Physics 1a, 1b, Math. 102, 112, Geol. 159, 160. Given in alternate years. Mr. Rose.

161b. MATHEMATICAL GEOPHYSICS. II; 3 cr. Potential theory as applied to magnetism, gravitation and geodesy: numerical integration methods and the use of digital and analogue computing machines in the analysis of geophysical data. Prerequisite: Geology 161a. Given in alternate years. Mr. Rose.

162. GEOPHYSICAL INTRUMENTATION. Yr; 2 cr. The design, construction and maintenance of specialized mechanical and electrical geophysical devices. Prerequisites: Physics 104a, and consent of instructor. Mr. Rose.

254. SEMINAR IN STRUCTURAL GEOLOGY. Yr; *cr. Advanced consideration of earth mechanics including epirogeny and orogeny. Mr. Tyler.

255. SEMINAR IN GEOPHYSICS. I; 3 cr. A course dealing with the geological interpretation of geophysical data. Prerequisite: Geology 160. Mr. Woollard.

259. INVESTIGATION OF MINERAL DEPOSITS. Yr; *cr. Mr. Cameron.

260. SEMINAR IN METALLIC ORE DEPOSITS. Yr; *cr. Mr. Cameron.

HISTORICAL GEOLOGY, STRATIGRAPHY, PALEONTOLOGY, SEDIMENTATION

22. INTRODUCTION TO PALEONTOLOGY. II; 3 cr. A general study of fossil invertebrates and their stratigraphic distribution. All phyla of invertebrates are studied in their relative biologic order. Prerequisite: Geology 1 or 9.

112. STRATIGRAPHY AND ADVANCED HISTORICAL GEOLOGY. Yr; 4 cr. (Mining engineers may take for 3 cr.) I. Source areas and distribution of sediments as related to paleogeography and structure, methods of correlation. Prerequisites: Geology 1 or 9, 6 or 7. II. Advanced historical geology. Prerequisites: Geology 112a; some paleontology is highly desirable. Mr. Cline.

121. INVERTEBRATE PALEONTOLOGY. Yr; 3 cr. A study of the biologic and stratigraphic relationships of fossil invertebrates, with special emphasis on the evolutionary trends of the invertebrates as interpreted from fossil evidence. Prerequisite: Geology 1 or 9.

122. MICROPALEONTOLOGY. Yr; 3 cr. A study of microscopic animal and plant fossils, with special emphasis on their biology, taxonomy, evolution, and stratigraphic distribution. Prerequisite: Geology 121 or consent of instructor.

123. PETROLEUM GEOLOGY. Yr; 3 cr. I. Origin, migration, accumulation and geologic distribution of petroleum. II. Subsurface methods: electric and lithologic logs, structure contour maps, drilling, coring, testing, well completion. Prerequisite: Geology 112. Mr. Cline.

125b. CONDUCTED FIELD TRIP. II; 2 cr. A ten-day field trip to the Rockies, Appalachians, Ouachita-Arbuckle area, or Gulf Coastal Plain. Preceded by a seminar. Prerequisite: Geology 112 or consent of instructor. Mr. Cline.

129a. PALEOZOIC STRATIGRAPHIC PALEONTOLOGY. I; 3 cr. A study of Paleozoic index fossils. Prerequisite: Geology 1b. Mr. Laudon.

129b. Mesozoic and Cenozoic Stratigraphic Paleontology. II; 3 cr. A study of Mesozoic and Cenozoic index fossils. Prerequisite: Geology 129a. Mr. Laudon.

133. Sedimentation. Yr; 3 cr. The principles of sedimentation including derivation, transportation and deposition of sediments with emphasis upon environmental factors. Prerequisites: Geology 1 or 9, 6 or 7 and junior standing. Mr. Tyler.

136. Principles of Erosion. II; 2 cr. Principles of erosion, particularly in relation to erosion of the soils of agricultural areas, and the ultimate economic, social and political consequences of erosion. Prerequisite: Junior standing. Mr. Tyler.

233. Studies of Sediments. II; 2 cr. A study of the mineral composition of sediments with special emphasis upon heavy accessory minerals. Offered 1955–56 and in alternate years. Prerequisite: Geology 108. Mr. Tyler.

256. Seminar in Stratigraphy. Yr; 2 cr. Subject area to be selected each semester. Mr. Cline.

257. Seminar in Paleontology. Yr; *cr.

MINERALOGY AND PETROLOGY

6. General Mineralogy. Yr; 5 cr. A discussion of crystallography, mineral properties and characteristics and mineral species—their occurrence, geological significance, political distribution and uses. Prerequisite: Chemistry 1 or a high-school course in chemistry. Mr. Emmons, Mr. Gates.

106. Gems and Precious Stones. II; 1 cr. Credit in *laboratory* science in summer session, 2 cr; but not in regular session, 1 cr. Prerequisite: Junior standing. Mr. Emmons.

107. X-ray Crystallography. Yr; 3 cr. I. Fundamentals. The theory, application, and interpretation of all powder and single crystal techniques. X-ray fluorescence. II. Principles of crystal chemistry and a survey of the structure of crystals. Mr. Bailey.

108. Petrology. Yr; 5 cr. I. The principles of crystal optics and their application to immersion study and thin sections. II. The principles of petrology and the study of rocks in thin sections. Students who are taking Geology 108 as a second course in petrology may prefer to substitute Geology 139 for the laboratory in Geology 108. Prerequisite: Geology 6 or 7. Mr. Emmons.

126a. Conducted Field Trip. II; 1 cr. A trip will be taken to some classic area, primarily for the study of igneous and metamorphic rocks and pre-Cambrian structures. Prerequisites: Geology 6 or concurrent registration, consent of instructor. Mr. Gates.

139. Universal Stage Studies. II; 2 or 3 cr. Petrographic uses of the Five Axis Universal Stage including double variation immersion procedure. Prerequisite: First semester of Geology 108 or consent of instructor. Mr. Gates.

141. Laboratory Investigation of the Ore Minerals. I; 3 cr. Microscopic and chemical techniques used in the identification of ore minerals and their applications to mineral dressing and the study of ore deposits. Prerequisite: Geology 6 or consent of instructor. Mr. Cameron.

253. Seminar in Igneous Petrogeny. Yr; 1 cr. A discussion of current thought in the evaluation of igneous and igneous-appearing rocks. Prerequisite: Geology 108. Mr. Emmons.

261. Seminar in X-ray Crystallography. Yr; 2 cr. Advanced work in X-ray techniques or crystal chemistry. Subject to be selected each semester. Prerequisite. Geology 107. Mr. Bailey.

GLACIAL GEOLOGY AND PHYSIOGRAPHY

109. Geomorphology (Advanced Physiography). I; 3 cr. Study of landforms with par-

ticular emphasis on the physical principles of the processes which produce them, including some mathematical analysis. Prerequisite: Geology 1, 9 or 17, or Geography 2. Mr. Judson.

119. Pleistocene Geology. II; 3 cr. The events of the Pleistocene, their chronology and relation to prehistoric man. Prerequisite: Geology 143 or consent of instructor. Mr. Judson.

143. Glacial Geology. II; 3 cr. Sediments and landforms caused by continental glaciation; history of glaciation in the United States; emphasis on application to field work. Four field trips. Prerequisite: Geology 1, 9, or 17, or Geography 2. Mr. Judson.

GERMAN

Professors Gausewitz, Heffner, *chairman*, Henel, Joos, Workman; Associate Professors Naumann, Riegel, Seifert, Vordtriede; Instructor Kirchberger.

The *Attainment Tests* in German are described on page 38. *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 a practical command of German grammar, (c) the ability to carry on simple conversations in German, (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. Students who wish to prepare for this proficiency test in courses (beyond 10b or the intermediate examination) should take courses 22, 23, 25a, 101, and any of the author courses (105–109) of Group B below. Students who wish to prepare themselves by independent reading as well as by course work should consult the chairman of the department.

The *Elementary Courses* represent 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 equivalent to one semester (4 credits) of college work; but freshmen, as well as students who transfer from other colleges, are given credit for work done elsewhere and assigned to the various courses here on the basis of placement examinations (see page 38.)

First- and second-semester German are offered in two groups or sections, the traditional and the conversational. In the traditional sections the emphasis is on the learning of correct pronunciation, the standard minimum vocabulary for reading, and the fundamentals of grammar as required for the reading of German. These sections meet four times per week and students are expected to make appropriate preparation at home for these recitations. In the conversational sections the initial emphasis is on the oral use of German in practical situations, with the establishment of correct pronunciation and correct linguistic patterns by the frequent repetition and variation of typical conversation. From these conversations the minimum functional grammar is derived by analysis, and as the course progresses, more time is given to reading practice. These sections meet eight times weekly, four times in groups of approximately twenty students, four times in groups of half that number. The work of these small groups largely replaces home assignments. Both the traditional and the conversational sections prepare students for entry into German 10a, which is the third-semester reading course.

The *Literary Courses* are listed in four groups of progressive degrees of advancement. Students are advised not to enter the courses of Group B until they have had at least 6 credits from the courses of Group A, or have the equivalent of this training. At least 3 credits from Group B are prerequisite for entry into the courses of Group C or the courses in German philology. Students who intend to specialize in the study of German literature are advised to do related work in such fields as English and comparative literature, in medieval and modern history, especially the history of Germany, in the history of art, the history of philosophy. Majors in German 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 intended primarily for undergraduate majors and graduate students. Course 191 is required of students preparing to teach Geman. The courses in Middle High German, 151 and 152, are open to advanced undergraduates who obtain the consent of the instructor; they are normally required of candidates for the degree of Master of Arts.

MAJOR. Students who wish to present a major in German (not a teaching major) must have at least 26 credits in advance of course 10a. These credits must include courses 25a and 25b (unless 112 is substituted), and 131a and 131b.

A certificate of Oral Proficiency in German is awarded to those who pass the oral proficiency test. This certificate is required of all teaching majors.

All students offering a foreign-language major are required to present 8 credits or to pass the intermediate knowledge test in a second foreign language. Those who intend to work for the degree of M.A. or Ph.D. with a major in German should note that they will be required to show a reading knowledge of French.

For the requirements for a teaching major or minor see the announcement of the School of Education.

ELEMENTARY COURSES

1a. FIRST-SEMESTER GERMAN. I, II; 4 cr. For students with no previous knowledge of German. Two groups of sections: *Traditional sections,* four class hours per week, home study assignments. *Conversational sections,* four class hours per week plus four laboratory-drill sessions, which largely replace home study. Students who begin German in one of these groups should enroll in the corresponding group in their second semester.

1b. SECOND-SEMESTER GERMAN. I, II; 4 cr. Two groups of sections: *traditional sections,* four class hours per week; *conversational sections,* four class hours plus four laboratory-drill sessions per week, as in course 1a. Prerequisite: German 1a or one year of high-school German, with placement test.

10a. THIRD-SEMESTER GERMAN. I, II; 3 cr. Practice in reading German prose and poetry. Prerequisite: German 1b or two years of high-school German, with placement test.

10b. FOURTH-SEMESTER GERMAN. I, II; 3 cr. Practice in reading German prose and poetry. Students with a grade-point average of 3.0 or better in German may with profit enter German 22 instead of German 10b. Prerequisite: German 10a or three years of high-school German, with placement test.

15. ELEMENTARY CONVERSATIONAL GERMAN. I, II; 2 cr. This course is not open to students who have taken German 1b in the conversational sections. Prerequisite: German 1b in traditional sections or its equivalent.

16. INTERMEDIATE CONVERSATIONAL GERMAN. I, II; 2 cr. Prerequisite: German 15 or German 1b in conversational sections.

PRACTICE COURSES

25a. INTERMEDIATE COMPOSITION AND CONVERSATION. Sem; 3 cr. Grammar review and conversation. Prerequisite: German 10b or equivalent.

25b. INTERMEDIATE COMPOSITION AND CONVERSATION. Sem; 3 cr. Prerequisite: German 25a. Courses 25a and 25b are required of all majors and minors, unless German 112 is substituted.

28. SCIENTIFIC GERMAN. Sem; 3 cr. Especially for students of chemistry. Prerequisite: German 10b or equivalent. With consent of instructor this course may be taken for a second semester.

29. Scientific German. Sem; 2 cr. Especially for students of medicine. Prerequisite: German 10b or equivalent. With consent of instructor this course may be taken for a second semester.

80. Supervised Individual Reading. Sem; 2 or 3 cr. For upper-group students who have passed the intermediate examination or two years of college German with distinction 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, economics, other literatures, 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 of the college and the chairman of the German department. Maximum credits six.

112. Advanced Composition and Conversation. Sem; 2 cr. For students who have a good command of German grammar and fair conversational ability. Strongly recommended to teaching candidates and to candidates for the M.A. degree.

212. Exercises in German Style. Sem; 2 cr. Analysis of distinguished modern German prose; free composition.

SUPPLEMENTARY COURSES

75. German Classics in Translation. Yr; 2 cr. Does not give credit in German. (See Comparative Literature 75.)

110. Deutsches Volkstum. Sem; 3 cr. A study of characteristic periods and movements of the cultural development of Germany. Considerable outside reading. Especially recommended to prospective teachers of German.

210. Backgrounds of German Literature. Sem; 2 cr. Assigned readings and weekly discussion-group meetings on the relations of German literature to German art, music, and philosophy.

SERVICE COURSE

181. German for Research. Sem; 1 cr. (2 hrs. laboratory.) For Ph.D. candidates in all fields (except in German) who need practice in scholarly translation from German into English. May be repeated once for credit. Prerequisite: German 30 or 1b (or equivalent).

GERMAN LITERATURE

GROUP A

Introductory Courses

The courses of Group A are intended to provide a transition from language learning to the study of literature. German is used to some extent as the language of the classroom and emphasis will be increasingly upon literary matters as the language difficulty diminishes.

22. Prose Writers of the 19th and 20th Centuries. Sem; 3 cr. Prerequisite: German 10b or its equivalent, or consent of instructor.

23. Prose Writers of the 19th and 20th Centuries. Sem; 3 cr. Prerequisite: German 22.

GROUP B

The courses of Group B are open to students who have 6 credits from the courses of Group A with a grade-point average of at least 2.5. At least 3 credits from Group B are prerequisite for entry in the courses of Group C. Students who wish to enter these courses on the basis of work done elsewhere should consult the chairman of the department.

101. Elementary Survey. Sem; 3 cr. Lectures and readings on the history of German

literature; study of characteristic works. Not intended for students required or otherwise planning to take course 131.

102. THE CLASSICAL PERIOD. Sem; 3 cr. May be repeated in sequence, with consent of instructor.

103. THE NINETEENTH CENTURY. Sem; 3 cr. May be repeated in sequence, with consent of instructor.

104. CONTEMPORARY GERMAN LITERATURE. Sem; 3 cr.

105. SCHILLER. Sem; 3 cr.

106. GRILLPARZER. Sem; 3 cr.

107. HEBBEL. Sem; 3 cr.

108. KELLER. Sem; 3 cr.

109. HAUPTMANN. Sem; 3 cr.

GROUP C

For Undergraduates and Graduates

These courses are open to undergraduates who have at least 3 credits from the courses of Group B and to graduate students. Undergraduate majors in German are required to have at least 9 credits from courses of Group C.

123. TRAGIC DRAMA IN EUROPE, 1770–1850. Sem; 3 cr. (See COMPARATIVE LITERATURE 123).

131. SURVEY OF GERMAN LITERATURE. Yr; 3 cr. Lectures in German with outside reading of representative works from the oldest records to the present. Required of teaching majors and of candidates for the M.A.

132. GOETHE. Sem; 3 cr. A general study of Goethe's life and works, exclusive of *Faust*.

133. GOETHE'S FAUST. Sem; 3 cr.

134. GERMAN LYRIC POETRY, 1750 TO THE PRESENT. Sem; 3 cr. This course traces the development of modern German lyric poetry.

135. NINETEENTH-CENTURY GERMAN PROSE FICTION. Sem; 3 cr. Deals principally with the *Novelle*.

136. TWENTIETH-CENTURY GERMAN PROSE FICTION. Sem; 3 cr. A study of the German *Novelle* in the twentieth century.

137. SCHILLER'S DRAMAS. Sem; 3 cr. A study of the development of German Classicism as embodied in Schiller's dramas; the theory, structure, and dramaturgy of the classical drama in Germany.

142. NINETEENTH-CENTURY GERMAN DRAMA AND LYRIC. Sem; 3 cr.

143. TWENTIETH-CENTURY GERMAN DRAMA AND LYRIC. Sem; 3 cr.

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.

GROUP D

Primarily for Graduates

200. INDIVIDUAL RESEARCH. Investigation not related to a particular course or seminar, 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.

201. HUMANISM, RENAISSANCE, AND REFORMATION (1400–1600). Sem; 3 cr. The break with the medieval world in the age of Luther, Hutten, Murner, Brant, Fischart, and their contemporaries.

202. BAROQUE LITERATURE IN GERMANY (1600–1700). Sem; 3 cr. The Renaissance spirit and religious fervor in their polarity. Studies in Opitz, Fleming, Gryphius, Grimmelshausen, and their contemporaries.

203. RATIONALISM, ROCOCO, AND "STURM UND DRANG" (1700–1789). Sem; 3 cr. The foundations of modern German literature. Studies in Gottsched, Klopstock, Wieland, Lessing and Herder. Special emphasis upon their aesthetic and literary criticism.

205. SCHILLER. Sem; 3 cr. Especially devoted to Schiller's essays in aesthetics and cultural philosophy.

206. ROMANTICISM IN GERMAN LITERATURE. Sem; 3 cr. The theorists and the creative writers. The Schlegels, Tieck, Novalis, Hölderlin, and the later Romanticists.

240. GERMAN LITERARY THEORY AND CRITICISM. Sem; 3 cr. History of German criticism, with attention to other European critical writers.

246. BIBLIOGRAPHY AND METHODS. Sem; 1 cr. Required of all candidates for the M.A. or Ph.D. Normally taken with course 247.

247. PROSEMINAR IN GERMAN LITERATURE. Sem; 2 cr. Investigations of limited compass, to prepare for advanced work in the seminars.

248. SEMINAR IN GERMAN LITERATURE. Sem; 2 cr.

249. SEMINAR IN GERMAN LITERATURE. Sem; 2 cr.

GERMAN PHILOLOGY

For Undergraduates and Graduates

151. INTRODUCTION TO MIDDLE HIGH GERMAN. Sem; 3 cr. *Das Nibelungenlied,* Middle High German grammar.

152. READINGS IN MIDDLE HIGH GERMAN. Sem; 3 cr. Courtly epic and Minnesang, with emphasis on *Parzival* and Walther von der Vogelweide.

191. PHONETICS. Sem; 3 cr. A general introduction to phonetics, with particular reference to the teaching of German.

Primarily for Graduates

250. INDIVIDUAL RESEARCH IN GERMAN AND GERMANIC PHILOLOGY. Credit and conference hours to be arranged. Candidates should consult the chairman of the department.

255. OLD HIGH GERMAN. Sem; 3 cr. Readings: Phonology, morphology, dialects.

258. OLD SAXON. Sem; 3 cr. *Heliand* and *Genesis.*

260. PHILOLOGICAL PROSEMINAR. Sem; 2 cr. Studies in the history of the German language. Investigations of short specimen texts and introduction to the methods of philological and linguistic research.

261. HISTORY OF THE GERMAN LANGUAGE. Yr; 3 cr. Lectures, assigned readings, problems. (a) External history, development of Standard German, Schriftsprache, Umgangssprache. (b) Internal history. Historical grammar: phonology, morphology, word-formation.

268. INTRODUCTION TO THE STUDY OF GERMANIC PHILOLOGY. Sem; 3 cr. Gothic: the general characteristics of the Germanic languages, with special reference to phonology.

269. Introduction to the Study of Germanic Philology *(continued)*. Sem; 2 cr. The general characteristics of Gothic, North Germanic, the West Germanic problem. A general introduction to Germanic morphology.

270. Philological Seminar. Sem; 2 cr.

HISTORY

Professors Beale, Carstensen, Curti, Easum, Edson, Harrington, *chairman*, Hesseltine, Higby, Hill, Jensen, Knaplund, Phillips, Post, Reynolds, Sachse; Associate Professors Boardman; Assistant Professors Cameron, Greene, Kroeber, Lively, Petrovich; Lecturer Sharp.

For the Letters and Science requirement in United States History and Institutions, see page 45. The requirements in United States History and Institutions in other colleges are stated in the appropriate college bulletins.

Major in History. For a major in History, a minimum of 30 credits is required. Students entering college with less than two units of high-school history must take at least 33 college credits for a history major; those entering college without history will need not less than 35 credits.

Work for the history major must include:

1) At least 12 credits of European history, of which 6 must be taken from the following: 1, 2, 3, 5, 10.
2) Six credits in American History (History 4 or work in advanced courses or a combination).
3) At least 15 credits in advanced history courses (those numbered 100–199) taken in residence at the University of Wisconsin, 9 credits of which must be confined to European History or American History. Advanced courses taken under (1) or (2) above count toward these 15 credits.
4) In addition to the history courses, history majors must take Economics 1a.

Integrated Liberal Studies 12 and 22 count as history courses for the purposes of the major, being considered as the equivalent of History 1 and 2.

Senior Thesis. History students who desire to prepare a senior thesis may do so with the consent of the adviser. This involves taking History 100 for two credits in each semester of the senior year.

Honors and High Honors. Majors who have a grade-point average of 2.0 or better and 24 credits of history may at the end of their junior year enroll for Honors in history. Those so enrolled will register for History 150 during the senior year, 2 credits each semester. For Honors in history, the student must have a 2.5 average in the major at the end of the senior year. For High Honors in history, the student must have an over-all grade-point average of 2.5, and, in addition to meeting the requirements for Honors in History, must have written a thesis of distinction. The thesis may be worked in with assignments in History 150.

Major in History With Concentration on History of Culture. This requires: (I) History 10 (both semesters); 12 credits to be chosen from the following: History 1, 2, 3, 4, 5; or (II) History 1, 2 and 3, plus either History 4 or 10. In addition, advanced history courses to make a total of at least 30 credits in history. Economics 1a is not required; but the student must pass an attainment examination in Latin and in one modern language, and must have a supervised selection of courses outside of history within the field of concentration. Majors with this concentration should choose the major in the sophomore year.

JOINT MAJOR IN HISTORY AND HISTORY OF SCIENCE. 18 credits in introductory courses: 6 to be chosen from History 1, 2, 3, 5, 10; History 4, 6 credits; History of Science 1, 6 credits; and 18 credits in advanced courses, no less than 6 in either field (History or History of Science); total, 36.

TEACHING MAJOR AND MINOR. See bulletin of School of Education.

I. INTRODUCTORY COURSES

OPEN TO ALL UNDERGRADUATES

*1. MEDIEVAL EUROPE, 410–1500. Sem; 3 cr. A general introduction to the history of Europe from the later Roman Empire to the end of the middle ages. Mr. Post, Mr. Reynolds and staff.

*2. THE MAKING OF MODERN EUROPE, 1500–1815. Sem; 3 cr. An introduction to the principal developments in the history of Europe from the Renaissance to the fall of Napoleon. Mr. Easum, Mr. Hill, Mr. Kroeber and staff.

*3. EUROPE AND THE MODERN WORLD, 1815 TO THE PRESENT. Sem; 3 cr. A general survey of the political, economic, social, and cultural history of modern western civilization. Mr. Easum, Mr. Cameron, Mr. Petrovich and staff.

*5a–b. ENGLISH AND BRITISH HISTORY. Yr; 3 cr. Political, constitutional, economic and social development; relations between England, the other parts of the British Isles, and the continent of Europe; imperial expansion. Period covers prehistoric times to the present. Mr. Sachse and staff.

*10a–b. ANCIENT HISTORY. Yr; 3 cr. Survey of the history of civilization from the beginnings in Egypt and Babylonia to the year 500, with emphasis on institutional and social development. Mr. Edson.

NOT OPEN TO FRESHMEN

4a–b. AMERICAN HISTORY, 1607 TO THE PRESENT; THE ORIGIN AND GROWTH OF THE UNITED STATES. Yr; 3 cr. Survey of American social, political, and economic development. Prerequisite: Sophomore standing. Staff.

12a–b. REPRESENTATIVE AMERICANS. Yr; 3 cr. A biographical approach to American history. Evaluation of the contributions of leading Americans to the nation's development. Offered concurrently with History 112a–b. Prerequisite: Sophomore standing. Mr. Hesseltine.

37. ORIGINS AND HISTORY OF WORLD WAR II. I; 3 cr. Background and history of World War I. Problems of peace-making and international organization. Rise of Fascism, National Socialism, and Japanese imperialism. Breaking the peace. Second World War. Prerequisite: Sophomore standing. Offered concurrently with History 137. Not open to students with credit for History 139b. Mr. Easum.

II. TRAINING COURSES AND SPECIAL WORK

150. HONORS WORK IN HISTORY. Yr; 2 cr. per semester. Reports on reading, discussions, and brief research papers. Will meet in weekly two-hour sections. Limited to six students per section. Prerequisites: Senior majors in history, and permission of the adviser. Staff.

179. THEORIES OF HISTORY. I; 3 cr. A study of various philosophies of history and of theories concerning the method, purpose, and meaning of history. Open to history or other social science senior majors, or those juniors who have substantially completed their majors. Mr. Hill.

* Freshmen who take History 1, 2, 3, 5, and 10 will earn 3 credits; they may earn a fourth credit with the consent of the instructor. Upperclassmen will earn 2 credits; a third credit may be arranged by obtaining permission of the instructor.

252. Historical Method. I; 2 cr. Historiography, historical bibliography, sources and criticism. Graduate students in their first year are expected to take this course. Mr. Post and others.

The Teaching of History and the Social Studies. See Education 84, bulletin of the School of Education.

Practice Teaching in History on the College Level. See Education 286, bulletin of the School of Education.

Advanced Course in the Teaching of History and the Social Studies. See Education 185, bulletin of the School of Education.

III. ANCIENT AND MEDIEVAL HISTORY

123. Economic History of the Ancient World. (See VI, Economic and Social History.)

126. A History of Rome. Yr; 3 cr. I: The Republic; II: The Empire. A view of Roman history from the beginning of the Roman state to the fall of the Empire in the West. Prerequisite: Junior standing or consent of instructor. Offered 1954–55 and in alternate years. Mr. Edson.

127. A History of Greek Civilization. Yr; 3 cr. I: The Greek City; II: The Macedonian Monarchy and the Hellenistic Civilization. Greek history from prehistoric times to the end of the Hellenistic Age. Prerequisite: Junior standing or consent of instructor. Offered 1955–56 and in alternate years. Mr. Edson.

131. Medieval Civilization. Yr; 3 cr. The nature and direction of the civilization of the twelfth and thirteenth centuries. Prerequisite: Junior standing or consent of instructor. Mr. Post.

132. History of Italy to the Eighteenth Century. Sem; 3 cr. History of the Italian people, emphasizing their contributions in the economic, cultural, and political fields, from the later Roman Empire to the eighteenth century. Prerequisite: History 3 or junior standing. Mr. Reynolds.

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

134. The Renaissance. II; 3 cr. Various elements contributing to the development of European civilization in the fourteenth and fifteenth centuries. Prerequisite: Junior standing or consent of instructor. Mr. Post.

135. Later Roman and Byzantine Empires. Yr; 3 cr. Accession of Diocletian (284) to capture of Constantinople by the Turks (1453). External relations of the Empire, constitutional, ecclesiastical, social, economic, and intellectual history. Prerequisite: History 10, 1, or consent of instructor. Not offered 1954–55.

136. History of Medieval France. Sem; 3 cr. Rise of the national state and its civilization under the monarchy, 987–1483. Prerequisite: Junior standing or consent of instructor. Mr. Post.

141. English Constitutional History. Yr; 3 cr. Government and law of England from earliest times to the present. Prerequisites: History 5; or History 2 or 3 and junior standing. Offered 1955–56 and in alternate years. Mr. Sachse.

164. History of Exploration and Geographical Discoveries, 1200–1700. Sem; 3 cr. Literature on medieval and early modern explorations in Asia, Africa, and the New World. Economic and political consequences of the "expansion of Europe." Prerequisite: Junior standing or consent of instructor. Mr. Reynolds.

165. History of Commerce. (See VI, Economic and Social History.)

168. History of the Far East. (See IV, Modern History.)

169. Civilization of China. I; 3 cr. Political, social, and cultural developments from earliest beginnings to the eighteenth century. Prerequisite: Junior standing. Offered 1955–56 and in alternate years. Mr. Boardman.

210. Proseminar in the Political Institutions and Political Thought of the Classical World. Yr; 3 cr. Prerequisite: Graduate standing. A reading knowledge of French or German is highly desirable. (Candidates for the doctorate in Ancient History or Classics are not eligible for this proseminar. Their attention is called to History 254.) Mr. Edson.

253. Latin Paleography. Sem; 2 cr. Elements of paleography, with practical exercises in reading of manuscripts. Prerequisite: Graduate standing. Mr. Post.

254. Seminar in Ancient History. Yr; 2 cr. Special problems in Greek and Roman history will be studied in alternate years. Prerequisites: Graduate standing or consent of instructor and reading knowledge of appropriate foreign languages. Mr. Edson.

256. Seminar in Medieval History. Yr; 2 cr. Studies in intellectual history of the thirteenth century. Prerequisites: Graduate standing and reading knowledge of Latin, French, and German. Mr. Post.

257. Seminar in Medieval History. Yr; 2 cr. Studies in the economic history of the Middle Ages. Prerequisites: Graduate standing and reading knowledge of Latin, French, Italian, or German. Mr. Reynolds.

268. Seminar in the History of the Far East. (See IV, Modern History.)

IV. MODERN HISTORY

130. History of Spain and Portugal. Sem; 3 cr. The political, economic, social and artistic life of the people of Spain and Portugal from pre-Roman times to the present. Prerequisite: Junior standing or consent of instructor. Mr. Kroeber.

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

137. Origins and History of World War II. I; 3 or 4 cr. Background and history of World War I. Problems of peace-making and international organization. Rise of Fascism, National Socialism, and Japanese imperialism. Breaking the peace. Second World War. Prerequisite: Junior standing or History 2, 3, or 5. Offered concurrently with History 37; not offered simultaneously with or open to students with credit for History 139b. Mr. Easum.

138a. The French Revolution and the Napoleonic Period, 1789–1815. I; 3 cr. Effect of the French Revolution and the Napoleonic period on the institutions and conditions of Europe. Prerequisite: Junior standing or consent of instructor. Offered 1955–56 and in alternate years. Mr. Higby.

138b. History of Europe, 1815–1871. II; 3 cr. Effects of the rise of nationalism, liberalism, and the new economic forces upon Europe and European society. Prerequisite: Junior standing or consent of instructor. Offered 1955–56 and in alternate years. Mr. Higby.

139a. The Age of Imperialism, 1871–1918. I; 3 cr. A study of the expansions and rivalries of the nations of Europe during this period. Prerequisite: Junior standing or consent of instructor. Offered 1954–55 and in alternate years. Mr. Higby.

139b. Recent and Contemporary European History, 1918–1953. II; 3 cr. The First World War and its aftermath. Prerequisite: Junior standing or consent of instructor; not open to students with credit for History 37–137. Offered 1954–55 and in alternate years. Mr. Higby.

140a–b. Economic History of Modern Europe. (See VI, Economic and Social History.)

142a. The Emergence of Modern Britain: England Under the Tudors and Early Stuarts, 1485–1660. I; 3 cr. Cultural, economic, political, and social issues and developments; foreign relations; the background of empire. Prerequisite: History 5 or junior standing. Offered 1954–55 and in alternate years. Mr. Sachse.

142b. The Emergence of Modern Britain: England Under the Later Stuarts and Hanoverians, 1660–1815. II; 3 cr. Cultural, economic, political, and social issues and developments; foreign relations; the industrial revolution; the old empire; Anglo-American relations. Prerequisite: History 5 or junior standing. Offered 1954–55 and in alternate years. Mr. Sachse.

143. The British Empire Since 1815. Yr; 3 cr. Imperial expansion and imperial policy. Growth of the Dominions; relations with India; the dependent Empire. The Empire and Commonwealth in our own age. Prerequisite: History 5 or junior standing. Offered 1954–55. Mr. Knaplund.

144. Sixteenth-Century Civilization. II; 3 cr. The conflict of secular and religious forces, 1500–1600. Prerequisite: Junior standing or consent of instructor. Offered 1954–55 and in alternate years. Mr. Post.

145. European Social and Intellectual History, 1600–1789. Yr; 3 cr. First semester: Social conditions and their influence on thought and belief. Second semester: Main movements in thought and taste in the 17th and 18th centuries. Prerequisite: History 2, 3, or junior standing.

146. History of the German People. Yr; 3 cr. First semester: Survey of medieval German history; a study of the Renaissance, Reformation, and Thirty Years' War. Second semester: 1648–1871, with special attention to the rise of Prussia and unification of Germany. Prerequisite: History 2, 3, 5, or 10, or junior standing. Mr. Easum.

147. Modern Britain, 1815 to the Present. Yr; 3 cr. Economic, social, and political history of the British Isles. Foreign relations and foreign policy. Prerequisite: History 5 or junior standing. Not offered 1954–55. Mr. Knaplund.

148. History of Southeast Europe, 1453 to the Present. Yr; 3 cr. The Ottoman and Hapsburg Empires, the rise of the Balkan countries, internal developments and external pressures, from the end of the Byzantine Empire to the present. Prerequisite: Junior standing or consent of instructor. Not offered concurrently with History 135. Mr. Petrovich.

149. History of Russia. Yr; 3 cr. The origins and evolution of the Russian State; political, economic, and social history; relations with foreign countries. From the ninth century to the present. Prerequisite: Junior standing or consent of instructor. Mr. Petrovich.

151a. European Social and Intellectual History, 1789–1870. I; 3 cr. The conflicting cultures of the aristocratic reaction, individualist liberalism and the democratic movement; romanticism and scientific materialism. Prerequisite: History 3 or junior standing.

151b. European Social and Intellectual History Since 1870. II; 3 cr. The liberal faith in the ascendant and in retreat; socialism, authoritarian nationalism and the new liberalism; the uncertain faith in science and progress. Prerequisite: History 3 or junior standing.

156. History of Australia and New Zealand. II; 3 cr. Early settlements. Growth of self-government. Economic and social policies and progress. Dominion status. Foreign relations. Emphasis on period since 1891. Prerequisite: History 5 or junior standing. Not offered 1954–55. Mr. Knaplund.

161. European Economic and Cultural Development. (See VI, Economic and Social History.)

164. History of Exploration and Geographical Discoveries, 1200–1700. (See III, Ancient and Medieval History.)

168. History of the Far East. Yr; 3 cr. Survey of the culture, history, and institutions of the Far Eastern countries from earliest times to the present. Prerequisite: Junior standing or consent of instructor. Mr. Boardman.

170. China in the 19th and 20th Centuries. II; 3 cr. Examination of the process of social change and revolution in modern China. Prerequisite: Junior standing or consent of instructor. Mr. Boardman.

172. Japan Since 1868. II; 3 cr. Foreign relations, political, social, and economic developments during the period 1868–1954. Prerequisite: Junior standing or consent of instructor. Offered 1954–55. Mr. Boardman.

175a. History of Modern France: The Old Regime. I; 3 cr. Evolution of French institutions and civilization, 1483–1789. Prerequisite: Junior standing or consent of instructor. Mr. Hill.

175b. History of Modern France: Since the Revolution. II; 3 cr. The development of French institutions and civilization, 1789 to the present. Prerequisite: Junior standing or consent of instructor. Mr. Hill.

178. Recent German History. Yr; 3 cr. First semester: The Hohenzollern Empire: its constitution, history, colonial enterprises, and world position. Second semester: Wartime and postwar Germany, Weimar Republic, and the Third Reich. Prerequisites: History 2, 3, or 146, and junior standing. Not offered concurrently with History 146. Mr. Easum.

187. History of Scandinavian Countries. Yr; 3 cr. The political, economic, and social history of the Scandinavian countries from the earliest times to the present. Prerequisite: History 3 or History 2, or junior standing. Mr. Knaplund.

207. Modern European History, 1492–1789. Yr; 3 cr. Lectures, reports, and discussions. Expansion of Europe; Protestant revolt; Catholic reformation; rise of absolutisms; benevolent despots; and growth of revolutionary spirit. Prerequisite: Graduate standing. Mr. Higby.

240. Seminar in Modern European Economic History. (See VI, Economic and Social History.)

258. Seminar in the History of the British Empire. Yr; 2 cr. Aspects of British imperial history. Prerequisite: Graduate standing. Mr. Knaplund.

259. Seminar in Seventeenth-Century England. Yr; 2 cr. Attention will be devoted to economic, intellectual, political, and social problems of this period. Prerequisite: Graduate standing. Mr. Sachse.

265. Seminar in Central European History. Yr; 2 cr. Studies in modern German history and German international relations, with special attention to Germany's position as a Central European state. Prerequisites: Graduate standing and reading knowledge of German. Reading knowledge of French is highly desirable. Mr. Easum.

267. Seminar in Modern European History. Yr; 2 cr. Prerequisite: Graduate standing. Mr. Higby.

268. Seminar in the History of the Far East. Yr; 2 cr. Prerequisite: Graduate standing. Reading knowledge of French, Chinese, or Japanese is desirable. Mr. Boardman.

275. Seminar in Modern Russian and East European History. Yr; 2 cr. Will be given in rotation or as occasion arises. Prerequisites: Graduate standing and consent of instructor. Mr. Petrovich.

276. Seminar in European Social and Intellectual History. Yr; 2 cr. Prerequisite: Graduate standing.

V. AMERICAN HISTORY

101. History of Colonial Society. I; 3 cr. European expansion and colonization in the New World; English colonization; political ideas and institutions; economic foundations; social evolution and conflict; intellectual currents; colonial expansion; international warfare. Prerequisite: Junior standing. Mr. Jensen.

102. The Age of the American Revolution, 1763–1789. II; 3 cr. Structure of American society; British policy; growth of revolutionary movements; independence and political revolution; military and diplomatic phases; social consequences; Confederation period; Constitution of 1787. Prerequisite: Junior standing. Mr. Jensen.

103. Nationalism and Democracy in the United States, 1789–1815. I or II; 3 cr. Establishment of the national government; the rule of the Federalist Party; rise of Jeffersonian democracy; the philosophy and practice of Jeffersonians; the War of 1812. Prerequisite: Junior standing. Mr. Jensen.

104. The Rise of Jacksonian Democracy, 1815–1837. Sem; 3 cr. Expansion and economic change; economic sectionalism and national politics; rise of Jacksonian democracy; social and political reform; Jacksonians in power. Prerequisite: Junior standing. Mr. Jensen.

105. Sectionalism and the Civil War. I; 3 or 4 cr. Conflict between rising industrialism and the Old South; the abolition crusade; secession; economic and social significance of the Civil War. Prerequisite: Junior standing. Not offered 1954–55. Mr. Hesseltine.

106. Reconstruction and the New Nation. II; 3 cr. Aftermath of the Civil War; reconstruction; economic consequences of the war; the Grant era; the New South; the continuance and decline of sectionalism. Prerequisite: Junior standing. Not offered 1954–55. Mr. Hesseltine.

107. America in Transition, 1877–1901. Sem; 3 cr. History of the rise of modern industrialism, the organization of labor and farmers, the disappearance of the frontier, the growth of American imperialism and resulting social, constitutional, and intellectual adjustments. Prerequisite: Junior standing. Mr. Beale.

108. Recent American History, 1901–1929. Sem; 3 cr. Economic, social, intellectual, constitutional, and political history of the age of big business and international bankers, progressive reform and conservative reaction, assumption of world leadership and retreat from it. Prerequisite: Junior standing. Mr. Beale.

109. Recent American History, 1929 to the Present. Sem; 3 cr. Social, economic, and political history of the Great Depression, the New Deal, entry and participation in World War II, and the problems of peace and war since 1945. Prerequisite: Junior standing. Mr. Lively.

111. History of the West, 1763–1893. (See VI, Economic and Social History.)

112a–b. Representative Americans. Yr; 3 cr. A biographical approach to American history. Evaluation of the contributions of leading Americans to the nation's development. Offered concurrently with History 12a–b. Prerequisite: Junior standing or an introductory course in American history. Mr. Hesseltine.

113a–b. History of American Thought and Culture. Yr; 3 cr. European and American influences on movement of thought, arts, and agencies of cultural life, seventeenth century to present, and impact of American ideas on the world. Prerequisite: Junior standing. Offered 1955–56 and in alternate years. Mr. Curti.

114. History of Wisconsin. II; 3 cr. The history of Wisconsin from the beginning of the historical period to the present, with emphasis on the economic and social aspects of Wisconsin history since 1815. Prerequisite: History 4 or junior standing. Offered 1954–55. Mr. Hesseltine.

115. History of American Agriculture. I; 3 cr. Colonial agriculture and land tenure; western migrations and the dispositions of the public domain; transportation and markets; application of technology and science; regional specialization; agrarian political and other movements. Prerequisite: Junior standing. Mr. Carstensen.

117a–b. American Constitutional Development. Yr; 3 cr. I: Colonial background; framing republican governments; constitutional controversy to 1861; II: Civil War and Reconstruction; social and economic issues; war and the Constitution. Prerequisite: Junior standing. Mr. Greene.

120a–b. American Foreign Relations, 1775 to the Present. Yr; 3 cr. 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. Mr. Harrington.

121a–b. Social Development of the American People. (See VI, Economic and Social History.)

122a–b. American Economic Life. (See VI, Economic and Social History.)

129a. Latin-American History to 1825. I; 3 cr. Conquests by Spain and Portugal; and the socio-economic, cultural, and governmental institutions in colonial life. Background of revolution, and wars for independence. Prerequisite: Junior standing. Mr. Kroeber.

129b. Latin-American History Since 1825. II; 3 cr. The modern struggle for stability, progress, and cultural advancement; relations with the United States; part played in world affairs; life and problems of today. Prerequisite: Junior standing. Mr. Kroeber.

155. History of Canada. I; 3 cr. Origins of the Canadian Nation. Economic, political, and social progress. Establishment of independent status. Foreign relations. Emphasis on period since federation, 1867. Prerequisite: History 5 or junior standing. Not offered 1954–55. Mr. Knaplund.

201. Studies in Eighteenth-Century American History. Sem; 3 cr. Prerequisites: Master's degree and consent of instructor. Mr. Jensen.

202. Studies in American Intellectual History: The American Mind. Sem; 3 cr. Prerequisites: Master's degree and consent of instructor. Mr. Curti.

203. Studies in American Sectionalism. Sem; 3 cr. Prerequisites: Master's degree and consent of instructor. Mr. Hesseltine.

204. Studies in American Expansion Overseas. Sem; 3 cr. Prerequisites: Master's degree and consent of instructor. Mr. Harrington.

205. Studies in Recent American History, 1880–1919. Sem; 3 cr. Topics like the Populist protest, Progressive movement, farm discontent, labor's struggle for recognition, minority groups, rise of industrialism, of imperialism, social reformers, critics of America, entry into international affairs and World War I, recent historians. Prerequisites: Master's degree and consent of instructor. Mr. Beale.

206. Studies in Latin-American History. Yr; 2 cr. A course designed to acquaint graduate students with the historical literature of Latin America for the colonial and republican eras. Prerequisites: Graduate standing and consent of instructor. Mr. Kroeber.

208. Studies in the History of the West. I; 3 cr. Emphasis on social and economic phases of history of the westward-moving American frontier. Prerequisites: Master's degree and consent of instructor. Mr. Carstensen.

209. Studies in American Economic History. (See VI, Economic and Social History.)

211. Studies in Recent American History, 1919 to the Present. Sem; 3 cr. Topics like uneasy prosperity, the Great Depression, the New Deal, growth of labor power, minority

group problems, Good Neighbor Policy, entry into World War II, America in the Pacific, retreat from isolation, world struggle for power. Prerequisites: Master's degree and consent of instructor. Mr. Lively.

261. SEMINAR IN AMERICAN HISTORY. Yr; 2 cr. Social and economic problems of the Civil War and Reconstruction periods or in constitutional history. Prerequisite: Graduate standing. Mr. Hesseltine.

262. SEMINAR IN AMERICAN HISTORY. Yr; 2 cr. Social and intellectual history of the United States since 1890. Prerequisites: Graduate standing and consent of instructor. Mr. Curti.

263. SEMINAR IN AMERICAN HISTORY. Yr; 2 cr. Studies in eighteenth-century America. Prerequisite: Graduate standing. Mr. Jensen.

269. SEMINAR IN AMERICAN HISTORY. Yr; 2 cr. Studies in American foreign relations. Prerequisite: Graduate standing. Mr. Harrington.

270. SEMINAR IN AMERICAN HISTORY. Yr; 2 cr. Studies in recent history of the United States. Prerequisite: Graduate standing. Mr. Beale.

271. SEMINAR IN AMERICAN HISTORY. I; 2 cr. Problems in the history of the West. Prerequisite: Graduate standing. Mr. Carstensen.

290. INTERDEPARTMENTAL SEMINAR ON LATIN AMERICA. II; 2 cr. An interdisciplinary inquiry into the factors influencing the use of resources in various regions in Latin America. Prerequisites: Graduate standing, two semesters of courses on Latin America (or equivalent experience), and consent of instructor. Mr. Kroeber and members of other cooperating departments.

VI. ECONOMIC AND SOCIAL HISTORY

111. HISTORY OF THE WEST, 1763–1893. I; 3 cr. Advance of settlement from the Appalachians to the Pacific, and its effect upon economic and social conditions in the country as a whole. Prerequisite: Junior standing. Offered 1954–55. Mr. Carstensen.

121a–b. SOCIAL DEVELOPMENT OF THE AMERICAN PEOPLE. Yr; 3 cr. Development of social institutions and ideas, seventeenth century to present; impact of immigration, frontier and industrialism on life of the people. Prerequisite: Junior standing. Mr. Curti.

122a–b. AMERICAN ECONOMIC LIFE. Yr; 3 cr. The economic development of the United States from the seventeenth century to the present. Prerequisite: Junior standing. Mr. Sharp.

123. ECONOMIC HISTORY OF THE ANCIENT WORLD. I; 3 cr. The economic development of the ancient Mediterranean world from the prehistoric period to the dissolution of the Roman Empire, with emphasis on the Graeco-Roman period. Prerequisite: History 2, 3, 5, or 10, or junior standing. Mr. Edson.

133. ECONOMIC LIFE IN EUROPE. II; 3 cr. Agriculture, industry, and commerce in the Middle Ages and early Modern period. Prerequisite: Junior standing or consent of instructor. Mr. Reynolds.

140a–b. ECONOMIC HISTORY OF MODERN EUROPE. Yr; 3 cr. I: Rise of industrial civilization from early modern times to about 1850; II: Triumph of industrial civilization 1850–1955. Prerequisite: Economics 1a or a course in European history. Mr. Cameron.

161. EUROPEAN ECONOMIC AND CULTURAL DEVELOPMENT. II; 3 cr. A case study of the industrialization of continental Europe. Population, food supply, resources, technology and capital formation, social structure, institutions and government policy. Mr. Cameron.

165. HISTORY OF COMMERCE. I or II; 3 cr. Survey of the History of Commerce in the

Western World from ancient times to the age of steam. Prerequisite: Freshman course in European or English history or junior standing. Mr. Reynolds.

209. Studies in American Economic History. Sem; 3 cr. Prerequisites: Master's degree and consent of instructor. Mr. Sharp.

240. Seminar in Modern European Economic History. Yr; 2 cr. Prerequisite: Graduate standing. Mr. Cameron.

VII. HISTORY OF SCIENCE

The Department of History will accept for credit toward an undergraduate major in History as many as 6 credits in the History of Science, in courses to be selected by the student from among the following: History of Science 120 (Ancient and medieval science) yr., 6 credits; 150 (Early modern science) sem., 3 credits; or 170 (Modern science) sem., 3 credits; and the Department of History recommends as electives the other courses here listed and not taken for credit toward the major in History.

HISTORY OF SCIENCE

Professor Clagett, *chairman;* Assistant Professor R. Stauffer.

The courses in the history of science are designed to give a general knowledge of the development of science, its fundamental ideas, its men and its methods. An elementary knowledge of at least one science is required, and a previous course in history is desirable. No course in this department is open to freshmen.

For a major in History of Science 32 credits of historical work are required and one year of advanced work in a department within the Divisions of Biological Sciences or Physical Sciences.

For the historical work at least 18 credits must be offered from the history of science courses listed under Group A below and at least 6 credits from the history courses listed under Group B below. The remaining credits may be selected from any of the courses listed under Groups A, B, or C or similar courses which may be added in the future.

Any student wishing to major in the History of Science must have his program in fulfillment of these requirements approved by the department. If he is considering advanced work in the field, it is strongly advised that he make early plans to acquire the foreign languages he will need as tools for research.

GROUP A

HISTORY OF SCIENCE

1a–b. Introduction to the History of Science. Yr; 3 cr. The first semester covers the development of science in the period from Antiquity through the Age of Newton; the second, from the latter eighteenth, nineteenth, to the early twentieth centuries. Prerequisites: One year of laboratory science; sophomore standing. Mr. Clagett, Mr. Stauffer.

120a–b. Ancient and Medieval Science. Yr; 3 cr. The first semester traces the development of science in Antiquity from its Egyptian and Babylonian origins through the rise and decline of Greek Science; the second traces the transmission of science through Islam to the West and its development there through the sixteenth century. Prerequisite: History of Science 1 or consent of instructor. Mr. Clagett.

130. Galileo and His Forerunners. Sem; 3 cr. This course centers on the contributions of Galileo to the development of modern science by an examination of his writings, those of his principal antique and medieval predecessors, and those of his immediate successors. Mr. Clagett.

150. Early Modern Science. Sem; 3 cr. Scientific discovery, methods, and organization

from the Age of Galileo to the Enlightenment. Prerequisite: History of Science 1 or consent of instructor. Mr. Stauffer.

170. MODERN SCIENCE. Sem; 3 cr. The expansion of science from the chemical revolution of Lavoisier to the twentieth century. Prerequisite: History of Science 1 or consent of instructor. Mr. Stauffer.

*180 or *280. SPECIAL WORK. *cr. Advanced students may, by consent of the professor, arrange for special out-of-class work, for which credit may be allowed on the basis of 1 credit for the equivalent of each full week's work devoted to the project.

*205. PROSEMINAR. I, II; 2 cr. (Ancient, Medieval or Early Modern Science.) Primarily for graduates. Prerequisite: Consent of instructor. Mr. Clagett.

*210. PROSEMINAR. I, II; 2 cr. (Early Modern or Modern Science.) Primarily for graduates. Prerequisite: Consent of instructor. Mr. Stauffer.

GROUP B

HISTORY

113. SOCIAL AND INTELLECTUAL HISTORY OF THE UNITED STATES. Yr; 6 cr.

131. MEDIEVAL CIVILIZATION. Sem; 3 cr.

134. THE RENAISSANCE. Sem; 3 cr.

140. EUROPEAN ECONOMIC HISTORY SINCE 1700. Yr; 3 cr.

144. SIXTEENTH-CENTURY CIVILIZATION. Sem; 3 cr.

145. EUROPEAN INTELLECTUAL AND SOCIAL HISTORY, 1600–1789. Yr; 6 cr.

151. EUROPEAN INTELLECTUAL AND SOCIAL HISTORY, SINCE 1789. Yr; 6 cr.

GROUP C

PHILOSOPHY 31. HISTORY OF ANCIENT PHILOSOPHY. Sem; 3 cr.

PHILOSOPHY 102. ARISTOTLE AND HIS INFLUENCE. Sem; 3 cr.

PHILOSOPHY 120. PHILOSOPHY OF SCIENCE. Sem; 3 cr.

PHILOSOPHY 131. HISTORY OF MEDIEVAL PHILOSOPHY. Sem; 3 cr.

PHILOSOPHY 132. HISTORY OF MODERN PHILOSOPHY. Sem; 3 cr.

PHILOSOPHY 145. PLATO AND PLATONISM. Sem; 3 cr.

AGRICULTURAL BACTERIOLOGY 131. HISTORY OF BACTERIOLOGY. Sem; 1 cr.

CHEMISTRY 107. HISTORY OF CHEMISTRY. Sem; 2 cr.

GEOLOGY 135. HISTORY OF GEOLOGY. Sem; 1 cr.

MATHEMATICS 173. HISTORY OF MATHEMATICS. Sem; 3 cr.

HISTORY OF MEDICINE 121. HISTORY OF MEDICINE. Sem; 2 cr.

HISTORY OF MEDICINE 122. HISTORY AND GEOGRAPHY OF DISEASE. Sem; 1 cr.

PHARMACY 158. HISTORY OF PHARMACY. Sem; 3 cr.

PSYCHOLOGY 160. HISTORY OF PSYCHOLOGY. Sem; 3 cr.

---

* These proseminars will vary in subject matter, and they may be taken more than once for credit.

INTEGRATED LIBERAL STUDIES

PROFESSORS AGARD, EARLEY, HARTSHORNE, MACKENDRICK, NOLAND, PFANKUCHEN, POOLEY, *chairman*, POST, REYNOLDS, WILEY; ASSOCIATE PROFESSORS HOWE, IHDE, JUDSON; ASSISTANT PROFESSORS BARNETT, ROTWEIN.

An alternate two-year program of studies comprising 46 credits of required courses designed to provide a broad general education through the integration of subject matter. Open to 300 entering freshmen in the first semester of each academic year. This program, with the election of a foreign language, qualifies a student to continue toward the B.A. degree. Candidates for the B.S. degree will select elective courses preparatory to later specialization or of personal interest. (See outline of courses, page 48.)

Courses in the Department of Integrated Liberal Studies are open only to students who enroll in the integrated program.

COURSES OF INSTRUCTION

I. HUMANITIES

11. GREEK AND ROMAN CULTURE. Sem; 4 cr. A comparison of Greek culture at its height with Roman culture at its height; readings in translation and some lectures in classical art. Mr. Agard, Mr. MacKendrick.

12. MEDIEVAL AND RENAISSANCE CULTURE. Sem; 3 cr. The transition from Graeco-Roman civilization to modern European civilization. Mr. Post.

13. EUROPEAN CULTURE, 1750–1850. Sem; 4 cr. The literature of life and ideas in England and on the continent, with supplementary lectures on painting, music, and philosophy. Mr. Pooley.

14. RECENT AMERICAN CULTURE. Sem; 3 cr. American literature from 1850 to the present, with supplementary lectures on American philosophy, art, and architecture. Mr. Wiley.

II. SOCIAL STUDIES

21. EARLY MAN AND HIS SOCIETY. Sem; 3 cr. How man appeared and how he developed culture, social groups, and religion to adjust himself better to his environment and to his fellow men. Mr. Barnett.

22. TRANSITION TO INDUSTRIAL SOCIETY. Sem; 4 cr. European society, and the effect on it of new techniques leading toward industrialism. Mr. Reynolds.

23. MODERN INDUSTRIAL SOCIETY; U.S.A. Sem; 4 cr. Studies of its economy in relation to its political organization and social philosophies. Mr. Earley, Mr. Rotwein.

24. THE INTERNATIONAL SCENE. Sem; 3 cr. A comparative study of the types of government and economy of the present-day world, with attention to the causes of international co-operation and conflict. Mr. Hartshorne, Mr. Pfankuchen.

III. SCIENCES

31. THE PHYSICAL UNIVERSE. Sem; 4 cr. A study of the structure and composition of the universe, the nature of time, matter, energy, and light, with attention given to methods of scientific investigation. Mr. Ihde.

32. EARTH SCIENCE. Sem; 3 cr. The nature of the physical earth as the home of man; its materials, surface features and atmosphere. Illustrations of the methods by which knowledge of the earth has been obtained. Mr. Judson.

33. BIOLOGY. Sem; 3 cr. The adaptation of plant and animal life to environments and the development of functional variations. Mr. Noland.

34. Biology. Sem; 4 cr. Continuation of Course 33 with the introduction of psychology and heredity. Mr. Noland.

IV. COMPOSITION

41. Theory and Practice of Writing. Sem; 2 cr. An introductory course in college composition, with writing subjects related to the courses of the program. Mr. Pooley and staff.

42. Nature and Function of Language. Sem; 2 cr. Continued practice in writing, with lectures and readings in the nature and function of language. Mr. Pooley and staff.

TABLE OF EQUIVALENTS OF I.L.S. COURSES WITH THOSE OF L. & S. FOR TRANSFER PURPOSES, AND COURSES WHICH I.L.S. STUDENTS MAY NOT ELECT

I.L.S. COURSE	L.&S. EQUIVALENT	MAY NOT TAKE
11 Greek and Roman Culture 4 credits	Humanities elective 3 credits	Classics 41, 42
21 Early Man and His Society 3 credits	Anthropology 1a or Sociology 1a 3 credits	Anthropology 1a or Sociology 1a
31 Physical Universe 4 credits	Non-lab Science 4 credits	May take Chemistry 1 for 4 credits
41 Art of Writing 2 credits	English 1a 3 credits (1 credit from I.L.S. 11)	English 1a
12 Medieval and Renaissance Culture 3 credits	History 3a or 3b 3 credits	History 1 and 2
22 Transition to Industrial Society 4 credits	History 1 and 2 4 credits	History 1 and 2
32 Earth Science 3 credits	Geology 17 3 credits (Lab. Science 3 credits)	Geology 17
42 Nature and Function of Language 2 credits	English 1b 2 credits	English 1b
13 European Culture 4 credits	Sophomore Literature 4 credits	English 30b
23 Modern Industrial Society 4 credits	Social Studies elective 4 credits (Economics majors receive 4 credits but must take Economics 1a)	
33 Biology 3 credits	Lab. Science 3 credits	Botany 1, Zoology 1
14 American Culture 3 credits	Sophomore Literature 3 credits	
24 International Scene 3 credits	Political Science or Geography 121 3 credits	Political Science 25 or 121 or Geography 121
34 Biology 4 credits	Lab. Science 4 credits	Botany 1 or Zoology 1

JOURNALISM

PROFESSORS NAFZIGER, *director*, HYDE, SMITH, THAYER; ASSOCIATE PROFESSORS CUTLIP, HAWKES, HOVEY, PATTERSON; ASSISTANT PROFESSORS DUNN, HIGBIE, MACLEAN, SCHOENFELD, TAYLOR, WESTLEY; LECTURER LINDSAY.

PURPOSE AND PLAN. While the emphasis in elementary courses is now, as always, on newspaper training, journalism today includes the whole broad field of communications. Adequate provision is therefore made for advanced students to study various phases of mass media. Courses in news writing, reporting, and editing are considered as basic. Thereafter, the student branches off into writing for magazines, advertising and management, radio, public relations, community press, communication media and public opinion, and the development of the press here and abroad—each student selecting the most advantageous arrangement, or "sequence" of courses. Classes and seminars are available throughout the year for students wishing to do advanced or graduate work. Many of the courses are open to students in the Colleges of Letters and Science, Agriculture, and Engineering, who desire journalistic training.

MAJOR. The undergraduate major in Journalism leads to the degrees of Bachelor of Arts (Journalism) and Bachelor of Science (Journalism). Thirty credits are required for the journalism major. By proper selection of courses students may undertake the equivalent of a major in a second field. Candidates for the Bachelor of Science degree will find this especially practicable. See outline under the heading SCHOOL OF JOURNALISM, page 85.

*1. FRESHMAN SURVEY OF JOURNALISM. I; 1 cr. Required of freshmen in the pre-journalism curriculum to acquaint them with what the school offers and to describe the opportunities in the various fields of mass communication. Mr. Hovey.

2a. NEWS WRITING. I, II; 3 cr. Practice in writing various types of news stories under close supervision of instructor. Required of Journalism School students. Staff.

2b. REPORTING. I, II; 3 cr. Emphasis on the gathering of news. Required of Journalism School students, except in the journalism-advertising sequence. Staff.

*3. NEWSPAPER EDITING. I, II; 4 cr. Training in editing and making up the newspaper. Prerequisite: Journalism 2. Required in School of Journalism. Mr. Cutlip, Mr. Westley and staff.

*4. NEWSPAPER TYPOGRAPHY. I, II; 2 cr. Training in the use of type and typographic make-up. Required in School of Journalism. Mr. Hawkes.

*5. ADVERTISING AND MAGAZINE TYPOGRAPHY. I, II; 2 cr. Laboratory work in the graphic arts. Required of students in the journalism-advertising sequence. Mr. Hawkes.

10. NEWS PHOTOGRAPHY. I, II; 3 cr. Special problems of photography for newspapers and magazines. Class limited to 30 juniors and seniors. Mr. MacLean and staff.

100. SENIOR THESIS. Yr; 4 cr. Staff.

103. PUBLICITY MEDIA AND METHODS. (See AGRICULTURAL JOURNALISM 103.)

104. INTERPRETATION OF CONTEMPORARY AFFAIRS. I; 3 cr. Training in editorial research and the preparation of background and editorial articles. Prerequisite: Consent of instructor. Mr. Hovey.

105a. WRITING OF FEATURE ARTICLES. I, II; 3 cr. Practice in preparing and selling special articles for newspapers and magazines. Miss Patterson, Mr. Schoenfeld.

---

* Does not count towards the requirements for graduation from the College of Letters and Science except for students in the School of Journalism.

105b. MAGAZINE ARTICLE WRITING. II; 2 cr. Practice in preparing periodical articles on technical, scientific, engineering, and economic subjects. Special sections emphasize writing for women readers and science writing. Miss Patterson, Mr. Schoenfeld.

106. CRITICAL WRITING. II; 2 cr. Practice in writing reviews of motion pictures, plays, concerts, and books, for newspapers. Miss Patterson.

107. THE COMMUNITY NEWSPAPER. Yr; 2 cr. Special problems of small daily and weekly newspapers. "Back shop" mechanical laboratory work in Campus Publishing Co. plant. Mr. Hawkes.

108. NEWSPAPER BUSINESS MANAGEMENT. II; 2 cr. Business problems of smaller newspapers. Mr. Thayer.

109. THE LAW OF THE PRESS. I, II; 2 cr. Libel, freedom of press, copyright, and other laws affecting publications. Required in the School of Journalism. Mr. Thayer.

110. HISTORY OF JOURNALISM. I, II; 3 cr. Evolution of the newspaper in England and the United States. Required in the School of Journalism except in the journalism-advertising sequence. Mr. Hyde and staff.

110. RADIO SPEAKING. (See SPEECH 110.)

111. THE NEWSPAPER AND SOCIETY. I, II; 3 cr. Relation of the newspaper to public opinion, government and society, including ethics and psychology of journalism. Required in the School of Journalism. Mr. Higbie, Mr. Hyde and staff.

112. COVERING THE COURTS. I; 2 cr. Practice in reporting local, state, and federal courts; law enforcement agencies. Prerequisites: Journalism 2 and 3. Mr. Thayer.

*112. MARKETING METHODS. (See COMMERCE 112.)

113. REPORTING OF PUBLIC AFFAIRS. II; 3 cr. Advanced training and practice in reporting city, county, state, and federal executive, administrative, and legislative agencies. Reporting of politics, business, and labor. Prerequisites: Journalism 2 and 3. Mr. Hovey.

114. COMMUNICATIONS AND PUBLIC OPINION. I; 3 cr. The role of the mass media of communications (newspapers, radio, magazines, and motion pictures) in the formation of public opinion. Publicity and propaganda techniques of government, political, economic, and social groups. Prerequisites: Journalism 2 and 3 or consent of instructor. Mr. Higbie.

115. PRINCIPLES OF ADVERTISING. I; 3 cr. Fundamentals of advertising theory and practice, including social and economic aspects, media, retail advertising, copy and layout, advertising research. Mr. Dunn.

*116. PROBLEMS IN NATIONAL ADVERTISING. (See COMMERCE 116.)

117. BUSINESS MAGAZINES AND HOUSE PUBLICATIONS. I, II; 2 cr. Analysis of editorial and business management of business magazines and house publications including employee magazines. Mr. Hawkes, Mr. Thayer.

118. RADIO AND TELEVISION ADVERTISING. II; 3 cr. Radio and television as advertising media. Responsibilities of advertisers, government regulation, audience measurement. Mr. Dunn.

120. INTERNATIONAL COMMUNICATIONS AND THE FORELGN PRESS. II; 3 cr. A study of the news communications systems, including news-gathering agencies, the role of foreign correspondents, the foreign press, and the factors determining the flow of world news. Prerequisites: Journalism 2 and 3 or consent of instructor. Mr. Nafziger.

121. INTERPRETING HISPANIC AFFAIRS. Yr; 1 cr. I. Spain; II. Spanish America. Mr. Neale-Silva, Mr. Rosaldo.

---

* Does not count towards the requirements for graduation from the College of Letters and Science except for students in the School of Journalism.

122a. RADIO NEWS WRITING. I; 2 cr. Radio news preparation techniques including radio news gathering, writing, editing, newscast preparation, tape recordings, operation of a small-station newsroom. Basic preparation for television news. Laboratory work at WHA and other local radio stations. Mr. Taylor, Mr. Lindsay.

122b. TELEVISION NEWS PREPARATION. II; 2 cr. Television news preparation techniques including gathering, writing, illustration newscasts; still and motion picture selection and editing. Laboratory work at WHA-TV. Prerequisite: Journalism 122a. Mr. Taylor, Mr. Lindsay.

125. PUBLIC RELATIONS. I; 3. Introduction to the principles and practice of public relations in industry, business, education, social welfare, government, and the military services. Mr. Cutlip.

126. RETAIL ADVERTISING CAMPAIGNS. I; 3 cr. The planning and execution of retail advertising campaigns. Retail advertising objectives, media selection, preparation of copy and layout, institutional advertising. Mr. Dunn.

128. COMMUNICATION MEDIA ANALYSIS. I; 3 cr. Methods for investigating the control, content, audience, and effects of press, radio, and motion pictures. Prerequisite: Consent of instructor. Mr. Nafziger.

141. ADVERTISING COPY AND LAYOUT. II; 3 cr. Principles and practice of writing advertising copy for major media. Laboratory work and preparation of layouts. Mr. Dunn.

142. ADVERTISING MEDIA. I; 3 cr. Economic problems of the mass media industry. Selection of media by advertisers. Mr. Dunn.

180. ADVANCED INDEPENDENT READING. Yr; 1–4 cr. Staff.

191. TEACHING JOURNALISM AND SUPERVISION OF SCHOOL PUBLICATIONS. I; 2 cr. Lectures and discussion on high-school and college publications; correlation with journalism classes and teaching methods. Miss Patterson.

194. INTRODUCTION TO PUBLIC OPINION RESEARCH. I; 3 cr. Theory and practice of survey techniques. Planning, design, sampling, questionnaire construction, interviewing, field operations, analysis of data. Mr. Fisher.

196. PUBLIC RELATIONS PROBLEMS. II; 2 cr. Case studies and typical public relations problems in industry, labor, education, government, social welfare, and trade associations. Prerequisite: Journalism 125 or consent of instructor. Mr. Cutlip.

200. GRADUATE THESIS. 2–4 cr. Mr. Nafziger and staff.

201–280. GRADUATE SEMINARS. Yr; 2 cr. Several seminars are offered each semester. Some of the seminars offered recently are:

201. SEMINAR. 2 cr. Journalism history.

203. SEMINAR. 2 cr. Press and public opinion. Staff.

208. SEMINAR. 2 cr. Reader interest. Mr. Sumner.

211. SEMINAR. 2 cr. Media research methods. Mr. Nafziger.

221. SEMINAR. 2 cr. Problems of public relations. Mr. Cutlip.

222. SEMINAR. 2 cr. Newspaper management problems. Mr. Thayer.

280. SPECIAL RESEARCH PROBLEMS. Staff.

294. SEMINAR IN THE DESIGN AND PROCESS OF SURVEY RESEARCH. Mr. Fisher.

LIBRARY SCIENCE

ASSOCIATE PROFESSOR SCHENK; ASSISTANT PROFESSORS CAVANAGH, DEWEY; INSTRUCTOR GIBSON; LECTURERS APPEL, BOELL, JACQUES, JENKINS, LICHTER, LORD, MCNEIL, SIVESIND, SMITH, WILCOX.

Courses 71, 72, 73 and 74 are required for admission to the graduate program. They may be taken as undergraduate electives, see Sections 17 and XXIII.

71. INTRODUCTION TO CATALOGING AND CLASSIFICATION. I; 2 cr. Study of bibliographic methods and works, including the card catalog, with practice in forms of card entries, simple classification and subject cataloging. Mr. Dewey.

72. INTRODUCTION TO REFERENCE. I, II; 2 cr. Nature and use of reference books and reference service. Study of core reference collections. Miss Cavanagh.

73. INTRODUCTION TO LIBRARY MATERIALS. I, II; 2 cr. Librarians' aids and sources of reliable information about books and other library materials. Methods of critical evaluation and selection in terms of users.

74. INTRODUCTION TO LIBRARIANSHIP. I; 2 cr. Libraries and library work. Technical organization. Routines and procedures in acquisition, preparation, care, and loan of books and other library material.

142. READING INTERESTS OF CHILDREN. II; 3 cr. Survey of children's literature from chap books to present-day literature. Study of scientific investigation concerning children's interests, needs and abilities. Technique of reading guidance. Miss Cavanagh.

144. READING INTERESTS OF ADOLESCENTS. I; 3 cr. Criteria for the selection of books for adolescents. Techniques of reading guidance for young people in and out of school. Miss Cavanagh.

161–164. HISTORICAL AGENCIES. Recommended prerequisite: 12 hours of American history. Consent of instructor required.

161. HISTORICAL RECORDS. I (1955–56); 3 cr. Collection, organization, and administration of the materials of state and local history, including all forms of printed records, personal and business manuscripts, and state and local archives. Mr. Wilcox, Miss Smith, Mr. Boell.

162. HISTORICAL MUSEUMS, SITES, AND RESTORATIONS. II (1955–56); 3 cr. Physical remains, objects, and pictorial materials as historical evidence; history, theories, and practices of collecting, preserving, and interpreting these materials; history of the museum, the historic site, and the restoration, and their educational and cultural values. Mr. Jenkins, Mr. Lichter, Mr. Sivesind.

163. STATE AND LOCAL HISTORIOGRAPHY: ITS THEORY AND PRACTICE. I (1954–55); 3 cr. Instruction and assistance in research, writing, editing, and publishing. Miss Smith, Miss Appel.

164. THE HISTORICAL AGENCY. II (1954–55); 3 cr. History, administration, and contributions of the major types of historical agencies in the United States; special problems of the federal, the state, and the local agency; literature of the field. Mr. Lord, Mr. McNeil, Mr. Jacques.

165. METHODS IN AUDIO-VISUAL INSTRUCTION. I, II; 3 cr. Role of and selection and use of audio-visual teaching materials. Consideration given to the chalkboard, community study, graphics, three-dimensional materials; maps, globes, and charts; classroom radio, classroom television, 16 mm. sound film, still projection devices, tackboard and study displays. Emphasis on effective utilization of audio-visual materials.

191. THE SCHOOL LIBRARY. I; 3 cr. Library service in the school library; its function in

the educational program and the organization and development of its resources and services. Miss Cavanagh.

204. The Public Library. II; 3 cr. Service in municipal, county and regional public libraries. Special units devoted to administration, budgets, buildings, branches, co-operative ventures, and place of the library in the community. Miss Schenk.

206. College and University Libraries. II; 3 cr. Place of the library and librarian in the instructional program. Special units of study devoted to administration of the library, budgets, buildings, departmental libraries and co-operative ventures.

208. The Special Library. II; 3 cr. Kinds of special libraries and outstanding collections. Study of personnel, methods of acquisition, arrangement and administration of materials in such areas when differing from customary practice. Mr. Dewey.

215. Cataloging and Classification. II; 3 cr. Principles of cataloging books mainly through use of unit cards and their arrangement in a dictionary catalog. Intensive study of principles of classification. Organization of knowledge in libraries by classification schemes. Choice and use of subject headings in catalogs. Mr. Dewey.

221. Reference. II; 3 cr. Nature of reference work in libraries. Critical evaluation of reference sources in subject fields. How to build reference collections for different kinds of libraries. Miss Cavanagh.

223. Government Publications. I; 3 cr. Selection, acquisition, care and use in the library of documents issued by U. S. federal, state and local bodies. Consideration of United Nations publications and of selected guides for foreign documents. Mr. Dewey.

225. National and Regional Bibliography. I; 3 cr. Book trade in various countries and periods. Detailed study of American, and consideration of English, French, Dutch, German, and Spanish bibliography. Mr. Dewey.

231. Reading Interest of Adults. I; 3 cr. Function and potential leadership of the library in adult education. Appraisal of the reading interests, habits, and needs of adults. Technique of reading guidance for adults.

232. Library Resources and Materials. II; 3 cr. Theory and practice of building library collections in various subject fields with emphasis on the sciences, social sciences, and humanities.

251. History of Books and Libraries. I; 3 cr. Development of books and libraries from ancient times to the present with emphasis on their role as agents of communication in society Miss Schenk.

LINGUISTICS

Professors Cassidy, Fowler, *chairman*, Harris, Haugen, Heffner, Joos, Kasten; Associate Professors Bottke, Zawacki; Assistant Professors Barnett, Chou, Folejewski.

Major in Linguistics

Requirements:

1. Two years' study (or the equivalent) of each of two foreign languages and one year's study of a third foreign language, of which
   a) one must be a non-Indo-European language, and
   b) no two may be in the same immediate language-group (i.e., not two Romance languages, not two Slavic languages).
2. A speaking and writing knowledge of one language equivalent to that gained in a third-year course in conversation and composition (e.g., French 25; German 25; Latin 103; Greek 103).

3. A minimum of 20 credits chosen from those listed by the department, with the following courses required:

	Credits
English 185 or German 191	3
Linguistics 120	3
Linguistics 121	3
Linguistics 161 or Linguistics 187	3
	12

Comparative Indo-European Linguistics is primarily a graduate study. Requirements for the Ph.D. degree are listed in the bulletin of the Graduate School.

Courses with appropriate numbers are open to undergraduates.

GENERAL LINGUISTICS

120. The Languages of the World. I; 3 cr. Types of language; the geographical distribution of language groups; the relation of linguistics to other divisions of knowledge. Mr. Fowler and staff.

121. Phonemics. II; 3 cr. Exercises in phonemic analysis followed by ten hours of practical work with a native speaker of a foreign language. Mr. Fowler.

122. Morphemics. 3 cr. Exercises in morphemic analysis followed by concerted work on a descriptive statement of the structure of English. Prerequisite: Linguistics 121. Offered I, 1954–55 and in alternate years. Mr. Fowler.

161. Communication Theory. II; 3 cr. The functioning of language in social behavior; interrelations between its social stimulus function and its phonetic, grammatical, and semantic peculiarities; theory of imperfect communication. Mr. Joos.

187. The Bases of Phonetic Theory. Sem; 3 cr. Harmonic analysis, acoustic phonetics. Analysis within the correspondences between all aspects of speech: articulatory, acoustic, perceptional, and phonemic. Lectures, discussion, laboratory, readings, term paper. Prerequisites: English 185 or German 191, and consent of instructor. Mr. Joos.

288. Seminar. The subject of the Seminar varies from year to year. In 1953–54 the title was Theory of Bilingualism, and it was directed by Mr. Haugen.

COMPARATIVE INDO-EUROPEAN LINGUISTICS

201. The Comparative Grammar of the Indo-European Languages: Phonology. Sem; 2 cr. Distribution, classification of the languages of the Indo-European group. Alphabets; the comparative methods of study; probable sounds and their representatives in the several languages. To be given I, 1954–55, omitted 1955–56. Mr. Fowler.

202. The Comparative Grammar of the Indo-European Languages: Morphology. Sem; 2 cr. The probable forms and, with reference to syntax, their development in Sanskrit, Greek, Latin, Gothic; with attention to other languages, according to students' interests. Prerequisite: Comparative Philology 201. To be given II, 1954–55, omitted 1955–56. Mr. Fowler.

CHINESE

In addition to the following courses, further work in Chinese may be arranged by application to the instructor.

2a. First-Semester Chinese. Sem; 4 cr. Miss Chou.

2b. Second-Semester Chinese. Sem; 4 cr. Miss Chou.

12a. Third-Semester Chinese. Sem; 3 cr. Miss Chou.

12b. FOURTH-SEMESTER CHINESE. Sem; 3 cr. Miss Chou.

65. CHINESE IMAGINATIVE LITERATURE. Sem; 3 cr. Poetry, drama and fiction from the early and late periods. Miss Chou.

CLASSICS

LATIN

190. ITALIC DIALECTS. Sem; 2 cr. The languages of the Italic branch of Indo-European, exclusive of Latin. Oscan and Umbrian; grammar; detailed study of inscriptions. Brief survey of the other dialects. To be given II, 1954–55, and in alternate years. Mr. Fowler.

225 (GREEK 225). THE COMPARATIVE GRAMMAR OF GREEK AND LATIN. Sem; 3 cr. The relation of Greek to Latin within the Indo-European family of languages; the origins and development of the sounds and forms, with reference to syntax. Mr. Fowler.

226. ITALIC DIALECTS. Sem; 2 cr. The languages of the Italic branch of Indo-European, exclusive of Latin. Oscan and Umbrian; grammar; detailed study of inscriptions. Brief survey of the other dialects. Latin 225 is prerequisite. Mr. Fowler.

GREEK

225. HOMER: A LINGUISTIC ANALYSIS. Sem; 2 cr. An analysis of portions of the Homeric poems with the object of determining the dialectal variation. Greek 225 and 226 are prerequisite. Mr. Fowler.

226. GREEK DIALECTS. Sem; 2 cr. The languages of the Greek branch of the Indo-European family of languages; their characteristics; their grammar; study of selected inscriptions. Greek 225 is prerequisite. Mr. Fowler.

ENGLISH

23. AMERICAN ENGLISH. Sem; 3 cr. The English language in America. Mr. Cassidy.

120. OLD ENGLISH. Sem; 3 cr. The elements of Old English grammar, with selected readings. Mr. Cassidy, Mr. Presson.

121. MIDDLE ENGLISH. Sem; 3 cr. The language and literature of England in selected texts from the Norman Conquest to Chaucer. Mr. Cassidy.

122. BEOWULF. Sem; 3 cr. Mr. Cassidy.

123. HISTORY OF THE ENGLISH LANGUAGE. Sem; 3 cr. Standards of usage and pronunciation; development of the English vocabulary. Mr. Cassidy.

185. INTRODUCTION TO PHONETICS. Sem; 3 cr. Study of the production of speech sounds with some practice in the use of phonetic transcription. Mr. Cassidy.

186. ADVANCED PHONETICS. Sem; 3 cr. Special studies in phonetics adjusted to the tastes and interests of students electing the course. Mr. Cassidy.

227. SEMINAR IN THE ENGLISH LANGUAGE. Yr; 2 cr. Mr. Cassidy.

FRENCH AND ITALIAN

FRENCH

141. HISTORY OF THE FRENCH LANGUAGE. Yr; 2 cr. Lectures and assigned readings. Prerequisite: French 22. Mr. Harris.

240. OLD FRENCH. Yr; 2 cr. Introductory seminar. Historical grammar and reading of Old French texts. Mr. Harris.

244. Old Provençal. Yr; 2 cr. Mr. Harris.

273. Romance Philology. Yr; 2 cr. Mr. Kasten.

ITALIAN

171. Introduction to Italian Philology. Sem; 2 cr. Derivation of the Italian language from Vulgar Latin; phonology and morphology; reading of texts. Mr. Bottke.

GERMAN

151. Introduction to Middle High German. Sem; 3 cr. Middle High German grammar; readings in the *Nibelungenlied*. Mr. Joos, Mr. Heffner.

191. Phonetics. Sem; 3 cr. General phonetics, with special reference to the teaching of German. Mr. Joos, Mr. Heffner.

255. Old High German. Sem; 3 cr. Readings, phonology, morphology, dialects. Mr. Heffner, Mr. Joos.

258. Old Saxon. Sem; 3 cr. *Heliand* and *Genesis*. Mr. Heffner, Mr. Joos.

260. Philological Proseminar. Sem; 2 cr. Studies in the history of the German language. Investigations of short specimen texts; introduction to methods of philological and linguistic research. Mr. Heffner.

261. History of the German Language. Yr; 3 cr. Lectures, assigned readings, problems. a) External history, development of Standard German, Schriftssprache, Umgangssprache. b) Internal history. Historical grammar; phonology, morphology, word formation.

268. Introduction to the Study of Germanic Philology. Sem; 2 cr. Gothic: the general characteristics of the Germanic languages, with special reference to phonology.

269. Introduction to the Study of Germanic Philology (continued). Sem; 3 cr. The general characteristics of Gothic, North Germanic, the West Germanic problem, English, and High German; a general introduction to Germanic morphology. Mr. Heffner.

270. Philological Seminar. Sem; 2 cr. Mr. Heffner, Mr. Joos.

SANSKRIT

In addition to the following courses, further work in Sanskrit may be arranged by application to the instructor.

Linguistics 140. Elementary Sanskrit. Sem; 3 cr. Mr. Fowler.

Linguistics 141. Elementary Sanskrit (continued). Sem; 3 cr. Mr. Fowler.

Linguistics 240. The Vedas. Sem; 2 cr. Mr. Fowler.

Linguistics 241. The Upanishads. Sem; 2 cr. Mr. Fowler.

SCANDINAVIAN LANGUAGES

163. Old Norse. Yr; 3 cr. Reading of texts from the Sagas and Eddas with comparative study of the linguistic structure and literary style. Mr. Haugen.

264. History and Structure of the Scandinavian Languages. Sem; 3 cr. Introduction to Scandinavian linguistics, with selective readings. Open to graduate students with a reading knowledge of at least one Germanic language besides English. Offered 1955–56 and in alternate years. Mr. Haugen.

SLAVIC LANGUAGES

RUSSIAN

150. HISTORY OF THE RUSSIAN LANGUAGE. Sem; 2 cr. Mr. Folejewski.

151. SLAVIC PHONETICS. Sem; 2 cr. Mr. Folejewski.

170. OLD CHURCH SLAVONIC. Sem; 2 cr. Mr. Folejewski.

SPANISH AND PORTUGUESE

SPANISH

128. SPANISH HISTORICAL GRAMMAR. Yr; 2 cr. An introduction to Spanish philology. To be given 1955–56. Mr. Kasten.

255. PHILOLOGICAL SEMINAR: OLD SPANISH. Yr; 2 cr. To be given 1954–55. Mr. Kasten.

258. SEMINAR IN HISTORICAL SPANISH SYNTAX AND LEXICOGRAPHY. Sem; 2 cr. Chronological study of representative texts. Mr. Kasten.

259. SEMINAR IN MODERN SPANISH LANGUAGE. Yr; 2 cr. To be given 1955–56. Mr. Kasten.

273. ROMANCE PHILOLOGY. Yr; 2 cr. Mr. Kasten.

MATHEMATICS

PROFESSORS BING, BRUCK, BUCK, EVANS, KLEENE, LANGER, MACDUFFEE, *chairman*, MAYOR, SCHAEFFER, YOUNG; ASSOCIATE PROFESSORS EBERLEIN, HAMMER; ASSISTANT PROFESSORS CURTIS, FULLERTON, IMMEL, KOREVAAR.

Only students who have had at least one unit of high-school algebra and one unit of geometry are eligible to enroll in courses in mathematics. Mathematics 1 is the most elementary course offered and is the only course open to students presenting the minimum high-school preparation of one unit of high-school algebra and one unit of geometry. Students presenting one and one-half or two units of high-school algebra should enroll in Mathematics 2 if they have not had a course in trigonometry, and in Mathematics 20 if they have had trigonometry. A placement examination is given to determine if they are qualified, or if they should transfer to a more elementary course. Mathematics 1 is not open, for credit, to students presenting more than three units of high-school mathematics.

In general, students are required to present one full year of mathematics to satisfy the mathematics option for the B.A. or B.S. degree. However, students in Letters and Science who have passed either Mathematics 2 or Mathematics 20 will be regarded as having fulfilled this option. Mathematics 7, which is required of students in the School of Commerce, may not be counted towards fulfilling the requirement of the mathematics option for the B.A. or B.S. degree.

MAJOR IN MATHEMATICS. Students majoring in mathematics are required to take a year's course in the calculus, and, ordinarily, a year's course in physics, preferably Physics 31. The course in physics should be taken concurrently with or following the course in the calculus. In addition to these requirements the major comprises a minimum of 15 credits selected from the following courses: Mathematics 104, 106, 108, 111 or 112, 115, 116, 117, 118, 119, 120, 121, 122, 123, 133, 137, 138. (Students who are enrolled in the School of Education may count 3 credits of Education 93 as part of the 15 credits requirement.)

Students entering the junior class with advanced standing who expect to complete a major in mathematics in four semesters, should previously have completed their year's work in the calculus.

Three sample sequences of courses are listed below for the student's guidance. Sequence A is recommended for students interested in mathematics or physics. Sequence B is recom-

mended for students interested in mathematical statistics or actuarial work. Sequence C is recommended for prospective teachers of high-school mathematics. All three sequences include the basic courses required for the further study of either pure or applied mathematics.

Year	Semester	Sequences and Courses		
		A	B	C
Freshman	I	20	20	20
	II	21	21	21
Sophomore	I	22	22	22
	II	112, or 111, 106	106	106 or 30
Junior	I	113a or 120a, 115a	115a, 120a	115a, 120a
	II	113b or 120b, 115b	115b, 120b	115b or 120b
Senior	I	104a. 116a	118	108, 104a, or 118
	II	104b, 116b	137, 133	121 or 122 or 137

A minimum of 80 credits in subjects outside the major subject is required for graduation.

Detailed programs covering the work of all four years have been prepared and are available at the departmental office. These programs meet the degree requirements and include courses offered by other departments which integrate significantly with one of the above sample sequences.

It is desirable for students who plan to take graduate work in mathematics to acquire a reading knowledge of French and German at the earliest possible time.

Course in Applied Mathematics and Mechanics. (See page 49.)

ELEMENTARY COURSES

1. Introductory College Algebra. I, II; 4 cr. Development of the number system and the fundamental operations of algebra; linear and quadratic equations; exponents and logarithms; variations; progressions; the binomial theorem. Prerequisites: One unit of high-school algebra and one unit of geometry. Not open, for credit, to students who have had two units of high-school algebra.

2. Introductory Mathematical Analysis. I, II; 4 cr. Plane trigonometry; mathematical induction; inequalities; functional variation and graphical analysis. Necessary review topics in algebra are included. Prerequisites: Mathematics 1; or at least one and one-half units of high-school algebra and one unit of geometry.

7. Theory of Investment. I, II; 4 cr. Simple and compound interest; annuity symbols and general annuities; special kinds of annuities; amortization and sinking funds; valuation of bonds; computation of depreciation. Prerequisite: Mathematics 1 or 2. Primarily for students in the pre-commerce sequence. May not be counted towards fulfilling the requirement of the mathematics option for the B.A. or B.S. degree.

20. Calculus and Analytic Geometry. I, II; 4 cr. Analytic geometry of the straight line, circle, and conics; polynomials and their graphs; elements of the differential calculus, with applications involving polynomials. Prerequisites: Mathematics 2; or at least one and one-half units of high-school algebra, one unit of geometry, and one-half unit of trigonometry.

21. Calculus and Analytic Geometry. I, II; 4 cr. Continuation of Mathematics 20. Differential and integral calculus of algebraic and transcendental functions with applications to the physical and social sciences; further topics in analytic geometry. Prerequisite: Mathematics 20.

22. Calculus and Analytic Geometry. I, II; 4 cr. Continuation of Mathematics 21. Infinite series, including Taylor's series; solid analytic geometry; partial derivatives; multiple integrals. Prerequisite: Mathematics 21.

24. Theory of Life Insurance. I, II; 3 cr. An introduction to the mathematics of life

insurance. Mortality tables, net premiums, reserves, non-forfeiture benefits, gross premiums. Prerequisites: Two courses in mathematics.

30. Elementary Statistical Analysis. Sem; 3 cr. Elements of probability theory; collection and presentation of sample data; basic problems of statistical inference; applications, including quality control; linear regression, and correlation; simple distribution-free tests. Prerequisite: Mathematics 20 or 52 or the equivalent. Mathematics 30 is a basic course intended chiefly for freshmen and sophomores.

50. Sub-Freshman Algebra. I; 0 cr. A non-credit review of high-school algebra for engineering students who fail the examination for admission to Mathematics 51.

51. Elementary Mathematical Analysis. I, II; 5 cr. Plane trigonometry, mathematical induction; inequalities; functions, functional variation, and graphical analysis; theory of equations. Some topics in elementary algebra are reviewed briefly. Prerequisites: At least one and one-half units of high-school algebra and one unit of geometry, and passing of a placement examination in algebra. Not open to students who have passed Mathematics 2.

52. Elementary Mathematical Analysis. I, II; 5 cr. An introduction to differential and integral calculus and plane analytic geometry. Prerequisite: Mathematics 51 or 2.

INTERMEDIATE AND ADVANCED COURSES

Most of these courses are offered every year; the others when student needs warrant them.

101a. Calculus. I, II; 4 cr. (Intended only for students transferring from other institutions.) Functions, limits, and derivatives; differentiation of algebraic functions; differentials; integrals; differentiation of transcendental functions; applications. Prerequisite: A course in analytic geometry.

101b. Calculus. I, II; 4 cr. Techniques of integration; partial derivatives; multiple integrals with applications to physics; infinite series. Prerequisite: Mathematics 101a.

102a. Calculus. I, II; 4 cr. Continuation of Mathematics 52. Transcendental functions; techniques of integration; vectors and parametric equations. Prerequisite: Mathematics 52.

102b. Calculus. I, II; 4 cr. Continuation of Mathematics 102a. Solid analytic geometry and vectors; partial derivatives; multiple integrals; infinite series. Prerequisite: Mathematics 102a.

104. Theoretical Mechanics. Yr; 3 cr. Statics and dynamics of a particle and of a rigid body. Prerequisite: Mathematics 22 or a year of calculus.

106. Advanced Analytic Geometry. II; 3 cr. Advanced topics in plane analytic geometry and a treatment of solid analytic geometry. Prerequisite: A semester of calculus or concurrent registration in Mathematics 21 or 102a.

108. College Geometry. I; 3 cr. Advanced topics in Euclidean geometry including constructions, properties of triangles, coaxal circles, inversion. Open to juniors and seniors. (Of interest to teachers in secondary schools.) Prerequisite: Consent of instructor.

111. Applied Differential Equations. Sem; 3 cr. Ordinary differential equations and their applications, particularly equations of the first order and linear equations of the second order; systems of equations, series solutions, and numerical methods.

112. Differential Equations. II; 3 cr. A first course in differential equations. Methods of solution for equations of various types. Prerequisite: Mathematics 22 or a year of calculus.

113a. Applied Mathematical Analysis. I; 3 cr. Selected topics in advanced calculus;

introduction to complex variables.; the Laplace transform; vector analysis. Physical applications are stressed. Prerequisite: Mathematics 111 or 112, or equivalent.

113b. Applied Mathematical Analysis. II; 3 cr. Continuation of course 113a. Partial differential equations; Fourier series and integrals; gamma functions; Bessel's and Legendre's functions; complex variables. Prerequisite: Mathematics 113a.

115a. Theory of Equations. I; 3 cr. Solution of cubic and quartic equations by radicals, approximate methods, resultants, and discriminants, symmetric functions. Prerequisite: A year of calculus or concurrent registration in Mathematics 22.

115b. Determinants and Matrices. II; 3 cr. Matrices, determinants, systems of equations, quadratic forms. Prerequisite: Mathematics 115a or consent of instructor.

116a. Higher Analysis. I; 3 cr. Elementary functions of a complex variable; conformal mapping; complex integrals; the calculus of residues. Prerequisite: Mathematics 120a.

116b. Higher Analysis. II; 3 cr. Partial differential equations of mathematical physics. Prerequisites: Mathematics 111 (or 112) and 120a.

117. Vector Analysis. Sem; 3 cr. The algebra and calculus of vectors with applications to analysis, geometry, and physics. Prerequisite: Mathematics 22 or a year of calculus.

118. Introduction to the Theory of Probability. I; 3 cr. Combinatorial methods; basic laws of probability; mathematical expectation; theorems of Tchebycheff, Bernoulli, Laplace, Bayes; probability in continuum; sampling. Applications to physics and statistics. Prerequisite: Mathematics 22 or a year of calculus.

119. Differential Geometry. II; 3 cr. The theory of curves and surfaces by differential methods. Prerequisite: Mathematics 22 or a year of calculus.

120a. Advanced Calculus. I; 3 cr. Review of elementary calculus, hyperbolic functions, Taylor's Theorem, infinite series, uniform convergence, improper integrals, Fourier series, functions of several variables. Prerequisite: Mathematics 22 or a year of calculus.

120b. Advanced Calculus. II; 3 cr. Continuation of Mathematics 120a. Geometric applications, implicit functions, transformation of multiple integrals, line and surface integrals, Beta and Gamma functions. Prerequisite: Mathematics 120a.

121. Elementary Plane Topology. Sem; 3 cr. A study of properties of plane sets and applications of these properties to the calculus. Prerequisite: Mathematics 22 or a year of calculus.

122. Projective Geometry. II; 3 cr. The extension of elementary analytic methods as well as the synthetic method. Applications to rectilinear figures and conic sections. Prerequisite: Consent of instructor.

123. Convex Figures and Inequalities. Sem; 3 cr. An introductory course dealing with the simplest geometrical properties of convex figures and with their applications to the fundamental inequalities in use in everyday mathematical analysis. Prerequisite: Consent of instructor.

131. Theory and Operation of Computing Machines. Sem; 3 cr. Theory and operation of modern computing machines of intermediate complexity, particularly punched card machines. Programming of typical problems from statistics and the natural sciences. Prerequisites: Mathematics 22 or a year of calculus, and consent of instructor.

133. Finite Differences and Interpolation. II; 3 cr. Construction and use of mathematical tables, numerical solution of algebraic and transcendental equations and systems of equations, numerical evaluation of integrals. Prerequisite: Mathematics 22 or a year of calculus.

137. Introduction to Mathematical Statistics. II; 3 cr. Derived distributions: chi-

square, t, and F; estimation, confidence intervals; statistical tests; operating characteristics; regression; analysis of variance. Prerequisites: Mathematics 22, 102b, or 101b, and either Mathematics 118 or a course in applied statistics.

138. Actuarial Mathematics. Sem; 3 cr. Problems in finite differences, probability and statistics with particular emphasis on applications to life insurance. Prerequisite: At least a year of calculus or Mathematics 22.

GRADUATE COURSES

The graduate courses in mathematics are varied from year to year according to the needs of the students, other subjects being occasionally introduced in addition to those here listed. Standard courses will be given quite regularly and others when student needs warrant. Any course having the word "topics" in its title may have different content in successive semesters, and in such a case may be taken more than once. Enrollment in any graduate course requires the consent of the instructor.

201. Topics in Applied Mathematics. Sem; 3 cr.

202. Entire Functions. Sem; 3 cr. Chiefly the theory of functions of exponential type, with applications to the study of general interpolation series, the completeness of sets of functions, and Bernstein's theorems and their generalizations. Prerequisite: One semester of complex function theory.

215. Topological Algebra. Sem; 3 cr. Topological algebras and their applications to modern analysis. Prerequisite: Functions of a real variable and modern algebra, or consent of instructor.

216. Topological Groups. Sem; 3 cr. Introduction to topological groups: groups, topological spaces, topological groups, compact groups, representations.

217. Tensor Analysis. Sem; 3 cr. The algebra and calculus of tensors with particular emphasis on their applications to the theory of relativity.

218. Introductory Topology. Yr; 3 cr. Axiomatic treatment of topological spaces. Transformations. Convergence. Metric spaces, continuous curves, and Euclidean spaces.

219. Differential Geometry. Sem; 3 cr. Curves and surfaces in three dimensions by classical methods. An introduction to corresponding problems in n-dimensions involving tensor methods.

220. Theory of Analytic Functions. Yr; 3 cr. This course is fundamental for analysis. Functions of the complex variable.

221. Theory of Functions of a Real Variable. Yr; 3 cr. Fundamental concepts of analysis, including the real number system, point sets, series, functions, derivatives, Riemann and Lebesgue integrals.

223. Algebraic Topology. Sem; 3 cr. An investigation of the topological properties of certain types of spaces arising from their homology and homotopy groups and other algebraic systems associated with them.

224. Topics in Topology. Sem; 3 cr.

225. Divergent Series. Sem; 3 cr. A course dealing with the classical methods of summation, their generalizations, and their many applications.

230. Topics in the Foundations of Mathematics. Sem; 3 cr. A critical analysis of the foundations of mathematics, particularly of recursive number theory, with emphasis on the structure of mathematical reasoning.

231. Theory of Probability. Sem; 3 cr. Measure-theoretic foundations and modern analytical methods of the theory of probability.

232. Topics in Probability. Sem; 3 cr. Topics selected to meet the requirements of the students enrolling.

237. Mathematical Statistics. Sem; 3 cr. Multivariate analysis, sequential analysis, non-parametric inference. Prerequisite: Mathematics 137.

238. Topics in Mathematical Statistics. Sem; 3 cr. Topics in mathematical statistics to suit the requirements of the students enrolling. Prerequisites: Mathematics 137 and consent of instructor.

239. Theory of Games. Sem; 3 cr. An introduction to von Neumann's Theory of Games, with emphasis on the zero-sum two-person game. Application will be made to problems of strategy, and to the theory of decision functions.

243. Modern Theory of Differential Equations. Sem; 3 cr. Ordinary differential equations in real variables. Existence, oscillation, and comparison theorems. Boundary conditions, the Green's function, and series developments. Prerequisite: An introductory course in differential equations.

244. Topics in Ordinary Differential Equations. Sem; 3 cr. Prerequisite: Some familiarity with the theory of functions of a complex variable.

246. Theory of Groups. Sem; 3 cr. Abstract groups with examples showing the most important modes of representation and with applications to fundamental problems in other branches of mathematics.

249. Theoretical Hydrodynamics. Sem; 3 cr. Kinematics and dynamics of fluid flow; airfoil theory; viscous fluids. Prerequisite: Normally Mathematics 116a.

251. Potential Theory. Sem; 3 cr. Harmonic functions, characteristic value problems, Newtonian potentials.

261. Abstract Algebra. Yr; 3 cr. Theory of numbers, abstract groups, algebraic and Galois fields, and matrices, with an introduction to modern abstract algebra.

263. Higher Algebra. Sem; 3 cr. Matrices, linear dependence and independence, quadratic and Hermitian forms, elementary divisors, and an introduction to matric equations.

264. Rings and Fields. Sem; 3 cr. An abstract treatment of rings, fields, and their ideals. Prerequisite: Normally Mathematics 261.

265. Fourier Analysis. Sem; 3 cr. Boundary value problems in partial differential equations of ordinary occurrence in mathematical physics. Fourier's series, series of Bessel's function, Hermite polynomials, and spherical harmonics. Prerequisite: Advanced calculus.

266. Topics in the Theory of Numbers. Sem; 3 cr. A selection of topics from the modern theory of numbers, presented from both the algebraic and the analytic points of view.

267. Calculus of Variations. Sem; 3 cr. An introductory course devoted to the classical theory and problems. Prerequisite: Advanced calculus.

268. Partial Differential Equations. Sem; 3 cr. The theory of partial differential equations of the first order and of linear partial differential equations of the second order.

269. Theory of Integral Equations. Sem; 3 cr. An introductory course. The classical approach to the equations of Volterra and Fredholm types.

270. Linear Transformations in Hilbert Space. Sem; 3 cr. Hilbert space as an infinite dimensional generalization of geometric spaces; linear closed subsets and orthogonality. Linear transformations, projections, spectral theory.

271. Linear Algebras. Sem; 3 cr. A course in the theory of linear associative algebras of finite order and their associated number theories. Prerequisite: Normally Mathematics 261.

272. Seminar in Algebra. Yr; 1 or 2 cr.

273. Theory of Integration. Sem; 3 cr.

275. Banach Spaces. Sem; 3 cr. Abstract normed linear spaces and linear operators together with applications to analysis in spaces of functions and sequences.

279. Advanced Topics in Algebra. Sem; 3 cr. Topics selected from the area of non-associative systems, with attention to the connections with other fields of mathematics and to unsolved problems. Prerequisite: Normally Mathematics 261.

283. Laplace Transforms. Sem; 3 cr. Solution of simple ordinary and partial linear differential equations, systems of simultaneous ordinary differential equations, difference equations. Applications to mechanical vibrations, electric waves and circuit theory, heat conduction, and hydrodynamics.

284. Seminar in the Foundations of Mathematics. Sem; 3 cr.

285. Advanced Topics in Complex Variable Theory. Sem; 3 cr. Topics selected from entire functions, conformal mapping, Riemann surfaces, extremal methods, special functions, or related subjects.

286. Advanced Topics in Real Variable Theory. Sem; 3 cr. Topics selected from modern real variable methods and their applications.

Courses in Diophantine Equations, Advanced Algebraic Theory of Equations, Quality Control, Theory of Elasticity, Advanced Analytic Theory of Equations, Algebraic Geometry, Projective Differential Geometry, Non-Euclidean Geometry, Riemannian Geometry, and Infinite Series of Functions are given when demand warrants.

MEDICAL SCIENCE

A major in Medical Science is authorized for students in the General Course who satisfy the requirements as detailed on page 45.

MEDICAL TECHNOLOGY

COURSES IN SENIOR YEAR

Professor Jaeschke, Kozelka, Stovall; Associate Professor Worley; Assistant Professor Thorngate; Instructor Rupp.

The courses in this department are open only to students enrolled in the Course in Medical Technology.

101. Urine Analysis. I; 3 cr. Chemical and microscopic examination of urine. 144 hours. 8–12 MTWTFS for 8 weeks.

102. Normal Hematology. I; 5 cr. Hemoglobin determinations, cell counts; color, and volume index determination; platelet count; bleeding and coagulation time; erythrocyte fragility; sedimentation rate; blood grouping and cross matching. 226 hours. 8–12 MTWTFS for 6 weeks; 1:30–5 MTWTF for 6 weeks.

103. Special Hematology. I; 4 cr. Determinations outlined under "Normal Hematology" performed on abnormal blood. 198 hours. 8–12 MTWTFS for 4 weeks; 1:30–5 MTWTF for 6 weeks.

104. Applied Bacteriology. I; 4 cr. Examination of smears, fluids, excreta, and pus for pathological organisms. 218 hours. 8–12 MTWTFS for 2 weeks; 1:30–5 MTWTF for 10 weeks.

111. Applied Serology. II; 2 cr. Identification of organisms by serological methods. Wassermann and Kahn tests. Tests for allergic conditions. 100 hours. 8–12 MTWTFS for 2 weeks; 1:30–5 MTWTF for 3 weeks.

112. Applied Parasitology. II; 3 cr. 82 hours. 8–12 MTWTFS for 2 weeks; 1:30–5 MTWTF for 2 weeks.

113. Clinical Chemistry. II; 7 cr. Blood chemistry; liver function studies; chemistry of gastric and spinal fluids; basal metabolism. 318 hours. 8–12 MTWTFS for 8 weeks; 1:30–5 MTWTF for 13 weeks.

114. Microtechnique. II; 3 cr. 144 hours. 8–12 MTWTFS for 6 weeks.

METEOROLOGY

Associate Professors Bryson, Suomi; Assistant Professor Ekern.

Major. For a major 18 credits in meteorology are required, including 101 and 102. Since meteorology is primarily the application of the techniques and principles of physical science to the study of the atmosphere, certain background courses are also required. These are one course in advanced physics or one semester of Meteorology 110, and one course beyond calculus, both to be approved by the Department of Meteorology.

This department emphasizes those phases of meteorology which are closely related to agricultural, engineering, and earth sciences.

17. Survey of Meteorology. I; 4 cr. A brief introduction to the field of meteorology, the circulation of the atmosphere, storms and fronts; some effects on the activities of man. Mr. Bryson.

101. The General Circulation. I; 4 cr. Intensive study of the general circulation of the atmosphere to serve as foundation for advanced consideration of synoptic processes. Mr. Bryson.

102. The Secondary Circulation. II; 4 cr. Moving cyclones and anti-cyclones, the polar front and its morphology, patterns characteristic of the tropics, and the theoretical basis of weather forecasting. Prerequisite: Meteorology 101. Mr. Bryson.

103. Micro-Climatology. I; 4 cr. The roles of radiation, convection, and evaporation in the physics of layer of air near the ground; thunderstorms and other tertiary circulations. Prerequisite: Meteorology 17 or 101. Mr. Suomi.

110. Basic Theoretical Meteorology. Yr; 4 cr. The course consists primarily of the mathematical theories of the other meteorology courses given by the department. Prerequisites: Calculus and Physics 1. Mr. Suomi.

120. Meteorological Measurements. II; 4 cr. The theory and practice of meteorological observations, elements of measuring systems, radar storm detection, and techniques of probing the upper atmosphere. Prerequisite: Calculus. Mr. Suomi.

130. Synoptic Laboratory. 3 cr. Intensive practice in routine analysis using upper-air charts, cross sections, surface charts and special tools, forecasting techniques, air mass-analysis and the use of soundings. Prerequisite: Meteorology 17 or 102. Mr. Bryson.

131. Intermediate Synoptic Laboratory. 3 cr. Prerequisite: Meteorology 130. Mr. Bryson.

132. Advanced Synoptic Laboratory. 3 cr. Prerequisite: Meteorology 131. Mr. Bryson.

141. Climates of the Continents. II; 3 cr. (See Geography 141.)

144. Introductory Oceanography. II; 3 cr. A brief survey of the geography and geology of the oceans, with consideration of physical processes and relation of ocean and atmosphere. Prerequisite: Consent of instructor. Mr. Bryson.

145. Agricultural Climatology. II; 3 cr. A one-semester survey of weather science as related to the field of agriculture. Primarily for students in agriculture. Mr. Ekern.

175. Electronic Aids to Measurement. (Also Physics 175 and E.E. 175.) 4 cr; 3 hrs. lect.; 3 hrs. lab. Fundamentals of electronics, electronic elements, basic circuits; combinations into measuring instruments. Prerequisites: Graduate standing, elementary physics, intermediate electricity, and calculus or consent of instructor. Mr. Lund.

180. Advanced Independent Reading. Prerequisite: Consent of instructor. Staff.

200. Research. Yr; *cr. Staff.

251. Seminar: Meteorology.

252. Seminar: Applied Climatology.

253. Seminar: Oceanography.

258. Seminar: Paleoclimatology.

292. Seminar.

MUSIC

Professors Burleigh, Burns, *chairman*, Carpenter, Coon, Dvorak, Iltis, Johansen; Associate Professors Church, Jones, Luckhardt, Saric, Steffens; Assistant Professors Blotz, Crane, Eastman, Gunlaugson, Monschein, Paxton, Petzold, Voegeli; Instructors Bjorksten, Jorgenson, Marcouiller, Wooldridge; Lecturer Heermann; Artists-in-Residence Friedlander, Kolisch, Milofsky, Rahier of the Pro Arte Quartet.

See School of Music, page 90.

For regulations covering the election of music courses by non-School of Music students, see page 97.

Courses numbered from 1 through 100 are open for credit to undergraduates only; from 101 to 199 to both undergraduates and graduates; 200 and over to graduates only.

1. Elements of Musical Structure. Yr; 2 cr. An introductory course in music devoted to developing structural relationships between the arts of tone and movement. For dance majors only.

3. Elementary Theory. Yr; 2 or 3 cr. Music fundamentals, music reading, simple harmony. This course covers the same ground as Music 11a. Prerequisite: Recommendation of the Theory Assignment Committee. Mrs. Blotz.

9. Chamber Music in Performance. Yr; 1 cr. Descriptive lectures. Open to all students. Prerequisite: Sophomore standing except for music majors. Mr. Johansen and members of the Pro Arte Quartet.

11. First-Year Theory. Yr; 4 cr. Basic notation; intervals; scales and modes; rhythm; contrapuntal harmony, written and keyboard; sight singing and ear training; selected music for harmonic and form analysis. Prerequisite: Audition by Theory Assignment Committee. Mr. Crane, Mr. Monschein.

15. Music in Community Recreation. II; 2 cr. The meaning and significance of recreational music in the life of the individual; the theory and practice of organizing and carrying on music activities in a recreation program. Prerequisite: Open to music and recreation majors; others upon consent of instructor. Mr. Petzold.

20. Appreciation and History of Music. Yr; 2 cr. A survey of the development of music, stressing the elements of musical understanding and the study of representative compositions. Open to all students. Prerequisite: Sophomore standing, except for music majors. Mr. Coon.

21. Second-Year Theory. Yr; 4 cr. Aural and written harmony. Keyboard harmony and figured bass. Harmonic counterpoint. Sight singing and sight playing. Ear training, analysis. Prerequisites: Music 11b; 20b or concurrent registration. Mr. Luckhardt.

23. Opera. I; 2 cr. Standard operas from Gluck to Strauss; opera as a social and cultural phenomenon and an expression of national styles. Not open for credit to music majors. Mrs. Blotz, Mr. Crane, Mr. Monschein.

24. The Symphony. II; 2 cr. Symphonic works from Haydn to the present; relation to other arts. Prerequisites: Sophomore standing and Music 20a and 20b. Not open for credit to music majors. Mr. Heermann.

25. Elementary Counterpoint. Yr; 2 cr. The analysis and writing of counterpoint in two and more parts; study of polyphonic music of the 16th through the 19th centuries. Prerequisite: Music 11b or equvialent. Mr. Luckhardt.

30a. Music in the Baroque Era. I; 2 cr. The study of musical idioms, styles, and forms with emphasis on the development of opera, oratorio, cantata, and the rise of instrumental music; the place of music in the general culture of the period. Prerequisites: Music 11b, 20a, 20b. Mrs. Blotz, Mr. Crane, Mr. Monschein.

30b. Music in the Classic Era. II; 2 cr. Survey of the development of the classic era based on the study of masterworks of the period. Prerequisites: Music 21a, 30a. Mr. Crane, Mr. Monschein.

31. Third-Year Theory. Yr; 3 cr. Late 19th- and 20th-century technics of composition. Analysis of representative compositions and employment of observed technics. Prerequisites: Music 21b, 30b.

34. Arranging. Yr; 2 cr. Practical course in arranging for the usual high-school chorus, orchestra and band. Prerequisite: Music 21b. Mr. Dvorak.

38. Vocal Technic and Song Literature. I; 2 cr. Voice classification; tone production; interpretation; vocal teaching technics and materials for various teaching purposes. Prerequisite: Consent of instructor. Miss Gunlaugson.

40a. Music in the Romantic Era. I; 2 cr. A survey of the musical developments of the Romantic era based on the study of masterworks of the period. Prerequisites: Music 21b, 30b. Mr. Crane, Mr. Monschein.

40b. Music in the Post-Romantic Era. II; 2 cr. A study of the major musical developments of the late 19th century and their influence on contemporary music. Prerequisites: Music 21b, 40a. Mr. Crane, Mr. Monschein.

51. Fundamentals of Pianoforte. Yr; 2 cr. Basic course in elements of piano playing. Open to candidates for the B.M. degree, Recreation, Occupational Therapy, and Elementary Education majors. Prerequisite: Approval of Applied Music Assignment Committee. Staff.

53. Fundamentals of Stringed and Other Orchestral Instruments. Yr; 2 cr. Basic course in the fundamentals of playing string, woodwind or brass instruments. Open to candidates for the B.M. degree, Recreation, and Occupational Therapy majors. Prerequisite: Approval of the Applied Music Assignment Committee. Staff.

55. Elementary Pianoforte. Yr; 2 cr. Continued training in performance and the elements of piano technique. Prerequisites: Music 51b and approval of the Applied Music Assignment Committee. Staff.

61. First-Year Pianoforte. Yr; 2–3 cr. Scales and arpeggios; Bach Two-Part Inventions; Haydn and Mozart Sonatas; romantic and modern compositions. Prerequisite: Approval of Applied Music Assignment Committee. Staff.

62. First-Year Voice. Yr; 2–3 cr. Fundamentals of tone production; principles of correct breathing; resonance; range; diction, interpretation of easy songs in English. Prerequisite: Approval of Applied Music Assignment Committee. Staff, Mr. Wooldridge, Mrs. Bjorksten.

63. First-Year String and Wind Instruments. Yr; 2–3 cr. Correct tone production; simple repertoire; technical studies; major and harmonic minor scales and arpeggios. Prerequisite: Approval of Applied Music Assignment Committee. Staff.

64. First-Year Organ. Yr; 1–3 cr. Manual and pedal technic; Bach simple chorale preludes (Orgelbuchlein); Bach short preludes and fugues; hymn playing. Prerequisites: A satisfactory polyphonic piano technic; approval of Applied Music Assignment Committee. Miss Eastman, Mr. Jones.

65. Instrumental Technics (Strings). Yr; 2 cr. The theory and practice of playing the violin, viola, violoncello, contrabass. Prerequisite: Music 11b or equivalent. Mr. Church.

71. Second-Year Pianoforte. Yr; 2–3 cr. Technic; Bach Three-Part Inventions; Beethoven Sonatas; romantic and modern compositions. Prerequisites: Music 61b or equivalent; approval of Applied Music Assignment Committee. Staff.

72. Second-Year Voice. Yr; 2–3 cr. Art songs in English and Italian; easy oratorio and operatic arias; ensemble. Prerequisites: Music 62b or equivalent; approval of Applied Music Assignment Committee. Staff.

73. Second-Year String and Wind Instruments. Yr; 2–3 cr. Moderately difficult solos and technical studies; sight reading; melodic minor scales and arpeggios; major scales in thirds. Prerequisites: Music 63b; approval of Applied Music Assignment Committee. Staff.

74. Second-Year Organ. Yr; 1–3 cr. Continuation of technical studies; Buck Studies in Pedal Phrasing; Bach Chorale Preludes, and Preludes and Fugues, shorter works for service playing. Prerequisites: Music 64b; approval of Applied Music Assignment Committee. Miss Eastman, Mr. Jones.

75a. Instrumental Technics. Sem; 2 cr. Woodwind technics; theory and practice of playing the flute, oboe, clarinet, saxophone, bassoon. Prerequisite: Music 11b or equivalent. Mr. Dvorak.

75b. Instrumental Technics. Sem; 2 cr. Brass and percussion technics; theory and practice of playing the French horn, cornet and trumpet, trombone, baritone, tuba and percussion instruments. Prerequisite: Music 11b or equivalent. Mr. Marcouiller, Mr. Dvorak.

76. Conducting. Yr; 2 cr. Detailed study of conducting techniques with emphasis on practical application to vocal and instrumental groups. Mr. Church, Mr. Dvorak.

81. Third-Year Pianoforte. Yr; 2–3 cr. Technic; Bach's Well Tempered Clavier; Beethoven's Sonatas; more advanced compositions from romantic and modern schools. Prerequisites: Music 71b; approval of Applied Music Assignment Committee. Staff.

82. Third-Year Voice. Yr; 2–3 cr. Study of embellishments; arias and art songs in English, Italian, German or French. Solo appearance. Prerequisites: Music 72b; approval of Applied Music Assignment Committee. Staff.

83. Third-Year String and Wind Instruments. Yr; 2–3 cr. Advanced solos and technical studies; all scales in thirds; advanced sight reading; study of orchestral literature for the instrument; transposition. Prerequisites: Music 73b; approval of Applied Music Assignment Committee. Staff.

84. Third-Year Organ. Yr; 1–3 cr. Selected works of Bach, Franck, Mendelssohn, Widor, Rheinberger, Karg-Elert and others for service and concert playing. Prerequisites: Music 74b; approval of Applied Music Assignment Committee. Miss Eastman, Mr. Jones.

85. Orchestra. Yr; 0–1 cr. University Symphony: Playing and public performance of standard works from symphonic repertoire; Training Orchestra: Rehearsal and perform-

ance of easier standard compositions. Prerequisite: Ability to play an orchestral instrument. Membership open to all students by tryout. Mr. Church.

86. CHORUS. Yr; 0–1 cr. University Chorus, A Cappella Choir, Men's Chorus, Women's Chorus. Study and performance of the masterpieces of choral literature and lighter works. Membership open to all university students by tryout. Mr. Jones, Mr. Paxton, Mr. Wooldridge.

87. BANDS. Yr; 0–1 cr. Concert Band, Regimental (Badger) Band, Regimental (Cardinal) Band. Prerequisite: Ability to play a band instrument. Membership open to all university students by tryout. Mr. Dvorak.

91. ADVANCED PIANOFORTE. Yr; 2–3 cr. Advanced technic; Bach Suites and Toccatas; sonatas; advanced compositions from romantic and modern schools; preparation for recital. Prerequisites: Music 81b; approval of Applied Music Assignment Committee. Staff.

92. ADVANCED VOICE. Yr; 2–3 cr. Continued study of repertoire covering all types of vocal literature; stage deportment; preparation for recital and concert appearance. Prerequisites: Music 82b; approval of Applied Music Assignment Committee. Staff.

93. ADVANCED STRING AND WIND INSTRUMENTS. Yr; 2–3 cr. Continuation of study of solo literature and repertoire; preparation for recital and concert appearance. Prerequisites: Music 83b; approval of Applied Music Assignment Committee. Staff.

94. ADVANCED ORGAN. Yr; 1–3 cr. Larger works of German, French, English and American composers; preparation for recital and public performance. Prerequisites: Music 84b; approval of Applied Music Assignment Committee. Miss Eastman, Mr. Jones.

95. ENSEMBLE. Yr; 1 or 2 cr. Assignments in performing string, brass, woodwind and piano ensemble literature and accompanying. Prerequisites: Junior standing in music; 80 level in applied music; consent of instructor. Not accepted as Applied Music credit. Mr. Iltis.

96. APPLIED TECHNICS. I; 2 cr. A study of the principles of applied music, both class and individual; materials for both types. Offered 1955–56 and in alternate years. Prerequisite: Consent of instructor. Mr. Steffens.

97. APPLIED REPERTOIRE. II; 2 cr. An analysis of applied music literature, including representative works from all periods. Offered 1955–56 and in alternate years. Prerequisite: Consent of instructor. Mr. Steffens.

125. MUSIC IN RADIO. I; 2 cr. At Station WHA under staff supervision. Radio music programming, performance; laboratory training in studio technics. Prerequisite: Junior standing in music or consent of the dean. Mr. Voegeli.

131. MUSIC OF THE CLAVECIN PERIOD. I; 3 cr. A critical analysis of music including Purcell, Couperin, Scarlatti, and Rameau; music theory and ornamentation. Prerequisite: Music 40b or consent of instructor. Mr. Coon.

132. MODERN FRENCH MUSIC. II; 3 cr. A style and content analysis of music from Franck to the present day. Prerequisite: Music 40b or consent of instructor. Mr. Coon.

138. CHORAL TECHNIC AND LITERATURE. II; 2 cr. Organizational plans, rehearsal procedure and training technics for all types of choirs. Analysis of choral literature; program planning. Prerequisite: Music 38, 76b or consent of instructor. Mr. Jones.

141. MODERN CONTRAPUNTAL TECHNICS. Yr; 3 cr. The writing of contrapuntal compositions in free style; the analysis of contemporary works in these forms. Prerequisites: Music 31b, 40b. Mr. Luckhardt.

150. PROSEMINAR. I, II; 2 cr. Practice in the technics of music research. Style analysis, research methods, and bibliography. Prerequisite: Music 40b or senior standing. Mr. Crane, Mr. Monschein.

152. Orchestration. Yr; 3 cr. History of orchestration. Study of representative works by means of scores, phonograph records, and attendance at rehearsals of the University Orchestra and Band. Scoring for orchestra and band. Prerequisites: Music 21b, 34b. Mr. Dvorak, Mr. Burleigh.

162. Composition. Yr; 3 cr. Original composition and analysis based upon the diatonic system of harmony. Songs, quartets, piano pieces, etc. Prerequisite: Music 31b.

165. Advanced Music Literature. Yr; 3 cr. A further study of music literature; thorough and critical analysis of symphonic and chamber music. Prerequisite: Music 40b. Mr. Crane.

168. Survey of Choral Masterworks. I; 2 cr. Analysis of large choral forms from Schuetz to Kodaly; vocal and instrumental resources and devices used; performance and interpretive traditions. Prerequisites: Music 138 or graduate standing; conducting experience and consent of instructor. Mr. Jones.

175b. Advanced Instrumental Technics. II; 2 cr. An advanced course in the theory and practice of playing the woodwind, brass and percussion instruments; emphasis on preparation for class instruction. Prerequisites: Music 75a, 75b. Mr. Church, Mr. Dvorak.

175b. Advanced Instrumental. II; 2 cr. An advanced course in the theory and practice of playing the woodwind, brass and percussion instruments; emphasis on preparation for class instruction. Prerequisites: Music 75a, 75b. Mr. Church.

176. Advanced Conducting. Yr; 2 cr. Advanced study and analysis of conducting techniques. Score reading and interpretation of masterpieces from the standard repertoire. Prerequisite: Music 76b or consent of instructor. Mr. Church.

191, 192, 193, 194. Artist Course in Applied Music. Yr; 2–3 cr. Prerequisite: Graduate standing in Applied Music. Extensive repertoire in music literature and public appearance. Staff.

195. Advanced Ensemble. Yr; 2 cr. Graduate course in advanced string quartet, woodwind, brass, piano and other ensembles. Prerequisite: Graduate standing in applied music. Pro Arte Quartet and staff.

211. Modern Orchestration. Yr; 2 or 3 cr. A further study of modern methods in scoring; original composition for orchestra or band will be required. Prerequisites: Graduate standing and Music 152. Mr. Luckhardt.

222. Fugue. Yr; 2 or 3 cr. Fugal analysis; the writing of fugues in two or more parts, employing technics of the Baroque era to the present time. Prerequisites: Music 141b and graduate standing. Mr. Luckhardt.

231. Seminar. Yr; 2 cr. Essentially a course in musicology. The Wagnerian Ring, Early Orchestral Music, Musical Forces up to the 17th Century, Aesthetic Phases of Musical Form, American Music, The String Quartet, or Early Music Theorists. Mr. Coon.

262. Modern Harmony and Advanced Composition. Yr; 3 cr. Advanced composition employing modern technics in structure, harmony and counterpoint. Prerequisites: Music 141b and 162b.

EDUCATION COURSES IN MUSIC

Education 1, 2. Integrated Arts. Yr; 2 cr. A course planned to develop an understanding of the place of arts in contemporary life with emphasis upon direct experience in the fields of art, dance, drama and music. Prerequisite: Freshman standing in Elementary Education Curriculum. Staff.

Education 4. Music Education for Elementary Schools I; 2, 3, or 4 cr. Materials and procedures for developing musical experiences through singing, playing and creating; prob-

lems of organization and administration. Lectures, observations and laboratory practice. Prerequisite: Education 75. Mr. Burns, Mr. Petzold.

EDUCATION 5. MUSIC EDUCATION FOR SECONDARY SCHOOLS. II; 2, 3, or 4 cr. The development of music curricula for the junior and senior high school; problems in teaching and administering vocal and instrumental organizations. Lectures, observations, and laboratory practice. Prerequisite: Education 75. Mr. Petzold, Mr. Paxton.

EDUCATION 7, 8. INTEGRATED ARTS. Yr; 2 cr. Continuation of Education 2 with emphasis on greater maturity in and understanding of the arts. Prerequisite: Education 2.

EDUCATION 102. STUDIES IN CURRICULUM AND INSTRUCTION IN SCHOOL MUSIC. II; 3 cr. Methods and materials to meet the challenge of changing conditions; problems of evaluation. Prerequisite: Teaching experience or consent of instructor. Mr. Burns.

NAVAL SCIENCE

PROFESSOR REEVE, *Commanding Officer;* ASSOCIATE PROFESSOR WEBER; ASSISTANT PROFESSORS CROSS, MARTIN, MURPHY, SMITH, WAUGH

11. NAVAL HISTORY AND ORIENTATION. Sem; 3 cr. Naval customs; influence of sea power on global warfare.

12. NAVAL HISTORY AND ORIENTATION. Sem; 3 cr. Naval history; influence of sea power on global warfare. Elementary seamanship and ship handling, elementary naval strategy and tactics.

21. NAVAL WEAPONS. Sem; 3 cr. Ammunition components; gun assemblies; fundamentals of radar; fire control fundamentals; surface fire control; anti-aircraft fire control.

22. NAVAL WEAPONS. Sem; 3 cr. Anti-aircraft fire control systems; battery alignment; combat information center functions; naval gunfire support; torpedoes, anti-submarine warfare; mines, rockets, guided missiles.

31. NAVIGATION. Sem; 3 cr. Definitions, instruments, and equipment; the sailings, dead reckoning, and piloting; radar and loran navigation; maneuvering board problems; rules of the road at sea; meteorology.

*31M. HISTORY OF THE ART OF WAR. Sem; 3 cr. Evolution of warfare from earliest recorded time to World War I; decisive battles of history.

32. NAVIGATION. Sem; 3 cr. Nautical astronomy; celestial navigation; advanced celestial navigation problems and the practice of navigation at sea.

*32M. EVOLUTION OF THE ART OF WAR, PART II AND MODERN BASIC STRATEGY AND TACTICS. Sem; 3 cr. Evolution of warfare from World War I to present; development of U. S. military and foreign policy; basic strategic concepts, modern combat principles and tactics.

41. NAVAL MACHINERY. Sem; 3 cr. Marine engineering power plants, boiler, feed-water, and fuel-oil systems; turbine propulsion systems; auxiliary systems, distillers, refrigeration systems; electrical plants; internal combustion engines, systems and controls; aircraft engines.

*41M. AMPHIBIOUS WARFARE, PART I. Sem; 3 cr. Evolution of landing operations; amphibious organization and intelligence; naval gunfire, air and artillery support, logistics, selected amphibious operations.

42. SHIP STABILITY, NAVAL JUSTICE, AND LEADERSHIP. Sem; 3 cr. Fundamentals of ship stability; impaired stability and control of damage; uniform code of military justice and courts martial; naval leadership; naval administration.

* Substituted for equivalent Navy Course by Marine Corps candidates.

*42M. Amphibious Warfare, Part II, Leadership, and the Uniform Code of Military Justice. Sem; 3 cr. Selected amphibious operations; basic psychology of leadership situations to develop knowledge of leadership techniques; responsibility and administration of the uniform code of military justice.

PHILOSOPHY

Professors Bögholt, Garnett, Ramsperger, *chairman,* Weinberg; Associate Professor Hay; Assistant Professors Golightly, Goodwin; Instructor Singer.

The student may begin his work in philosophy with any of the courses numbered under 100, but beginners who desire to take three hours of work throughout the year in the department, whether they wish to continue with the subject or not, will ordinarily find it most profitable to select course 1a, 11, 31, or 41 in the first semester and either 1b, 11, 41, or 132 in the second semester. None of the courses except 1a in this department is open to freshmen without special permission.

Major. The minimum requirement is 24 credits including courses 31 and 132. Of these at least 15 credits must be taken from the 100-group. A thesis may be included in these 24 credits at the option of the department.

1a. Introduction to Philosophy. I, II; 3 cr. Introduction to philosophic thinking through examination of the problems of freedom, knowledge, and the problem of estimating what is worth while. Prerequisite: Open to freshmen and to sophomores who have had no previous philosophy course other than Philosophy 11. Not open to juniors or seniors. Staff.

1b. Introduction to Social Philosophy. II; 3 cr. Studies of opposing philosophical views about man and his political and social life. Prerequisite: Sophomore standing. Mr. Bögholt.

11. Elementary Logic. I, II; 3 cr. Problems and methods of better thinking. Development of skill in detecting the more obvious logical errors. The positive aim is improvement in the student's thinking. Prerequisite: Sophomore standing. Staff.

31. History of Ancient Philosophy. I; 3 cr. From the pre-Socratics to Augustine. Particular emphasis on Plato and Aristotle. Prerequisite: Sophomore standing. Mr. Weinberg.

41. Introductory Ethics. I, II; 3 cr. Development of moral ideas. Criticism of ethical theories and of social institutions such as state, property, family. Prerequisite: Sophomore standing. Mr. Goodwin, Mr. Golightly.

53. Philosophy of the Arts. I; 3 cr. Making, appreciation, and criticism of works of art. Sources and use of standards. Prerequisite: Sophomore standing. Mr. Hay, Mr. Goodwin.

54. Social Problems of Contemporary Art. II; 3 cr. A critical consideration of problems raised by the activities and productions of contemporary artists, such as freedom, censorship, uses of art, function of artists in society, social benefits of art. Prerequisite: Sophomore standing. Not offered 1954–55.

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

101. Introduction to Philosophy for Upperclassmen. I, II; 3 cr. A first philosophy course for juniors and seniors. Emphasis upon philosophical problems connected with the methods and assumptions of science, and with the relation of scientific knowledge to moral choice, freedom of inquiry, and social action. Prerequisite: Open only to juniors and seniors with no previous philosophy. Mr. Ramsperger.

102. Aristotle and His Influence. II; 3 cr. Study of his logical, metaphysical, and psychological writings together with a history of their influences on subsequent authors. Prerequisite: Philosophy 31 or consent of instructor. Mr. Hay.

111. Theory of Valuation. II; 3 cr. A study of theories of the value judgment in morals; its character, function, and verification. Prerequisites: Junior standing and 3 credits in philosophy. Mr. Bögholt.

113. Symbolic Logic. I, 3 cr. Its fundamental methods studied and applied to such philosophical problems as nature of mathematics, logical truth, and analysis of meanings. Prerequisite: Philosophy 11 or consent of instructor. Mr. Hay.

116. Language and Meaning. II; 3 cr. Study of the ways in which the forms of language influence thinking and belief. Prerequisites: Sophomore standing, and Philosophy 1a or consent of instructor. Mr. Hay.

120. Philosophy of Science. I, II; 3 cr. Theories of reality, of knowledge and of value involved in various philosophical interpretations of science. Prerequisite: Sophomore standing, 3 credits in philosophy or consent of instructor. Mr. Ramsperger.

126. Philosophical Ideas in Modern Literature. I; 3 cr. A study of the philosophical content, religious and scientific background and intellectual influence of some writings of such men as Erasmus, Voltaire, Goethe, and Flaubert. Prerequisites: Sophomore standing and 3 credits in philosophy. Not offered 1955–56. Mr. Weinberg.

131. Medieval Philosophy. II; 3 cr. A critical and historical examination of writings of Erigena, Anselm, Abelard, Grosseteste, Bacon, Aquinas, Scotus, Ockham. Prerequisite: Philosophy 31, or 102, or consent of instructor. Mr. Weinberg.

132. History of Modern Philosophy. II; 3 cr. From Descartes through Kant. Prerequisites: Sophomore standing, and 3 credits in philosophy or consent of instructor. Mr. Weinberg.

133. Philosophical Conflicts of the Nineteenth Century. I; 3 cr. A study of the conflict of idealistic, materialistic and irrationalist philosophies of the nineteenth century and their influence on its social, literary and religious movements. Prerequisites: 3 credits in philosophy and junior standing or consent of instructor. Mr. Garnett.

134. Contemporary Philosophy. I, II; 3 cr. One or more present-day philosophers or philosophical movements are selected for study each semester. Prerequisites: Sophomore standing, and 3 credits in philosophy or consent of instructor. Staff.

135. Descartes, Spinoza, and Leibniz. II; 3 cr. The outstanding seventeenth-century rationalists. Prerequisites: Sophomore standing, and 3 credits in philosophy or consent of instructor. Not offered 1954–55. Mr. Ramsperger.

136. British Philosophers. I; 3 cr. The English tradition in philosophy with emphasis on Locke, Berkeley, and Hume. Prerequisites: Sophomore standing, and 3 credits in philosophy or consent of instructor. Not offered 1954–55. Mr. Goodwin.

137. The Philosophy of Kant. II; 3 cr. Prerequisite: Philosophy 132 or consent of instructor. Not offered 1954–55. Mr. Ramsperger.

139. American Philosophy. I; 3 cr. A study of some of the most important traditions in American thought, with particular reference to the philosophies of Peirce, James, Holmes, Dewey, and Morris Cohen. Prerequisites: Sophomore standing, and 3 credits in philosophy or consent of instructor. Mr. Singer.

141. Modern Ethical Theories. II; 3 cr. Ethical theories and problems as discussed in the late nineteenth and twentieth centuries. Prerequisites: Junior standing and 3 credits in philosophy or consent of instructor. Mr. Garnett.

143. Introduction to Indian Philosophy. I or II; 3 cr. A survey of philosophical ideas in

India from the early religious philosophies to the present day. Prerequisites: Junior standing, and 3 credits in philosophy or consent of instructor. Mr. Goodwin.

145. Plato and Platonism. I or II; 3 cr. Representative Platonic dialogues will be studied, together with the historical background of Plato's philosophy, and the subsequent influence of his ideas. Prerequisites: Sophomore standing, and 3 credits in philosophy or consent of instructor. Mr. Hay.

147. Philosophy of Religion. I, II; 3 cr. Analysis of religious experience and activity and examination of principal religious ideas in light of modern psychology, philosophy and anthropology. Prerequisite: Junior standing or consent of instructor. Mr. Garnett.

149. Great Moral Philosophers. I; 3 cr. Ethical problems as viewed by outstanding moral philosophers from Aristotle to Mill. Prerequisites: Junior standing and 3 credits in philosophy or consent of instructor. Mr. Singer.

150. A Philosophy of Democracy. I; 3 cr. The social philosophy of John Dewey. Prerequisites: Junior standing and Philosophy 1a, 31, or 41. Mr. Bögholt.

151. Theories of Mind and Self. II; 3 cr. The contributions of philosophy and science to the understanding of mind and self. Prerequisites: Junior standing and 3 credits in philosophy or consent of instructor. Mr. Golightly.

153. Aesthetics. II; 3 cr. Analysis of current philosophies of art and of criticism. Prerequisites: Junior standing and 3 credits in philosophy, Philosophy 53, 54, or consent of instructor. Mr. Goodwin.

157. Critique of Dialectical Materialism. II; 3 cr. Critique of writings of Marx, Engels, and others on Marxian theory of the universe and knowledge, the nature of the state and society, historical determinism, the class struggle, and the class determination of ethical and esthetic values. Prerequisites: Sophomore standing, and 3 credits in philosophy or consent of instructor. Not offered 1954–55.

158. Types of Humanism. II; 3 cr. Representative and distinctive types of humanistic philosophy will be selected for study. Prerequisites: Sophomore standing, and 3 credits in philosophy or consent of instructor. Mr. Goodwin.

161. Ethics and Social Science. I; 3 cr. A critical survey of social science literature which deals with the applicability of scientific method to the problems of ethics. Prerequisites: Junior standing and 3 credits in philosophy or consent of instructor. Mr. Golightly.

162. Idealism and Pragmatism. II; 3 cr. Clarification of basic issues by means of a study of one or more of the major representatives of each view. Prerequisites: Sophomore standing, and 3 credits in philosophy. Not offered 1954–55.

180. Advanced Independent Reading. Prerequisite: Consent of instructor. Consult chairman of department.

200. Thesis. Yr; 2 cr. Staff.

213. Logical Seminar. I or II; 2 cr. Prerequisites: Graduate standing and consent of instructor. Staff.

231. Advanced History of Philosophy: Ancient. I or II; 3 cr. Prerequisites: Graduate standing and consent of instructor. Offered in 1954–55 and in alternate years. Staff.

232. Advanced History of Philosophy: Rationalism. I or II; 3 cr. Prerequisites: Graduate standing and consent of instructor. Offered in 1954–55 and in alternate years. Staff.

233. Advanced History of Philosophy: Empiricism. I or II; 3 cr. Prerequisites: Graduate standing and consent of instructor. Offered in 1954–55 and in alternate years. Staff.

234. Advanced History of Philosophy: Critical Philosophies (Kant and Hegel). I or II; 3 cr. Prerequisites: Graduate standing and consent of instructor. Offered in 1955–56 and in alternate years. Staff.

240. Metaphysical Seminar. I or II; 2 cr. Prerequisites: Graduate standing and consent of instructor. Staff.

247. Ethical Seminar. I or II; 2 cr. Prerequisites: Graduate standing and consent of instructor. Staff.

253. Aesthetics Seminar. I or II; 2 cr. Prerequisites: Graduate standing and consent of instructor. Staff.

280. Graduate Independent Reading. Prerequisites: Graduate standing and consent of instructor. Consult chairman of department.

PHYSICAL MEDICINE

Professor Bouman; Associate Professor Kohli; Assistant Professors Briggs, Bryce, Shaffer; Instructors Kursell, Smith, Van Slyck.

Courses in Physical Medicine are open only to students enrolled in the Course in Physical Medicine, described on page 59.

1. Orientation Course. II; 1 cr. Designed to acquaint the student with the field of physical medicine in its various phases and its occupational opportunities. The student's aptitude for this type of work is also evaluated.

2. Preclinical Subjects. I; 1 cr. This course includes observations of treatments in the clinic, observation of surgery, training in the techniques of asepsis and bandaging.

3. Medical Sciences. I, 3 cr; II, 1 cr. Instruction in the principles of surgery, orthopedics, medicine, neurology, psychiatry, X-ray, and dermatology. Prerequisites: Anatomy and physiology.

4. Massage. I; 2 cr. Instruction in and practice of massage techniques. Prerequisite: Anatomy.

5. Therapeutic Exercise. Yr; 7 cr. A study of the principles of movement of the body, disability evaluation, and the adaptation and use of movement for the treatment of the disabled. Prerequisites: Anatomy and kinesiology.

6. Electrotherapy. II; 4 cr. A review of electrophysics and instruction in the principles and technique of the therapeutic use of electricity. Prerequisite: Physics.

7. Hydrotherapy. II; 1 cr. This course consists of the physiology of, and the techniques for, the use of water in treating disease.

8. Clinical Practice. II; 5 cr. This course consists of the practice of all of the techniques used in physical therapy in the treatment of patients.

101. Pathology. I; 2 cr. Lectures on and study of gross specimens of various diseased tissues of the human body. Prerequisites: Anatomy and physiology or consent of instructor.

102. Ethics and Administration. II; 1 cr. Instruction in professional ethics, organization and administration of physical therapy departments in various types of institutions and the organization and administration of training.

103. Journal Club. I, II; 1 cr.

200. Research. I, II; 4 cr.

201. Teaching Methods in Physical Therapy. II; 2 cr.

300. Advanced Physical Therapy. I, II; 6 cr. Advanced clinical procedures will be discussed and students will give reports on special cases.

316. Physical Medicine for Medical Students. II; 1 cr. Lectures on the medical aspects of physical medicine.

PHYSICS

Professors Barschall, Beeman, Herb, Mack, Richards, Rollefson, *chairman*, Sachs, Wahlin; Associate Professors Miller, Watson, Winans; Assistant Professors Dillinger, Fry, Lind, Symon, Walker.

In order to adapt the instruction in physics to students of different aims and degrees of preparation, the following introductory courses in general physics are offered: 1, 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. degree are satisfied by 1, 31, or 51–52. Courses 1 and 31 are both year courses in general physics for Letters and Science students. Course 31 is intended for those expecting to major in the physical sciences or mathematics. Course 1 is intended for all others; fundamentals are treated with a minimum of mathematics. Courses 51–52, 53–54 are intended for engineering students. It is assumed that students taking any of the courses have had the minimum mathematical preparation for admission to the University, i.e., 1 unit each of high-school algebra and plane geometry. See Admission Requirements.

After completion of one of the introductory courses, 1a and 1b, or 31, or 51–52, or 53–54, the student who is interested in further study in this subject will normally take next one of the intermediate courses 102, 103, 104 or 106. Completion of one of the introductory courses is a prerequisite for all courses numbered above 100; calculus is prerequisite for all courses numbered above 100, with the exception of 119.

Major in Physics. Students planning to major in physics are advised to take a year of chemistry in the freshman year, and calculus not later than their sophomore year. The only introductory course that essays to lay the physics foundation for a career in natural science is Physics 31, and it is important that a beginning student elect Physics 31 as his first physics course if he is considering a major in physics; for those students who have not made their choice of career early enough, another introductory course will be accepted as a substitute. To be accepted as a major in physics, a student must have a grade-point average of 2.5 or better in the university mathematics and physics courses taken in his first two years, and must present to his adviser a permit signed by the chairman of the department. A minimum of 32 credits is required, which shall include the following courses: One of the one-year elementary courses (31 is recommended), 102, 103, 104a, 106a and 106b. The remaining credits will be selected from physics courses numbered 100 and above, but not including Physics 119. Astronomy 102 (Astrophysics) may also be used for credit towards the physics major. A major in physics may include a thesis, which is usually an account of a piece of experimental work done largely on the student's own initiative.

Students choosing physics as a major or minor are advised to obtain the department's recommendations on sequence of courses from the physics office. For education majors and minors see School of Education. For courses recommended in the physics option in engineering see College of Engineering.

1a. General Physics. I, II; 5 cr. Mechanics, heat, and sound. Prerequisite: Sophomore standing is advisable. (See also Physics 31.) 2 lect.; 3 hrs. lab.; 2 quiz. (Repeated second semester.) Mr. Dillinger.

1b. General Physics. II, I; 5 cr. Electricity, light, and modern physics. Prerequisite: Physics 1a. Sophomore standing is advisable. 2 lect.; 3 hrs. lab.; 2 quiz. (Repeated first semester.) Mr. Dillinger.

Note: For second courses see 102, 103, 104a, 106a and 106b.

10. Laboratory Arts. I, II; 1 cr. Shop work and glass blowing. Prerequisites: Senior standing and consent of instructor.

31. General Physics. Yr; 5 cr. Prerequisite: Calculus or concurrent registration. Recommended for students who expect to major in physics, chemistry or mathematics. 2 lect.; 3 hrs. lab.; 2 quiz. Mr. Rollefson.

51. General Physics. I; 5 cr. Mechanics, wave motion, sound, and heat. Required of sophomores in civil, chemical, mechanical, and mining engineering. 2 lect.; 4 hrs. lab.; 2 quiz. Prerequisite: Calculus or concurrent registration. Mr. Wahlin.

52. General Physics. II; 5 cr. Magnetism, electricity, light, and atomic structure. 2 lect.; 3 hrs. lab.; 2 quiz. Prerequisite: Physcis 51. Mr. Wahlin.

53. Mechanics and Heat. I; 5 cr. Required of sophomores in electrical engineering. Prerequisite: Calculus or concurrent registration. 2 lect.; 4 hrs. lab.; 2 quiz. Mr. Wahlin.

54. Wave Motion, Sound, Light, and Modern Physics. II; 5 cr. Continuation of Physics 52. 2 lect.; 3 hrs. lab.; 2 quiz. Staff.

61. General Physics. II; 5 cr. For agricultural, home economics, and physical education students. 2 lect.; 4 hrs. lab.; 2 quiz. Mr. Miller.

65. General Physics. Yr; 3 cr. Primarily for students in physical education, pharmacy, medical technology and home economics. 2 lect.; 2 hrs. lab.; 1 quiz. Mr. Winans.

75. General Physics for Students in the Biological Sciences. I; 5 cr. (Given when demand warrants.) This course is intended for graduate students in the Division of Biological Sciences who enter with deficiencies in Physics. Prerequisite: Graduate standing or consent of instructor. 3 lect.; 3 hrs. lab.; 1 quiz. Mr. Beeman.

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

102. Heat and Thermodynamics. II; 4 cr. Properties of real and ideal gases, thermal properties of solids and liquids. Elementary kinetic theory and thermodynamics. Laboratory practice in modern methods of temperature measurement, calorimetry and the thermal properties of matter. 3 lect.; 3 hrs. lab. Mr. Dillinger.

103. Optics. I; 4 cr. Elements of geometric optics, Huyghen's principle, image formation, interference, diffraction, polarization, optical instruments, resolving power. Corresponding laboratory work. 2 lect.; 3 hrs. lab.; 1 quiz. Mr. Fry.

104a. Electricity and Magnetism. I; 4 cr. Electro- and magneto-statics, electromagnetism, accurate electrical measurements, instruments and related theory. Direct current circuits, qualitative discussion of dielectrics, semiconductors, and magnetic properties of solid bodies. 2 lect.-conf.; 3 hrs. lab. Mr. Lind.

104b. Electricity and Magnetism. II; 4 cr. Alternating currents, low and high frequency. Electromagnetic machinery, thermionic emission, elementary electronics. Certain phases of modern experimental physics are discussed and dealt with in the laboratory. 2 lect.-conf.; 3 hrs. lab. Prerequisite: Physics 104a. Mr. Lind.

105. Mechanics. II; 3 cr. Vector algebra. Statics, kinematics, conservative forces, planetary motion, pendulum, angular momentum, elementary treatment of rigid bodies, impulsive forces. Prerequisite: Differential equations or advanced calculus. Mr. Symon.

106a. Atomic Physics I. I; 3 cr. Atomistic structure of matter; experimental evidence. Critical potentials, quantum hypothesis, nuclear atom, correspondence principle, Bohr model, hydrogen atom. Mr. Herb.

106b. Atomic Physics II. II; 3 cr. Matter waves, uncertainty principle, atomic structure, spin, vector model, periodic table, valency, x-rays, molecular spectra, solids, radio-

activity, nuclear forces, radiations, transformations, detectors and accelerators. Prerequisite: Physics 106a. Mr. Herb.

107. Atomic Physics for Engineers. II; 3 cr. Atomistic structure of matter from the elementary particles up through the solid state. Emphasis is upon fundamental concepts which will aid the student with present and future engineering applications of atomic, nuclear, and solid state physics. Prerequisites: General physics, calculus. Mr. Richards.

110. Research Techniques I; 2 cr. Laboratory experience with the more important research techniques and apparatus. High vacuum, evaporation of thin films, Geiger counters, ionization chambers, photoelectricity. 4 hrs. lab. Prerequisite: Senior standing or consent of instructor. Mr. Miller.

112. Atomic Spectra and 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, hyperfine structure, isotope shift. Prerequisite: Physics 106b or consent of instructor. Mr. Mack.

115. Thermodynamics. I; 2 cr. First and second laws, thermodynamic temperature scale, Joule-Kelvin effect, thermodynamic potentials, thermodynamic equilibrium, dilute solutions, phase rule, Nernst's heat theorem, radiation. Applications. Prerequisite: Differential equations or advanced calculus or concurrent registration. Staff.

116. Advanced Circuit Analysis. II; 3 cr. Theory of electric circuits, alternating currents, networks, transmission lines, guided systems, analysis of vacuum tube circuits, gas tubes, instrumentation. Prerequisites: Physics 104a or equivalent and differential equations. Mr. Wahlin.

118. Kinetic Theory. I; 2 cr. Maxwell-Boltzmann, Bose-Einstein, and Fermi-Dirac distributions and elementary applications. Brownian motion, diffusion, heat conduction, viscosity, practical applications in physics, physical chemistry and engineering. Prerequisite: Physics 106b or equivalent. Mr. Dillinger, Mr. Winans.

119. Radiation, Ultraviolet to Infrared. II; 1 cr. Primarily for premedical students. Non-mathematical lectures on radiation, including radium (gamma) rays, x-rays, ultraviolet, visible, and infrared and longer waves, their properties, physiological effects (Vitamin D) and biological applications. Prerequisite: Physics 1b or equivalent or concurrent registration. Staff.

126. Special Topics in Experimental Physics. I; 3 cr. Critical analysis, mainly by students, of experiments of fundamental importance in physics, e.g., the detemination of fundamental constants. Mr. Wahlin.

134. Molecular Spectra and Molecular Structure. II; 3 cr. Empirical observations, infrared and Raman spectra, electronic transitions, intensities, coupling cases, isotope effect, valence, continuous and diffuse spectra, dissociation energies. Prerequisites: Physics 106b and calculus, or consent of instructor. Mr. Winans.

137. Introduction to Quantum Mechanics. I; 3 cr. Schroedinger equation, interpretation and methods of solution; hydrogen atom; spin functions; Pauli principle; perturbation theory; Zeeman effect, scattering theory. Prerequisites: Physics 106b and differential equations or consent of instructor. Mr. Sachs.

150. Solid State Physics. I; 3 cr. Mechanical, thermal, electric and magnetic properties of solids; elements of band theory; imperfections and their effects, semiconductors, phosphors, plastic properties of metals, etc. Prerequisites: Physics 106b or 107 and differential equations. Mr. Beeman, Mr. Rollefson.

175. Electronic Aids to Measurement. II; 4 cr. (Condensed treatment for advanced students in a variety of fields.) Fundamentals; elements (tubes, transistors); basic circuits (power supplies, amplifiers, oscillators, filters, pulse networks, discriminators); sensors;

servos; analog computers; data recording; combination into measuring instruments. 3 lect.; 3 hrs. lab. (Same course listed as ELECTRICAL ENGINEERING 175, METEOROLOGY 175.) Prerequisite: Consent of instructor. Calculus, intermediate electricity advisable. Mr. Lind.

180. ADVANCED INDEPENDENT READING. I, II; *cr. Staff.

190. JUNIOR SEMINAR. II; 2 cr. Reports by students on papers or subjects of current or historical importance. Designed to give graduate students practice in the proper presentation of scientific papers. Prerequisite: Graduate standing or consent of instructor. Staff.

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

201. COLLOQUIUM. ½ yr; 1 cr. Discussions of current research. Staff.

210a. THEORETICAL PHYSICS I: DYNAMICS. I; 3 cr. Lagrange equations, principle of least action, simple treatment of normal co-ordinates, rigid bodies, mathematical methods of physics, vector analysis, potential theory, waves. Prerequisites: Consent of instructor or Physics 105 or equivalent, and differential equations. Mr. Watson.

210b. THEORETICAL PHYSICS II: ELECTRODYNAMICS. II; 3 cr. Fundamental experiments and simple treatment of Maxwell's equations. Plane electromagnetic waves, radiation, Lorentz's theory of electrons, dispersion, group and phase velocity. Average fields in matter. Prerequisites: Consent of instructor or Physics 210a and 104a or equivalent.

211. ADVANCED DYNAMICS. II; 3 cr. Variational principles, contact transformations, Hamilton-Jacobi equation, action variables, perturbation theory, rigid bodies, normal coordinates, special relativity, basic principles of mechanics of continua. Prerequisite: Physics 210a. Mr. Watson.

212. QUANTUM MECHANICS. Yr; 3 cr. Correspondence and uncertainty principles, Schroedinger equation and applications, spectroscopic results, perturbation theory, mathematical and general foundations. Pauli principle. Applications to radiation theory and selection rules. Approximation methods and applications. Prerequisites: Physics 106b and 210b or equivalent or consent of instructor. Mr. Sachs.

213. ADVANCED ATOMIC AND MOLECULAR STRUCTURE. II; 3 cr. Advanced topics in atomic and molecular spectra. Complex spectra, hyperfine structure, applications to nuclear physics. Diatomic and polyatomic molecules. Raman effect, fluorescence, solid bodies. Prerequisites: Physics 106b and consent of instructor. Physics 113 and first semester of Physics 212 recommended. Mr. Mack, Mr. Winans.

215. ADVANCED ELECTRODYNAMICS. I; 3 cr. Advanced mathematical treatment of electrodynamics. Maxwell's equations, special boundary value problems, multipole expansions, retarded potentials, Hertz vectors, Lorentz electron theory, diffraction, electromagnetic mass problem, relativistic electrodynamics, canonical formulation of electrodynamics, theory of waves guides and antennas. Prerequisite: Physics 210b. Mr. Powell.

220. RECENT PAPERS SEMINAR. Yr; 1 cr. Reports on current literature by students and staff. To be attended by advanced research students only. Prerequisite: Consent of instructor. Staff.

221. SEMINAR IN THEORETICAL PHYSICS. Yr; 0–1 cr. Discussion of current literature in theoretical physics. Mr. Sachs.

225. X-RAYS AND SOLID STATE. II; 3 cr. Production, absorption, scattering of x-rays, crystal structure, theory of metals, surface properties, elements of band theory. Prerequisite: Physics 106b. Concurrent registration in Physics 212a is recommended. Mr. Beeman.

229a. EXPERIMENTAL NUCLEAR PHYSICS. I; 3 cr. Basic properties of nuclei, nuclear forces, binding energy, radioactivity, nuclear reactions, basic principles of detectors, interaction of alpha, beta, and gamma rays with matter. Cosmic rays. Prerequisite: Physics 106b. Mr. Barschall, Mr. Richards, Mr. Herb.

229b. THEORETICAL NUCLEAR PHYSICS. II; 3 cr. Theory of the deuteron and other light nuclei; nuclear forces, scattering resonances, magnetic moments, nuclear reactions, isomerism, beta-decay, neutron diffusion, meson theories. Prerequisites: Consent of instructor or Physics 229a and first semester of Physics 212. Mr. Sachs.

232. SPECIAL TOPICS IN THEORETICAL PHYSICS. I, II; 2–3 cr. Discussion of recent work in theoretical physics or of advanced specialized topics. To be given when demand warrants.

241. STATISTICAL MECHANICS. I; 3 cr. Boltzmann statistics. H theorem and entropy, principle of detailed balance, Gibbs statistics, quantum statistics. Application to specific heats, perfect and imperfect gases, very low temperature and transport phenomena. Prerequisites: Consent of instructor or Physics 210a and 118 or equivalent. Mr. Sachs.

270. RELATIVITY, SPECIAL AND GENERAL. I; 2–3 cr. Experimental basis, tensors, dynamical laws, stress energy tensor, electromagnetic mass. Einstein's theory of general relativity and its main cosmological consequences. Mr. Sachs.

273. LOW-TEMPERATURE PHYSICS. II; 3 cr. Methods and techniques. Properties of matter at low temperatures including paramagnetic phenomena, liquid helium, superconductivity. Virial equation of state, Fermi-Dirac and Bose-Einstein gases. Prerequisites: Physics 212a and 241 or consent of instructor. Mr. Dillinger.

PHYSIOLOGY

PROFESSORS YOUMANS, *chairman*, HERRIN; ASSOCIATE PROFESSORS MORRISON, MURPHY, STONE; ASSISTANT PROFESSORS DAWE, LARSEN.

1. ELEMENTS OF HUMAN PHYSIOLOGY. I; 4 cr. Lectures and laboratory work directed toward understanding of the functions of the human body. Prerequisites: Sophomore standing and a course in elementary science. Not open to students who have had a biology or zoology course in college which is concerned primarily with structure and function of vertebrates. May be counted toward the science requirement of the B.A. or the B.S. degree. Dr. Dawe.

35. PHYSIOLOGY. I; 5 cr. Lectures, recitations, demonstrations and laboratory. Prerequisites: Anatomy 37 or Zoology 104; Physiological Chemistry 14. Dr. Larsen.

36. PHYSIOLOGY OF ACTIVITY. II; 3 cr. Prerequisite: Physiology 35. Dr. Larsen.

103. PHYSIOLOGY. II; 5 cr. Lectures and laboratory work directed toward an understanding of animal physiology. Prerequisites: Sophomore standing and general chemistry. Dr. Herrin.

105. MEDICAL PHYSIOLOGY. II; 9 cr. (See Medical School or Graduate School bulletin.)

127. COMPARATIVE PHYSIOLOGY. I; 4 cr. (2 cr. without laboratory.) (Same as ZOOLOGY 127.) Physiological mechanisms and specializations of vertebrates and invertebrates as related to their ecology and phylogeny. Prerequisites: A year each of zoology and chemistry or consent of instructor. Mr. Morrison.

144. GENERAL PHYSIOLOGY. II; 3 cr. (Same as ZOOLOGY 144.) An examination of basic physiological processes largely at the cellular level and employing the tools and methods of physical science. Prerequisites: A year of physics and a course in physiology, biochemistry or physical chemistry, or consent of instructor. Mr. Morrison.

POLITICAL SCIENCE

PROFESSORS CLARENBACH, EPSTEIN, FELLMAN, FISHER, MCCAMY, PFANKUCHEN, STOKES, YOUNG, *chairman;* ASSOCIATE PROFESSORS DONOGHUE, HUITT, SALTER; ASSISTANT PROFESSORS ARMSTRONG, HART, PENNIMAN, THOMSON.

Political science is the study of government. As a field it is divided into political theory, American government and public law, public administration, comparative government, and international law, organization, and relations.

The study of government is as old as history and as new as this morning's newspaper. Courses listed below are designed to contribute to a liberal education, to a better understanding of public affairs, to a knowledge of the practices of governmental agencies, political parties, pressure groups, and the electorate, to an understanding of the development of the Constitution and the rights of citizens, to a grasp of the law and practice in relations among nations, to a knowledge of the political institutions of other nations and other regions of the world, and to a study of the ideas about government in the intellectual heritage of man.

MAJORS IN POLITICAL SCIENCE. The requirements in political science when offered as a field of concentration are: (1) 30 credits, including thesis if one is written; (2) course 7a; (3) other courses so elected that the total political science offering will include at least one course in Group I below, Political Theory, and one course in each of three other Groups below. Political Science 7a may not be counted in this distribution among fields.

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 permitted by their adviser to write a thesis (3–6 credits).

AMERICAN INSTITUTIONS AND INTERNATIONAL RELATIONS as major fields. Students interested in these major fields are referred to pages 61 and 70.

GROUP I. POLITICAL THEORY

101. INTRODUCTION TO POLITICAL THEORY. I, II; 3 cr. The study of fundamental political ideas in the light of the modern state and contemporary issues. Prerequisite: Junior standing or consent of instructor. Staff.

110. GOVERNMENT AND THE PROBLEMS OF DEMOCRACY. Sem; 3 cr. Development of American theories of democracy, with an examination of the role of government in society. Prerequisite: Sophomore standing. Staff.

165. HISTORY OF AMERICAN POLITICAL THOUGHT. Sem; 3 cr. Prerequisite: Junior standing. Staff.

166. CONTEMPORARY AMERICAN POLITICAL THOUGHT. Sem; 3 cr. Prerequisite: Political Science 101 or 165, or work in American history or literature. Staff.

245a–b. HISTORY OF POLITICAL THOUGHT. Yr; 3 cr. A study of the political thought developed out of the Greek city state, the Roman Empire, the medieval state, and the modern state. Prerequisite: Graduate standing or consent of instructor. Staff.

GROUP II. AMERICAN GOVERNMENT AND PUBLIC LAW

7a. AMERICAN GOVERNMENT AND POLITICS: THE NATIONAL GOVERNMENT. I, II; 3 cr. The constitutional basis, democratic processes, and the structure of the national government, and the functions of foreign affairs and national defense. Open only to freshmen and sophomores. Not open to students who have had Political Science 7. Staff.

7b. AMERICAN GOVERNMENT AND POLITICS: STATE AND LOCAL GOVERNMENT AND INTER-

GOVERNMENTAL RELATIONS. I, II; 3 cr. The federal system, the constitutional basis and structure of state and local governments, and the domestic functions of all levels of government. Prerequisite: Political Science 7 or 7a, or consent of instructor. Open only to freshmen and sophomores. Not open to students who have had Political Science 139. Staff.

13. MUNICIPAL GOVERNMENT. Sem; 3 cr. The organization and politics of city government. Prerequisites: Sophomore standing and Political Science 7 or 7a. Mr. Donoghue, Mr. Hart, Mr. Young.

107a. AMERICAN GOVERNMENT AND POLITICS: THE NATIONAL GOVERNMENT. I, II; 3 cr. The constitutional basis, democratic processes, and the structure of the national government, and the functions of foreign affairs and national defense. Prerequisite: Junior standing. Not open to students who have had Political Science 7 or 7a. Staff.

107b. AMERICAN GOVERNMENT AND POLITICS: STATE AND LOCAL GOVERNMENT AND INTERGOVERNMENTAL RELATIONS. I, II; 3 cr. The federal system, the constitutional basis and structure of state and local governments, and the domestic functions of all levels of government. Prerequisites: Junior standing and Political Science 7, 7a, 107a, or consent of instructor. Not open to students who have had Political Science 7b, 134, or 139. Staff.

112a–b. CONSTITUTIONAL LAW. Yr; 3 cr. The American Constitution in practice as seen in the jurisprudence of the Supreme Court. Prerequisite: Junior standing. Mr. Fellman

115. LAW IN SOCIETY. I; 3 cr. The nature, sources, and development of law; the structure and functions of courts and other agencies; the interests served by law and the conflicts which mark the growth and administration of law; and the relation of law to other social sciences and other agencies of social control. Prerequisite: Junior standing. Mr. Auerbach.

120. ADMINISTRATIVE LAW. Sem; 3 cr. The delegation of powers; elements of fair administrative procedure; judicial control over administrative determinations. Prerequisite: Junior standing or consent of instructor. Mr. Fellman.

122. POLITICAL PARTIES AND CITIZENSHIP. I, II; 3 cr. A description and critical examination of the party process in the United States. Prerequisites: Sophomore standing and Political Science 7, 7a, or 107a. Mr. Salter.

126. LEGISLATION. Sem; 3 cr. Principles, procedures, and problems of the legislative process. Prerequisite: Junior standing. Mr. Huitt.

134. RURAL LOCAL GOVERNMENT. Sem; 3 cr. The structure and functions of rural local government in the United States. Prerequisite: Junior standing or consent of instructor. Mr. Clarenbach.

139. STATE GOVERNMENT. Sem; 3 cr. Organization and functioning of the state governments with emphasis on Wisconsin. Prerequisites: Junior standing and Political Science 7, 7a, or 107a. Mr. Young.

146. GOVERNMENT AND BUSINESS. (See ECONOMICS 146.)

148. PROSEMINAR: POLITICAL PARTIES AND PUBLIC OPINION. I, II; 2 cr. Traits and techniques of representative party leaders; their relation to public opinion and the voter. Prerequisite: Senior standing or consent of instructor. Mr. Salter.

152. GOVERNMENT AND NATURAL RESOURCES. Sem; 3 cr. A consideration of problems in public policy and administration with respect to the utilization and wastage of natural resources. Prerequisite: Junior standing or consent of instructor. Mr. Clarenbach.

171. CIVIL LIBERTIES IN THE UNITED STATES. Sem; 3 cr. The philosophy of civil liberties; the American constitutional context; rights of conscience and expression; rights of defendants accused of crime; equal protection of the laws; political rights; vindication of rights; proposals for reform. Prerequisite: Junior standing or consent of instructor. Mr. Fellman.

172. Politics of Pressure Groups. Sem; 3 cr. Analysis of the internal politics of labor unions, business and professional associations, and farm groups; and of the techniques employed in advancing their policies in government. Prerequisite: Junior standing. Mr. Huitt.

173. Public Opinion. Sem; 3 cr. An analysis of the formation of opinions within and among the political publics, and of their role in the development and practice of governmental policy. Prerequisite: Junior standing. Mr. Huitt.

174. Advanced American Government. Sem; 3 cr. An analysis at an advanced level of the structure and operation of the Federal Government of the United States. Prerequisites: Junior standing and Political Science 7, 7a, or 107a. Mr. Huitt.

175. Proseminar: Politics of Pressure Groups. Sem; 3 cr. Case studies in interest groups; internal politics, public policy programs, and relations with the organized state. Prerequisite: Political Science 172 or graduate standing. Mr. Huitt.

192. Problems in Empirical Social Behavior Research. I, II; 2–3 cr. Supervised individual or joint work on problems in research, including carrying out of projects and/or independent reading on methodology. Prerequisite: Consent of instructor. Mr. Fisher.

194. Introduction to Public Opinion Research. I; 3 cr. Theory and practice of *survey* techniques. Planning, design, sampling, types of data, questionnaire construction, interviewing, field operations, content analysis and coding, machine tabulation, analysis of data, utilization of findings. Examples in a variety of fields. Two hours lecture; two hours laboratory or field work. Prerequisite: Junior standing. Mr. Fisher.

213. Seminar in Local Government. Sem; 3 cr. Prerequisite: Graduate standing. Mr. Clarenbach.

226. Seminar in the Legislative Process. Sem; 3 cr. Prerequisite: Graduate standing or consent of instructor. Mr. Huitt.

261. Seminar in Public Law. Sem; 3 cr. Prerequisite: Graduate standing or consent of instructor. Mr. Fellman.

274. Seminar in Politics and Public Policy. Sem; 3 cr. Research in the formulation and execution of public policy in a democratic society. Prerequisite: Graduate standing. Mr. Huitt, Mr. Stokes.

294. Seminar in the Design and Process of Survey Research. II; 3 cr. Presentation of initial study designs or of research in progress by members of the seminar, for critiques leading both to further development of the project itself and to illustration of research problems in the social sciences. Prerequisite: Consent of instructor. Mr. Fisher.

GROUP III. PUBLIC ADMINISTRATION

7b. American Government and Politics: State and Local Government and Intergovernmental Relations. (See Group II.)

13. Municipal Government. (See Group II.)

107b. American Government and Politics: State and Local Government and Intergovernmental Relations. (See Group II.)

120. Administrative Law. (See Group II.)

123. Conduct of American Foreign Affairs. I, II; 3 cr. Descriptive analysis of the way in which American foreign policy is formulated and carried out by Federal agencies. Prerequisite: Junior standing. Mr. McCamy.

124. Public Finance. (See Economics 124.)

134. Rural Local Government. (See Group II.)

135. Municipal Administration. Sem; 3 cr. The functions and structure of municipal administration. Prerequisites: Junior standing and Political Science 7, 7a, 13, 107a, 143, or consent of instructor. Mr. Hart, Mr. Young.

142. Public Utilities. (See Economics 142.)

143. Introduction to Public Administration. I, II; 3 cr. The role of administration in modern government; problems of organization, control, personnel, and finance. Prerequisites: Junior standing and Political Science 7, 7a, 107a, or consent of instructor. Mr. Hart, Mr. McCamy, Mr. Young.

152. Government and Natural Resources. (See Group II.)

163. Local Planning Administration. Sem; 3 cr. Principles and procedure in the administration of local planning for the development and use of land and other basic resources and for the provision of public services closely related to land development and use. Prerequisite: Junior standing. Mr. Clarenbach.

170. The Civil Service. Sem; 3 cr. Analysis of problems of public personnel. Prerequisites: Junior standing and Political Science 7, 7a, or 107a. Political Science 143 is recommended. Mr. Hart.

258. Seminar in Public Administration. Sem; 3 cr. Prerequisite: Graduate standing or consent of instructor. Mr. Hart, Mr. McCamy, Mr. Young.

270a–b. Seminar in Public Planning. Yr; 2–3 cr. Processes in decision-making with respect to physical design and administration in regional, state, and local planning. Participation by members of the interdepartmental Committee on the Regional Planning Course. Prerequisites: Graduate standing and consent of seminar leader. Mr. Clarenbach, Mr. Ratcliff.

285. Seminar in River Basin Planning. II; 2–3 cr. The natural potentialities of river basins; methods of control available with modern engineering; methods of evaluating economic feasibility of projects; means of distributing and paying for benefits, including navigation, flood control, irrigation, water supply, and power; constitutional, legislative and administrative considerations. Economic, governmental, and engineering experience of such basins as the Tennessee, Columbia, St. Lawrence, and Wisconsin rivers. Prerequisite: Graduate standing or consent of instructor. Mr. Clarenbach or Mr. Hart, Political Science; Mr. Glaeser, Economics; Mr. Lenz, Civil Engineering.

GROUP IV. COMPARATIVE GOVERNMENT

27. Introduction to Foreign Politics. Sem; 3 cr. Study of the political institutions of major foreign nations, stressing the comparison of basic principles and techniques with those of the United States. Prerequisite: Political Science 7a. Mr. Epstein.

127. British Politics. I; 3 cr. Analysis of the political process in Great Britain in the context of the contemporary national setting, with emphasis on the party system as well as the constitutional order. Prerequisie: Junior standing or consent of instructor. Mr. Epstein.

128. Continental European Politics. II; 3 cr. Analysis of the politics and governmental structures of selected continental nations in terms of their respective backgrounds and conflicting ideologies. Prerequisite: Junior standing or consent of instructor. Mr. Epstein.

130. Latin-American Politics. I; 3 cr. Analysis of contemporary governments in Latin America, with particular emphasis on the social way of life, the politics of economic organization, and government in action. Prerequisite: Junior standing or consent of instructor. Mr. Stokes.

132. Central-Eastern European Politics. Sem; 3 cr. The fundamentals, changing pattern, and practice of the various communist governments in that area. Prerequisite: Junior standing or consent of instructor. Mr. Armstrong.

133. Government and Politics of the Soviet Union. Sem; 3 cr. Theory and practice of the Soviet State. Emphasis on the politico-economic and institutional developments since 1936. Prerequisite: Junior standing or consent of instructor. Mr. Armstrong.

140. Far Eastern Politics. I, II; 3 cr. Interests and policies of the United States are given special emphasis. Prerequisite: Junior standing or consent of instructor. Mr. Thomson.

187a. Government of Scandinavia. I; 3 cr. An analysis of constitutional organization, political parties, administrative procedures, and issues of public policy. Prerequisites: Junior standing and Political Science 7, 7a, 107a, or consent of instructor. Staff.

250. Seminar in European Government. Sem; 3 cr. Problems of government and politics in Western Europe, with particular references to Great Britain. Prerequisite: Graduate standing. Mr. Epstein.

262. Seminar in Latin-American Government, Politics, and International Relations. Sem; 3 cr. Prerequisite: Graduate standing. Mr. Stokes.

290. Interdepartmental Seminar in Latin-American Problems. Sem; 3 cr. Prerequisites: Graduate standing and 5 credits in courses in the Latin-American field in the co-operating departments or consent of the committee in charge. Mr. Stokes and members of other co-operating departments.

GROUP V. INTERNATIONAL LAW, ORGANIZATION, AND RELATIONS

21. International Relations (Identical with Geography 21.) II; 3 cr. The geographic, economic, and political foundations of national power in the more important states and problem areas; efforts to deal with problems of conflicting national policies through international economic and political institutions. Prerequisites: Open only to freshmen with a previous course in political science or cultural geography, and to sophomores. (May not be taken for credit by students who have had I.L.S. 24 or Political Science 25.) Mr. Hartshorne, Mr. Pfankuchen.

118a. Principles of International Law: Law of Peace. I; 3 cr. The rules governing international relations in peacetime, as illustrated in texts and cases. Prerequisites: Junior standing and one course in political science or modern history. Mr. Pfankuchen.

118b. Principles of International Law: Law of War and Neutrality. II; 3 cr. The rules governing international relations in wartime, as illustrated in texts and cases. Prerequisites: Junior standing and one course in political science or modern history. Mr. Pfankuchen.

119. Principles of International Law: Problems. Sem; 3 cr. Research on hypothetical cases or significant current problems. Prerequisite: Political Science 118a or 118b, or consent of instructor. Mr. Pfankuchen.

121. Foundations and Problems of International Relations. (Identical with Geography 121.) I; 3 cr. The geographic, economic, and political foundations of national power in the more important states and problem areas; efforts to deal with problems of conflicting national policies through international economic and political institutions. Prerequisite: Junior standing. (May not be taken for credit by students who have had I.L.S. 24, or Political Science 21 or 25.) Mr. Hartshorne, Mr. Pfankuchen.

123. Conduct of American Foreign Affairs. (See Group III.)

131. Latin-American International Relations. II; 3 cr. United States–Latin-American relations with particular reference to social, economic, and political problems in the

western hemisphere, the Organization of American States, and the United Nations. Prerequisite: Junior standing. Mr. Stokes.

136. Soviet Foreign Policy. Sem; 3 cr. Principles, formulation, and administration; case studies of policies; emphasis on recent developments. Prerequisite: Junior standing or consent of instructor. Mr. Armstrong.

137. International Organization: World Co-operation and United Nations. I, II; 3 cr. Evaluation of the methods of international co-operation, with special attention to the United Nations and the Specialized Agencies. Prerequisites: Junior standing and one course in political science or modern history. Mr. Armstrong, Mr. Thomson.

138. Proseminar: Contemporary Problems in International Relations. Sem; 3 cr. A proseminar in selected aspects of international institutions and politics. Prerequisites: Senior standing and consent of instructor. Mr. Pfankuchen.

140. Far Eastern Politics. (See Group IV.)

155. Proseminar: The United States and the Far East. Sem; 3 cr. Prerequisites: Junior standing and either a course in Far Eastern history or Political Science 140 or consent of instructor. Mr. Thomson.

156. Proseminar: Prospects and Problems of World Government. Sem; 3 cr. Comparative analysis of the more important plans for World Government, including the constitutional organization and the difficulties of establishing World Government. Prerequisites: Junior standing and Political Science 21, 121, or consent of instructor. Mr. Thomson.

159. Current Problems of American Foreign Policy. Sem; 3 cr. Analysis of problems confronting the United States in principal regions of the world, emphasizing the content and instrumentalities of recent policy, and considering alternative solutions. Prerequisite: Junior standing or consent of instructor. Mr. Armstrong.

187b. International Relations of Scandinavia. II; 3 cr. General survey of international relations and participation in international organizations, with attention to the problems of federalism, and particular emphasis on the relations of Scandinavia to other European countries and to Russia. Prerequisites: Junior standing and Political Science 7, 7a, or consent of instructor. Mr. Riste.

251. Seminar in American Foreign Policy. Sem; 3 cr. Prerequisite: Graduate standing. Staff.

255. Seminar in the Politics of the Pacific. Sem; 3 cr. Prerequisite: Graduate standing. Mr. Thomson.

259. Seminar in International Law and Organization. Sem; 3 cr. Prerequisite: Graduate standing. Mr. Pfankuchen.

260a–b. Seminar in International Relations. Yr; 2 cr. Prerequisite: Graduate standing. Mr. Pfankuchen.

MISCELLANEOUS

275. Scope and Methods of Political Science. Sem; 3 cr. Prerequisite: Graduate standing. Staff.

PSYCHOLOGY

Professors Bridgman, Brogden, Grant, Harlow, *chairman*, Mote, Smith; Associate Professors Gilchrist, Thurlow; Assistant Professors Archer, Leibowitz, Martin, Page, Wyckoff; Instructor Lundy; Lecturers Billingslea, Calden, Friedman, Miles, Ruedisili.

Major. To be accepted as a major in the Department of Psychology, the student must have completed Psychology 1 and attained junior standing.

The undergraduate major consists of 26 credits in psychology including: Psychology 1, 25, 30, 105, either 160 or 161 and two of the following, one of which must be from among those in bold face: 100, **116**, 117, 129, 141, 152, 154, **170**, **171**, **172**, **173**, 174, **176**, **178**, **179**, 185, 187, 188, 189, 190. For majors, Psychology 25 and 30 are prerequisites to the bold face courses.

Students who wish to prepare for graduate work in psychology are urged to complete, as undergraduates: a year each of Calculus, German and French or Russian or Spanish, and either 20 credits of Chemistry, Physics, Physiology, Zoology or a combination of these, or 20 credits of Anthropology, Economics, Political Science, Sociology or a combination of these.

1. Introduction to Psychology. I, II; 4 cr. Development of human behavior; motivation, frustration, emotion, and biological functions; intelligent behavior; learning, retention and forgetting; social behavior, language and thinking; personality; efficiency. Prerequisite: Sophomore standing. Mr. Archer, Mr. Harlow, Mr. Leibowitz, Mr. Mote, Mr. Smith.

3. Psychology for Engineers. I, II; 3 cr. Psychological facts and methods in engineering work; response mechanisms in the human individual; motor co-ordination; emotional adjustment, learning and training, human capacities and traits; attitudes; psychological principles in equipment design. Mr. Smith.

25. Experimental Psychology. I, II; 4 cr. Lectures, demonstrations and experiments. Motor, sensory and nervous-system functions; reflex action and equilibrium; emotion; learning; speech functions. Emphasis is on research techniques and methodology. Prerequisites: Psychology 1 and sophomore standing. Mr. Archer, Mr. Brogden, Mr. Grant, Mr. Leibowitz, Mr. Mote, Mr. Thurlow, Mr. Wyckoff.

30. Psychometric Methods. I, II; 3 cr. Calculation and interpretation of measures of central tendency, variability, and relationship in psychological research; graphic representation; reliability of statistics from large and small samples. Prerequisite: Psychology 1. Mr. Grant, Mr. Thurlow, Mr. Wyckoff, Mr. Archer.

50. Applied Psychology. II; 3 cr. Vocational guidance and choice; selection of workers; business psychology; personnel; advertising; applications of psychology to professions and national agencies. Prerequisite: Psychology 1. Mr. Smith.

105. Psychology of Human Adjustment. I, II; 3–4 cr. Personality adjustment and maladjustment in normal persons, need, frustration and conflict; adjustive techniques; analysis and rehabilitation. Prerequisite: Psychology 1. Mr. Lundy, Mr. Martin, Mr. Page.

107. Psychology of Perception. I; 3 cr. Lectures and demonstrations. Theories of perceptual organization in the various sense modalities; perception of form, space and movement; the influence of social factors upon perception. Prerequisite: Psychology 1. Mr. Gilchrist.

108. Psychology of Human Emotions. I; 3 cr. Influence of emotions on goals, customs, interests, learning, reasoning, and behavior problems in children and adults. Prerequisite: Psychology 1. Mr. Harlow, Mr. Mote.

109. Psychology of Motivation. II; 3 cr. The origin, differentiation, and transformation of motives, and their influence upon initiation, direction and maintenance of the behavior organisms. Prerequisites: Psychology 1 and junior standing. Mr. Gilchrist, Mr. Thurlow.

114. Industrial Psychology. II; 3 cr. Psychological techniques applied to job analysis, fatigue, motion, selection and placement of workers, training, and safety in industry. Prerequisite: Psychology 1. Mr. Smith.

115. Industrial Psychology. I; 3 cr. The psychology of industrial and human relations

with special emphasis on the problems of adjustment, motivation, supervision, attitudes and morale in industry. Prerequisite: Psychology 1. Mr. Smith.

116. Experimental Industrial Psychology. II; 3 cr. Experiments and demonstrations of psychological techniques in industry. Sensory measurements in employee selection, maintenance of efficiency, and quality control. Measuring fatigue, efficiency, accident proneness, employee attitudes, and morale. Prerequisite: Prior credit or current registration in Psychology 115. Mr. Smith.

117. Psychology of Individual Assessment. I; 3 cr. Introduction to the field; diagnostic procedures used by the clinical psychologist; interviewing methods, psychometric and projective techniques; analysis and writing of case materials. Prerequisites: Psychology 105, 141. Mr. Martin, Mr. Page.

125. Experimental Psychology for Graduate Students. I, II; 3 cr. May be elected by graduate students in place of Psychology 25. Prerequisites: Psychology 1 and graduate standing. Mr. Archer, Mr. Brogden, Mr. Grant, Mr. Leibowitz, Mr. Mote, Mr. Thurlow, Mr. Wyckoff.

127. Psychology of Personality. I; 3 cr. Modern approaches to the organization and development of personality. Personality measurement by testing, scaling, and projective techniques, with applications. Prerequisite: Psychology 1. Mr. Gilchrist.

128. Maturity and Senescence. I; 3 cr. A study of the psychological characteristics of the mature and senile person with emphasis on the changes and problems that accompany aging. Prerequisite: Psychology 1. Mr. Leibowitz.

129. Personnel Psychology. II; 3 cr. Selection, classification and placement procedures; techniques of employment interviewing, rating methods, industrial tests (mental ability, mechanical, clerical, trade, etc.), job analysis and occupational descriptions. Lectures and laboratory. Prerequisites: Psychology 1 and junior standing. Mr. Ruedisili.

131. Advanced Psychometric Methods. II; 3 cr. General principles of psychological measurement; psychophysical methods, scaling and correlation techniques in psychological measurement; partial, multiple correlation, factor analysis. Prerequisites: Psychology 25 and 30 or an equivalent elementary course in statistics. Mr. Grant.

132. Quantitative Methods in Psychology. II; 3 cr. Curve fitting and the rational formulation of psychological theory in terms of quantitative functions. Prerequisite: Consent of instructor. Mr. Leibowitz, Mr. Wyckoff.

133. Statistical Analysis of Psychological Experiments. II; 3 cr. Statistical analysis of data obtained with various experimental designs. Chi-square, analysis of variance and covariance. Factorial, latin and greco-latin square designs. Prerequisites: Psychology 25 and 30. Mr. Archer.

135. Psychology of Public Opinion. II; 3 cr. Techniques in the measurement of public opinion, attitudes, and morale; intensity scaling; factors determining opinions and attitudes; field exercises in polling. Prerequisites: Psychology 1 or Sociology 1a or 2, and either Psychology 30 or Sociology 132, or consent of instructor. Mr. Gilchrist.

137. Social Behavior Dynamics. II; 3 cr. The influence of social factors on decision-making. Emphasis is on the analysis and prediction of social behavior in situations of role change and role conflict, multiple group membership, long-range or career planning, ambiguity and risk-taking, acceptance of new behavior, and related situations. Prerequisites: Sociology 139 and junior standing, or consent of instructor. Mr. Brim, Mr. Gilchrist.

138. Individual Behavior in the Group. II; 3 cr. Psychological principles as they apply to the individual in social groups. Experimental analyses of the process of group formation, maintenance, morale and productivity. Prerequisites: Psychology 139 or Sociology 139 or Psychology 127. Mr. Gilchrist.

139. Introductory Social Psychology. I, II; 3 cr. An introduction to the general area of social psychology covering such topics as motivation, attitude, value, communication, leadership, etc. Prerequisite: Sociology 1a or 101a or Psychology 1. Mr. Gilchrist.

141. Psychological Testing. I; 3 cr. Theory and methods of measuring human behavior; survey of representative tests of intelligence, performance, achievement, interests, attitudes, personality, and special aptitudes. Lectures and laboratory. Prerequisite: Psychology 30 or an equivalent course in statistics. Mr. Ruedisili.

143. The Psychology of Individual Differences and the Measurement of Intelligence. I; 3 cr. Individual differences in quantitative aspects of human behavior, heredity and environmental factors, correlation of abilities, with special emphasis on intelligence. Prerequisite: Psychology 30. Mr. Page.

144. The Psychology of Learning. I; 3 cr. Basic principles of conditioning and learning; functional relationships between salient variables related to rate of acquisition and degree of retention; transfer effects and related phenomena. Prerequisite: Psychology 1. Mr. Grant.

147. Child Psychology. II; 3 cr. Learning principles, motor, language, emotional and social development of the child with emphasis on experimentation and systematic investigation. Prerequisite: Psychology 1. Mr. Martin, Mr. Page, Mr. Wyckoff.

148. Psychology of Adolescence. I; 3 cr. Physical development, intellectual, emotional, and social behavior, and the problems of adjustment which accompany and follow the physiological changes of pubescence. Prerequisite: Psychology 1. Mr. Archer, Mr .Page.

149. Animal Behavior. I; 2 or 3 cr. Maturation, motivation, and learning in animals, particularly mammals. Prerequisite: 10 credits of biology may be substituted for Psychology 1 as a prerequisite for this course. Mr. Harlow.

150. Animal Behavior: The Primates. II; 2 or 3 cr. Evolution from monkey to man of intelligence, social behavior, emotion, growth and bodily structure. Prerequisite: Psychology 1 or 10 credits of biology. Mr. Harlow.

152. Animal Behavior Problems I, II; 2 or 3 cr. Individual experimental studies in animal behavior. Prerequisites: Psychology 149 and 150 or concurrent registration and consent of instructor. Mr. Harlow, Mr. Miles.

154. Physiological Psychology. I; 4 cr. The physiological mechanisms determining reflex action, emotions, locomotion, motor skills, thinking and language. Effect of drugs, internal secretions, and cortical lesions on behavior. Prerequisite: Psychology 1. Mr. Harlow.

156. Aptitude Testing. II; 3 cr. Principles of construction, technique and results of measurement of sensory, motor and other aptitudes. Prerequisites: Psychology 30, 141. Mr. Bridgman.

160. History of Psychology. II; 3 cr. Changes in subject matter and experimental methods of psychology from the early 17th century to 1950, with emphasis upon the historical roots of modern fields of psychology. Prerequisite: 9 credits in psychology. Mr. Leibowitz.

161. Modern Viewpoints in Psychology. I; 3 cr. Theoretical and systematic psychology as represented by British empiricism, William James, structuralism, functionalism, dynamic psychology, behaviorism, gestalt, and psychoanalysis, current trends in theory and systems. Prerequisite: 9 credits in psychology. Mr. Brogden, Mr. Thurlow.

165. Behavior Pathology. I; 3 cr. Psychology of abnormal behavior; biological and social factors in the genesis of behavior disorders; emotional disturbances; distortions of

languages and thinking; common neuroses and psychoses. Prerequisite: Psychology 10
Mr. Martin.

166. FUNDAMENTALS OF PSYCHODYNAMICS. II; 3 cr. Consideration of psychoanalyti
thinking in regard to unconscious motivation, conflict, fantasy and psychotherapy. Recen
experimental findings in such areas as motivated perception, frustration behavior, and anxiet
and learning. Prerequisites: Psychology 165 and consent of instructor. Mr. Martin.

167. THINKING AND IMAGINATION. II; 3 cr. Prerequisite: Junior standing or 9 credit
in psychology. Mr. Harlow.

170. EXPERIMENTAL PSYCHOLOGY OF VISION. I; 3 cr. Lecture and laboratory exercise
on topics in the field of vision. Mr. Mote.

171. EXPERIMENTAL PSYCHOLOGY OF CONDITIONING, LEARNING, AND MEMORY. II; 3 cr.
Lecture and laboratory exercises on topics in the field of conditioning and learning. Mr.
Archer, Mr. Grant.

172. EXPERIMENTAL PSYCHOLOGY OF HEARING AND COMMUNICATION. II; 3 cr. Lecture
and laboratory exercises on topics in the field of audition: auditory attributes and inter-
actions; auditory space perception; speech communication. Prerequisites: Psychology 2
and 30 or consent of instructor. Mr. Thurlow.

173. EXPERIMENTAL PSYCHOLOGY OF PERSONALITY. II; 3 cr. Lectures and laboratory exer-
cises on topics in the field of personality; frames of reference, level of aspiration, ego and
self, conflict and frustration. Prerequisites: Psychology 25 and 30. Mr. Gilchrist, Mr.
Thurlow.

174. INSTRUMENTATION OF PSYCHOLOGICAL RESEARCH. I; 3 cr. Design, construction, and
calibration of apparatus for presentation of stimuli and recording of responses in psycho-
logical experiments. Lectures and laboratory. Prerequisites: Psychology 1, 25. Mr. Wyckhoff.

175. CLINICAL PROJECTIVE TECHNIQUES. II; 3 cr. Rorschach; thematic apperception
test; perceptual and association tests; expressive techniques; play techniques. Prerequi-
site: Consent of instructor. Mr. Lundy, Mr. Page.

176. EXPERIMENTAL PSYCHOLOGY OF LEARNING IN ANIMALS. I; 3 cr. Lecture, discussion
and laboratory on conditioning, discrimination, intermittent and secondary reinforcement
and related topics. Laboratory work with rodents, birds, and other forms. Prerequisites:
Psychology 25 and 30, or consent of instructor. Mr. Wyckoff.

178. VISUAL PERCEPTION. II; 3 cr. Lectures, laboratory, and discussion on space per-
ception; constancy and contrast effects; span of perception; attention; figural after effects;
and motion perception. Prerequisite: Psychology 25 or consent of instructor. Mr. Leibo-
witz.

185. PROBLEMS IN CHILD AND ADOLESCENT PSYCHOLOGY. I, II; 3 cr. Independent prob-
lems in child and adolescent psychology under supervision. Prerequisites: Psychology 147
or 148 and consent of instructor. Mr. Martin.

187. PROBLEMS IN CLINICAL PSYCHOLOGY. I, II; 3 cr. Individual experimental studies in
clinical psychology. Prerequisites: Psychology 117 and consent of instructor. Mr. Lundy.

189. PROBLEMS IN INDUSTRIAL PSYCHOLOGY. I, II; 3 cr. Prerequisite: Consent of instruc-
tor. Mr. Bridgman, Mr. Smith.

190. PROBLEMS IN HUMAN BEHAVIOR. I, II; 1–3 cr. Prerequisite: Consent of instructor.
Mr. Archer, Mr. Bridgman, Mr. Brogden, Mr. Gilchrist, Mr. Grant, Mr. Leibowitz, Mr.
Mote, Mr. Thurlow, Mr. Wyckoff.

201–202. DEPARTMENTAL PROSEMINAR. Yr; 6 cr. Required of all graduate majors and
minors in Psychology. Staff.

203–204. COLLOQUIUM. Yr; 0 cr. Required of all graduate majors. Staff.

205. CENTRAL NERVOUS SYSTEM AND BEHAVIOR. I; 3 cr. Lectures on the role of the central nervous system in relation to sensory processes, learning, thinking, language and emotions. Prerequisite: Psychology 154. Mr. Harlow.

207. CLINICAL TECHNIQUES. I; 3 cr. Concepts and research in clinical psychology. Test construction with special emphasis on measurement of intelligence and its associated correlates. Prerequisite: Consent of instructor. Mr. Lundy, Mr. Martin, Mr. Page.

208. ADVANCED CLINICAL TECHNIQUES. II; 3 cr. Introduction to interviewing; client-centered techniques. Practicum with individual supervision. Survey of research in the area. Prerequisites: Psychology 165, 207, and consent of instructor. Mr. Lundy, Mr. Martin, Mr. Page.

209. PRINCIPLES OF PSYCHOTHERAPY. II; 3 cr. Lectures and discussion on the theories, concepts, and assumptions underlying modern psychotherapeutic techniques; evaluation of the effectiveness of psychotherapy. Prerequisites: Psychology 175, 208 and consent of instructor. Mr. Billingslea, Mr. Martin, Mr. Page.

210. SEMINAR IN APTITUDE TESTING. I; 2 cr. Prerequqisite: Consent of instructor. Mr. Bridgman.

211. PERSONALITY MEASUREMENT-THEORY AND ANALYSIS OF PROJECTIVE TEST RESULTS. I; 2 cr. Application of test results to the single case with emphasis on problems of reliability and validation; survey of literature. Prerequisites: Psychology 175 and consent of instructor. Mr. Calden, Mr. Lundy.

212. PERSONALITY MEASUREMENT-THEORY AND ANALYSIS OF GENERAL PERSONALITY TEST RESULTS. II; 2 cr. Application of response-restricted test results to the single case, with emphasis on problems of reliability and validation. Prerequisites: Psychology 141 and consent of instructor. Mr. Friedman.

215. SEMINAR IN INDUSTRIAL PSYCHOLOGY. I, II; 2 cr. Prerequisites: Psychology 115 and consent of instructor. Mr. Bridgman, Mr. Smith.

218. SEMINAR IN GENERAL PSYCHOLOGY. I, II; 2 cr. Prerequisite: Consent of instructor. Mr. Brogden.

225. ADVANCED EXPERIMENTAL PSYCHOLOGY. II; 3 cr. Lectures, discussions and individual work on selected problems. Prerequisites: Psychology 25 or 125, 30, and consent of instructor. Mr. Brogden.

227. SEMINAR IN CLINICAL PSYCHOLOGY. I, II; 2 cr. Prerequisite: Consent of instructor. Mr. Lundy, Mr. Martin, Mr. Page.

228. FIELD WORK IN CLINICAL PSYCHOLOGY. I, II; 3 cr. Supervised field work in practical clinical situations. Prerequisites: Psychology 207 and consent of instructor. Mr. Lundy, Mr. Martin, Mr. Page.

230. SEMINAR IN PSYCHOMETRIC METHODS. I, II; 3 cr. Prerequisite: Consent of instructor. Mr. Grant.

231. DESIGN AND ANALYSIS OF PSYCHOLOGICAL EXPERIMENTS. I; 3 cr. Structure of psychological experiments; measurement and control of variables in psychology. Randomized, orthogonal and balanced designs. Simple trend analysis. Distribution-free methods. Prerequisites: Psychology 25 and 30. Mr. Grant.

244. SEMINAR IN LEARNING. I, II; 2 cr. Prerequisite: Consent of instructor. Mr. Grant, Mr. Wyckoff.

247. SEMINAR IN CHILD PSYCHOLOGY. I; 2 cr. Prerequisites: Psychology 147 and consent of instructor.

248. SEMINAR IN PSYCHOLOGY OF ADOLESCENCE. II; 2 cr. Prerequisites: Psychology 1[illegible] and consent of instructor.

249. SEMINAR IN ANIMAL BEHAVIOR. I; 2 cr. Seminar on problems of comparative psychology. Prerequisites: Psychology 149 or 150 and consent of instructor. Mr. Harlow.

254. SEMINAR IN PHYSIOLOGICAL PROBLEMS AND BEHAVIOR. II; 2 cr. Prerequisites: Psychology 154 and consent of instructor. Mr. Harlow.

261. SEMINAR IN SYSTEMATIC PSYCHOLOGY. I; 2 cr. Prerequisite: Psychology 161. Mr. Brogden.

265. SEMINAR IN BEHAVIOR PATHOLOGY. II; 3 cr. Prerequisites: Psychology 165 and consent of instructor. Mr. Lundy, Mr. Martin.

267. SEMINAR IN THINKING AND IMAGINATION. I; 3 cr. Prerequisites: Psychology 167 and consent of instructor.

270. SEMINAR IN PERCEPTION. I, II; 2 cr. Prerequisite: Consent of instructor. Mr. Mote, Mr. Thurlow.

273. SEMINAR IN PERSONALITY. I, II; 2 cr. Prerequisite: Consent of instructor. Mr. Gilchrist.

SCANDINAVIAN STUDIES

PROFESSORS HAUGEN, *chairman*, KNAPLUND (also History); LECTURER RISTE; ACTING INSTRUCTOR FLINT (also Sociology).

The Department (established in 1875) provides the opportunity for (1) the acquisition of a Scandinavian language as a tool for speaking and reading; (2) systematic study of the literatures of Scandinavia, both in the original languages and in English translation; (3) courses in the history, social life, and institutions of Scandinavia, here referred to as Area Studies; (4) graduate study and research, leading to an M.A. or a Ph.D. minor in Scandinavian Area Studies.

Norwegian and Swedish are accepted for foreign-language credit in most undergraduate courses; in the School of Music faculty consent is required. They may be substituted for either French or German by doctoral candidates on the recommendation of their major professors. Students who wish may take intermediate or proficiency tests to satisfy language requirements.

MAJOR. For a major in Scandinavian the student must earn 18 credits beyond second-year Norwegian (or an intermediate reading test), including 4 credits of course 80 and a year of Old Norse. A reading knowledge of another foreign language is required.

MASTER'S DEGREE. The requirements are: (1) one academic year of graduate study, or equivalent (one semester may be transferred from the University of Minnesota), including at least one course from each of the fields of language, literature, and area study; (2) a minimum of 18 credits on the graduate level; (3) a reading knowledge of at least one Scandinavian language; (4) a thesis; (5) an oral examination.

PH.D. MINOR. The requirements are: (1) a minimum of 12 graduate credits in the field; (2) a reading knowledge of at least one Scandinavian language; (3) an oral examination.

SUMMER SESSIONS. Teaching in Scandinavian Studies is available in alternate summers at the Universities of Minnesota and Wisconsin under the joint arrangement that has been in operation since 1947. The session for 1955 is being held at the University of Minnesota.

FELLOWSHIPS. Two Torger Thompson fellowships are offered each year (value $1,200) for qualified students wishing to pursue courses in Scandinavian Studies. Applicants should have a B.A. from a recognized American college, a major in a field of the humanities or

social studies, with an outstanding record; a reading or speaking knowledge of a Scandinavian language is desirable.

THE SCANDINAVIAN CLUB. Monthly meetings are held at which students interested in various aspects of modern and ancient Scandinavian civilization have an opportunity to meet.

LANGUAGE

1. BEGINNING NORWEGIAN. Yr; 4 cr. An introduction to spoken and written Norwegian for students without previous knowledge. Two hours of laboratory section. Mr. Haugen and staff.

2. BEGINNING SWEDISH. Yr; 4 cr. An introduction to spoken and written Swedish for students without previous knowledge. Offered on request. Staff.

10. SECOND-YEAR NORWEGIAN. Yr; 3–4 cr. Rapid reading of suitable texts by modern writers; open to students with speaking knowledge of language or course 1. Mr. Haugen and staff.

121. SURVEY OF NORWEGIAN LITERATURE. Yr; 3 cr. From the eighteenth century to about 1914; major writers from Holberg to Undset. Offered 1954–55. Mr. Haugen.

127. TWENTIETH-CENTURY WRITERS. Yr; 3 cr. Dramatic and narrative masterpieces since about 1905. Offered 1955–56. Mr. Haugen.

163. OLD NORSE-ICELANDIC. Yr; 3 cr. Reading of texts from the Sagas and Eddas, with comparative study of the linguistic structure and literary style. Offered 1954–55 and in alternate years. Mr. Haugen.

264. HISTORY AND STRUCTURE OF THE SCANDINAVIAN LANGUAGES. Sem; 3 cr. A survey of linguistic development in Scandinavia from the earliest known records to the present, with selected readings in the various languages.

LITERATURE IN TRANSLATION

70a (135a). SCANDINAVIAN CLASSICS FROM THE VIKINGS TO IBSEN. I; 2–3 cr. Readings in the Eddas, the Sagas, mythology and folklore, Holberg, Romanticism, Kierkegaard, and the beginnings of Realism (800 A.D. to ab. 1870). Given 1954–55 and in alternate years. Mr. Haugen.

70b (135b). SCANDINAVIAN CLASSICS. FROM IBSEN TO THE PRESENT. II; 2–3 cr. Readings in Brandes, Ibsen, Strindberg, Jacobsen, Lagerlöf, Hamsun, Undset, Laxness, and others (ab. 1870 to the present). Offered 1954–55 and in alternate years. Mr. Haugen.

78a (131a). THE DRAMA IN SCANDINAVIA: IBSEN AND HIS PREDECESSORS. I; 2–3 cr. The social and psychological plays of Henrik Ibsen, with special attention to the intellectual currents of the second half of the nineteenth century. Offered 1955–56 and in alternate years. Mr. Haugen.

78b (131b). THE DRAMA IN SCANDINAVIA: STRINDBERG AND THE MODERNS. II; 2–3 cr. The writings of August Strindberg and his successors among contemporary Scandinavian dramatists. Offered 1955–56 and in alternate years. Mr. Haugen.

AREA STUDIES

75. SCANDINAVIAN LIFE AND CIVILIZATION. II; 2 cr. An introductory survey of Scandinavian culture in its widest aspects, including present-day trends and problems, given cooperatively by members of the staff. Gives social science credit for graduation requirement. Open to sophomores. Mr. Riste.

HISTORY 187. HISTORY OF THE SCANDINAVIAN COUNTRIES. Yr; 3 cr. The political, eco-

nomic, and social history of the Scandinavian countries from the earliest times to the present. Prerequisite: History 3 or 2. Mr. Knaplund, Mr. Riste.

POLITICAL SCIENCE 187a. GOVERNMENTS OF SCANDINAVIA. I; 3 cr. An analysis of constitutional organization, political parties, administrative procedures, and issues of public policy. Prerequisite: Political Science 7 or consent of instructor. Not offered 1954–55.

POLITICAL SCIENCE 187b. INTERNATIONAL RELATIONS OF SCANDINAVIA. II; 3 cr. General survey of international relations and participation in international organizations, with attention to the problem of federation. Prerequisie: Political Science 7 or consent of instructor. Mr. Riste.

SOCIOLOGY 187. SOCIAL TRENDS IN SCANDINAVIA. Yr; 3 cr. Economic and technical developments from about 1850; population, social structure, community structure; family, education, religion; labor-management relations; social welfare programs; social attitudes in general. Mr. Flint.

SLAVIC LANGUAGES

ASSOCIATE PROFESSOR ZAWACKI, *chairman;* ASSISTANT PROFESSORS GASIOROWSKI, FOLEJEWSKI; INSTRUCTOR WILDE.

The elementary courses in Russian and Polish are planned to meet the needs of those who have begun the language in high school, as well as of those who take it up for the first time in college. One unit (year) of high-school work is assumed to be equivalent to 4 credits of college work, but all entering students continuing Russian or Polish are assigned to courses on the basis of placement tests. (See page 38.) These tests may admit a student to a more advanced course, but give no extra credit toward graduation.

See page 38 for foreign language attainment examinations.

MAJOR. 24 credits in advance of 1b, 15 of which must be in approved courses. By faculty requirement, students choosing a foreign language major must present at least 8 credits in a second foreign language.

TEACHING MAJOR AND MINOR. See SCHOOL OF EDUCATION.

POLISH CLUB, RUSSIAN CLUB. This activity offers students opportunities to hear talks about the country whose language they are studying, to participate in programs and to converse in Polish or in Russian.

POLISH

1a. FIRST-SEMESTER POLISH. I; 4 cr. For students who have not studied Polish. Elements of phonetics and morphology. Mr. Folejewski.

1b. SECOND-SEMESTER POLISH. II; 4 cr. Morphology of Polish continued. Simple texts. Prerequisite: Polish 1a or consent of instructor. Mr. Folejewski.

10a. THIRD-SEMESTER POLISH. I; 3 cr. Reading, conversation exercises and grammar review. Prerequisite: Polish 1b or consent of instructor. Mr. Folejewski.

10b. FOURTH-SEMESTER POLISH. II; 3 cr. Reading, conversation exercises and grammar review. Prerequisite: Polish 10a or consent of instructor. Mr. Folejewski.

80. SUPERVISED INDIVIDUAL READING. Yr; 2–3 cr. per sem. For upper-group students with grade *A* in Polish 10b or equivalent, or who have passed intermediate test in Polish, and desire Polish reading in their major field of study. Approval of the dean and instructor required.

132. MASTERPIECES OF POLISH LITERATURE. Sem; 2–3 cr. The principal works of Polish literature, their literary importance and social significance. The lectures are in English. Prerequisites: Polish 10b or graduate standing and consent of instructor. Mr. Zawacki.

150. History of the Polish Language. II; 2 cr. Primary for majors in Polish. Prerequisite: Consent of instructor. Mr. Folejewski.

180. Supervised Individual Reading. Yr; 2–3 cr. Prerequisites: Two years of college Polish, and graduate standing. Staff.

200. Individual Research. Yr; credits and conference hours to be arranged. For graduates only. Mr. Zawacki.

220. Seminar in Polish. Yr; 2 cr per sem. For graduates only. Work chosen according to needs of students. Hours to be arranged. Mr. Folejewski.

RUSSIAN

1a. First-Semester Russian. I; 4 cr. Conducted with drill sessions. Mr. Zawacki and staff.

1b. Second-Semester Russian. II; 4 cr. Conducted with drill sessions. Prerequisite: Russian 1a or consent of instructor. Mr. Zawacki.

5. Beginning Composition and Conversation. II; 2 cr. Prerequisite: Concurrent registration in Russian 1b. Staff.

10a. Third-Semester Russian. I; 3 cr. Reading and conversational exercises with grammar review. Prerequisites: Russian 1b or equivalent and consent of instructor. Mrs. Wilde.

10b. Fourth-Semester Russian. I; 3 cr. Reading and conversational exercises with grammar review. Prerequisites: Russian 10a or equivalent and consent of instructor. Mrs. Wilde.

18a. Scientific Russian. I; 2 cr. Reading in scientific texts with grammatical review. Prerequisite: Russian 1a or consent of instructor. Mrs. Wilde.

18b. Scientific Russian. II; 2 cr. Reading in scientific texts with grammatical review. Prerequisite: Russian 18a or consent of instructor. Mrs. Wilde.

25a. Intermediate Composition and Conversation. I; 2 cr. Prerequisite: Russian 1b or special examination. Mrs. Wilde.

25b. Intermediate Composition and Conversation. II; 2 cr. Prerequisite: Russian 25a or special examination. Mrs. Wilde.

80. Supervised Individual Reading. Yr; 2–3 cr. For upper-group students who wish to read Russian materials in their major field. Prerequisite: Russian 10b. Approval of the dean is required. Staff.

124a. Advanced Composition and Conversation. I; 3 cr. Prerequisite: Russian 10b or special examination. Mrs. Wilde.

124b. Advanced Composition and Conversation. II; 3 cr. Prerequisite: Russian 124a or special examination. Mrs. Wilde.

127a. Advanced Composition and Conversation. I; 2 cr. Prerequisite: Russian 124b. Alternates every year with 128a. Mrs. Gasiorowski.

127b. Advanced Composition and Conversation. II; 2 cr. Prerequisite: Russian 127a. Alternates every year with 128b. Mrs. Gasiorowski.

128a. Advanced Composition and Conversation. I; 2 cr. Prerequisite: Russian 124b or consent of instructor. Mrs. Gasiorowski.

128b. Advanced Composition and Conversation. II; 2 cr. Prerequisite: Russian 128a or consent of instructor. Mrs. Gasiorowski.

131a. Survey of Nineteenth-Century Russian Literature. I; 2–3 cr. The background, the development and the principal works of Russian literature, exclusive of the drama,

from Pushkin to Tolstoy. The lectures are in English. Prerequisites: Russian 124b, or two years of college Russian and graduate standing. Mr. Zawacki.

131b. SURVEY OF NINETEENTH-CENTURY RUSSIAN LITERATURE. II; 2–3 cr. A continuation of Russian 131a, but may be taken as a separate course. The lectures are in English. Prerequisites: Russian 124b, or two years of college Russian and graduate standing. Mr. Zawacki.

140. MASTERPIECES OF RUSSIAN DRAMA. Sem; 2–3 cr. The principal dramas in Russian literature, their social function and their literary significance. The lectures are in English. Prerequisites: Russian 124b, or graduate standing and consent of instructor. Mrs. Gasiorowski.

148a. CONTEMPORARY RUSSIAN LITERATURE. I; 2–3 cr. The background and the representative works of Russian literature from 1880 to 1917. The lectures are in English. Prerequisites: Russian 124b, or two years of college Russian and graduate standing. Mrs. Gasiorowski.

148b. CONTEMPORARY RUSSIAN LITERATURE. II; 2–3 cr. Russian literature from 1917 to the present; a continuation of Russian 148a, but may be taken as a separate course. The lectures are in English. Prerequisites: Russian 124b, or two years of college Russian and graduate standing. Mrs. Gasiorowski.

150. HISTORY OF THE RUSSIAN LANGUAGE. Sem; 2 cr. Introduction to the historical development of the sounds and forms of modern Russian. Primarily for majors in Russian. Prerequisite: Grade of *B* in Russian 10b. Mr. Folejewski.

151. PROSEMINAR IN THE HISTORY OF THE RUSSIAN LANGUAGE. II; 2 cr. Primarily for majors in Russian. Prerequisite: Russian 150. Mr. Folejewski.

161. SURVEY OF PRE-NINETEENTH-CENTURY RUSSIAN LITERATURE. Sem; 2–3 cr. The lectures are in English. Prerequisites: Russian 124b or graduate standing and consent of instructor. Mr. Folejewski.

170. OLD CHURCH SLAVONIC. Sem; 2 cr. Mr. Folejewski.

191. TRENDS IN RUSSIAN CULTURE AND LITERATURE. Sem; 2–3 cr. The development of Russian culture within the framework of Russian literature. The lectures are in English. Prerequisite: Russian 131 and/or 148. Mrs. Gasiorowski.

192. INTRODUCTION TO SLAVIC CULTURES AND LITERATURES. Sem; 2–3 cr. Origins; linguistic cultural and political congruence and differentiation; national literatures; problems of leadership; Slavs in the world of today. The lectures are in English. Prerequisites: Russian 124b or graduate standing and consent of instructor. Mr. Folejewski.

200. INDIVIDUAL RESEARCH. Yr; *cr. For graduates only. Staff.

220. SEMINAR IN RUSSIAN LITERATURE. Yr; 2 cr. per sem. For graduates only. Mr. Zawacki, Mrs. Gasiorowski, Mr. Folejewski.

NOTE: Courses 131a, 131b, 132 (Polish), 140, 148a, 148b, 161, 191, and 192 are organized in a way which makes them available as Comparative Literature 31a, 31b, 32, 40, 48a, 48b, 61, 91 and 92 to students who do not read Russian or Polish (see pp. 116–117). The reading schedules, the examinations, and the discussion sections in English (Comparative Literature) and in Russian or Polish (Slavic Languages) are parallel. Students desiring credit toward the fulfillment of the language and course requirements for a major in Russian or for higher degrees in Russian or Polish must, of course, do the reading, take the examinations, and participate in the discussions in Russian or Polish as provided for in the organization of the given course.

SOCIOLOGY AND ANTHROPOLOGY

PROFESSORS BECKER, *chairman*, CLINARD, FISHER, KOLB, MARSHALL, SEWELL, WILEDEN; ASSOCIATE PROFESSORS BAERREIS, BARTON, GERTH, HAKEEM, HART, WILKENING; ASSISTANT PROFESSORS BARNETT, BRIM, RUBIN, SHANNON; INSTRUCTORS AMES, THOMLINSON.

Sociology and Anthropology deal with personality, society, and culture in their interrelations. This necessarily involves description and analysis of the origins, structure, and function of manners and customs, social structures, and social institutions, and the relation between these and personality. The chief but not exclusive anthropological emphasis is on the life of the less "civilized" peoples, although the "civilized" are also considered. Sociology also operates in similar fields, but the major although not exclusive stress is on the "civilized" peoples. Anthropology also deals with the antiquity and evolution of human races, societies, and cultures. Current social problems receive attention from both anthropology and sociology, and both are supplementary to professional training in fields such as law, journalism, business, industrial relations, personnel, and social work. Specialization in one or both subjects may lead to graduate study in preparation for secondary and college teaching and public and private research positions.

MAJOR. For Sociology as a field of concentration, 30 credits within the department are required, including courses 1a* or 101a, 2, 32 or 132, 139, 151 and Anthropology 40. Not less than 20 additional credits selected in conference with the adviser must be offered within the Division of the Social Sciences, 10 of which may be in this department.

For Correctional Administration (Sociology) as a field of concentration, 30 credits within the department are required, including courses 1a* or 101a, 2, 32 or 132, and 139. Not less than 20 additional credits selected in conference with the adviser must be offered within the Division of the Social Sciences, 10 of which may be in this department.

For Anthropology as a field of concentration, 30 credits within the department are required, including 1a* or 101a, 35, 40, Sociology 151 or 172, and a course in statistics (Sociology 32 or 132 or Agronomy 136). Not less than 20 additional credits selected in conference with the adviser must be offered within the Division of the Social Sciences, or in geography, geology, or zoology, 10 of which may be in this department.

Any student who majors in sociology or anthropology cannot count toward graduation more than 40 credits in both subjects combined.

Students cannot major in sociology or anthropology without the minimum mathematical requirement. (See page 33 under mathematical requirement.)

Certain upper-group students may substitute a thesis for 4 of the above required credits. This thesis may be written in any one of the fields designated in GROUPS I–VIII as described on subsequent pages.

I.L.S. 21. Wherever Anthropology 3 is listed as a requirement or as a prerequisite. I.L.S. 21 may be substituted.

TEACHING MAJOR AND MINOR. See SCHOOL OF EDUCATION.

SOCIAL WORK

The Department of Social Work, in co-operation with the Department of Sociology and Anthropology, administers an undergraduate major for prospective social workers. For details on this major, see pages 230–231.

BASIC COURSES

1a. MAN, CULTURE, AND SOCIETY. I, II; 3 cr. (Students may register for course as either Sociology 1a or Anthropology 1a.) A basic course in the fields of cultural anthropology,

* This is a new course and is not the former Sociology 1, Man in Society.

sociology, and rural sociology. Comparative study of social organization, groups, institutions, and their interrelations; the role and development of personality in culture. Open only to freshmen and sophomores. May not be taken by students who have had Sociology 1, Anthropology 3, or I.L.S. 21. Staff.

101a. MAN, CULTURE, AND SOCIETY. I, II; 3 cr. (Same as 1a.) Prerequisite: Junior standing. May not be taken by students who have had Sociology-Anthropology 1a, Sociology 1, Anthropology 3, or I.L.S. 21. Staff.

INDEPENDENT WORK

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

180. INDEPENDENT WORK IN SOCIOLOGY. I, II, or Yr; *cr. See page 41 of this bulletin for requirements and procedures. Staff.

190. PROBLEMS IN SOCIOLOGY. I, II; 3 cr. Independent work in specific problems in general social theory, social organization, social disorganization, social psychology, population, or statistics under supervision. Prerequisite: Consent of instructor. Staff.

200. RESEARCH AND THESIS. Yr; *cr. Prerequisite: Advanced graduate standing. Staff.

280. READING AND RESEARCH IN SOCIOLOGY. I, II, or Yr; *cr. Prerequisites: Graduate standing and consent of major professor. Staff.

I. GENERAL SOCIAL THEORY

A. ANALYSIS OF SOCIAL RELATIONS

140. ANTHROPOLOGICAL THEORY. I; 3 cr. A survey of the main theoretical movements in anthropology, including both historical and contemporary schools and movements. Prerequisites: Anthropology 40 and senior standing or consent of instructor. Mr. Hart.

151. GENERAL ASPECTS OF SOCIAL RELATIONS. I; 3 cr. The social sciences and sociology; methodology; social actions, processes, structures, and functions; applications of sociological analysis. Prerequisites: Sociology-Anthropology 1a or 101a, or Sociology 1 or 2, or Anthropology 3, and sophomore standing. Mr. Becker.

157. METHODS OF SOCIOLOGICAL INQUIRY. II; 3 cr. Training in scientific habits of thought; development of a critical attitude toward sociological research; familiarization of the student with the use of documentary materials, case studies, interviews, etc. Prerequisites: Sociology-Anthropology 1a or 101a, or Sociology 1 or 2, or Anthropology 3, and junior standing, or consent of instructor. Staff.

172. SOCIAL INTERACTION. II; 3 cr. Groups from pairs upward, with functions ranging from reproduction to war, surveyed in perspectives of process and structure. Emphasis on observation and systematic analysis. Prerequisite: Sociology 151 or consent of instructor. Mr. Becker.

173. SOCIAL SYSTEMS AND INSTITUTIONS. II; 3 cr. Customs, norms, and other aspects of society-perpetuating conduct. Matrimonial, religious, political, economic, educational, and like functions are distinguished and related to ideologies and social patterns. Prerequisites: Sociology 151, or Anthropology 140 or 145, and junior standing, or consent of instructor. Mr. Becker or Mr. Rubin.

263. SEMINAR: SOCIAL CHANGE. I; 2 cr. Social dynamics as viewed by Comte, Spencer, Marx, Veblen, Pareto, Max Weber, Alfred Weber, Teggart, Toynbee, and others. Development of a substantive theory of social change. Prerequisite: Consent of instructor. Mr. Becker.

---

* This is a new course and is not the former Sociology 1, Man in Society.

279. SEMINAR: SYSTEMATIC SOCIOLOGY II; 2 cr. Co-ordination of current theories and methods of relevance for sociological research. Prerequisite: Consent of instructor.

B. HISTORY AND SOCIOLOGY OF SOCIAL KNOWLEDGE

175. GROWTH OF SOCIAL THOUGHT. I; 3 cr. Survey of man's ideas about life with his fellows, centered on thinkers up to the twentieth century. Prerequisites: Sociology-Anthropology 1a or 101a, or Sociology 1 or 2, or Anthropology 3, and junior standing, or consent of instructor. Mr. Gerth or Mr. Becker.

176. CONTEMPORARY ANALYSES OF SOCIAL RELATIONS. II; 3 cr. Trends of specialized social sciences from late nineteenth century onward, with reference to the rise of sociology. Chief representatives and schools of sociology and closely related fields. Prerequisites: Sociology-Anthropology 1a or 101a, or Sociology 1, 2, or 175, or Anthropology 3, and junior standing, or consent of instructor. Mr. Gerth.

199. DEVELOPMENT OF AMERICAN SOCIOLOGY. II; 3 cr. Schools of thought in American sociology traced through origins, conceptualizations, methodologies, and research. Prerequisite: Sociology 151 or consent of instructor. Mr. Becker or Mr. Rubin.

257. SEMINAR: SOCIOLOGY OF KNOWLEDGE. I; 2 cr. Study of ideologies and other kinds of social thought functionally interdependent with social processes and structures. Selected culture cases used as basis for type analysis. Prerequisite: Consent of instructor. Mr. Becker.

II. SOCIAL ORGANIZATION

60. MARRIAGE AND FAMILY. I, II; 3 cr. Nature of the family. Processes of courtship and marriage interaction. Correlation of physiological, psychological, economic, and sociological contributions to marriage and family life. Prerequisite: Junior standing or consent of instructor. No credit for students who have had Sociology 159.

78. CONTEMPORARY AMERICAN SOCIETY. II; 3 cr. (Formerly SOCIOLOGY 178.) The patterns of contemporary North American social life in the United States and Canada; cultural orientations, social structures, and dynamics of social change. Prerequisite: Sophomore standing. Credited toward the United States History and Institutions requirement. Mr. Rubin.

133. SOCIAL STRATIFICATION. II; 3 cr. Occupation, class, status, as determinants of group interests, ideologies, and struggles. Selected international comparisons. Prerequisites: Sociology-Anthropology 1a or 101a, or Sociology 1, and junior standing, or consent of instructor. Mr. Gerth.

134. DEMOCRATIC AND TOTALITARIAN SOCIETIES. II; 3 cr. A comparative analysis of democratic and totalitarian societies. Militarily disciplined societies such as the Spartans, the Jesuit state of Paraguay, Absolutist Prussia, National Socialism, and Russian Communism will be considered in the perspective of freedom and order. Prerequisites: Sociology-Anthropology 1a or 101a, or Sociology 1 or 139, and junior standing, or consent of instructor. Mr. Gerth.

138. SMALL GROUP RESEARCH. I; 3 cr. (Formerly SOCIOLOGY 190.) Comparative analysis and critical evaluation of concepts, hypotheses, techniques and results of research on small groups (including group dynamics, interaction analysis, sociometrics, sociodrama, etc.); training in applied experimental methods and the development of research instruments. Prerequisites: Sociology-Anthropology 1a or 101a and Sociology 139 and junior standing, or consent of instructor. Mr. Brim.

144. CAPITALISM AND SOCIALISM. II; 3 cr. Capitalism, unionism, socialism, fascism-nazism, and individualistic anti-capitalism, each viewed under the headings of conditions, theories, and movements. Prerequisites: Sociology-Anthropology 1a or 101a, or Sociology 1 and 2, and junior standing, or consent of instructor. Mr. Gerth.

159. Sociology of the Family. I; 3 cr. The family as a social institution. Its place in different cultures and social strata. The impact of industrialization and urbanization on family life. Family functions: procreation, education, production, and consumption. The family in transition. Prerequisites: Sociology-Anthropology 1a or 101a, or Sociology 1 or 2, or Anthropology 3, and junior standing, or consent of instructor.

171. Planning and Social Organization. II; 3 cr. Discussion of "planning" as a principle of social organization, its relation to social change in various phases of the industrialization process, its influence on contemporary social institutions, its effect on the social cohesion of the family, the neighborhood, and other territorial and associational groups. Sociological aspects of home, neighborhood, and community planning. Prerequisites: Introductory course in a social science and junior standing. Mr. Shannon.

174. Social Control. II; 3 cr. A basic course in social organization. How different ways of life are controlled and directed by social forces. From folkways to mass-persuasion and public opinion. The family, educational institutions, and legislation as means of control. Group pressures, ideologies, and science as social influences. Print, radio, movies, and the integration of the social order. Prerequisites: Sociology-Anthropology 1a or 101a, or Sociology 1 or 2, or Anthropology 3, and junior standing, or consent of instructor. Mr. Rubin.

177. The Modern City. I; 3 cr. Urban institutional and personality patterns, folkways, and mores. Ecological process and structure. The city as center of dominance over a trade area and hinterland. Prerequisites: Sociology-Anthropology 1a or 101a, or Sociology 1, 2, or 151, or an introductory course in economics, political science, or geography, and sophomore standing. Mr. Shannon.

185. Modern American Communities. II; 3 cr. Rural backgrounds of American culture. Development of American social institutions, social structure and values as seen in selected rural and urban communities. European images of America and evaluation of America's social strengths. Prerequisite: Major in American Institutions or junior standing. Mr. Barton. (For sociology majors may be counted toward 20 hours of related social science, but not toward the 30 credits in sociology.)

186. Peoples of Europe: South and West. I; 3 cr. A study of comparative social organization with special attention to Southern and Western Europe. Survey of regional differences (i.e., Gascon, Sicilian, Macedonian, Basque, etc.) in patterns of living. Prerequisites: Sociology-Anthropology 1a or 101a, or Sociology 1, and junior standing, or consent of instructor. Mr. Becker.

187. Peoples of Scandinavia. I, II; 3 cr. A study of trends in social institutions and social organization of Scandinavia. Prerequisites: Sociology-Anthropology 1a or 101a, or Sociology 1, and junior standing, or consent of instructor.

188. Peoples of Europe: North and East. II; 3 cr. A study of comparative social organization with special attention to Northern and Eastern Europe. Survey of regional differences (i.e., Hebridean, Welsh, Lower Saxon, Tyrolean, etc.) in patterns of living. Prerequisites: Sociology-Anthropology 1a or 101a, or Sociology 1, and junior standing, or consent of instructor. Mr. Becker.

189. Peoples of the Near and Middle East. II; 3 cr. Description and analysis of societies and cultures of the Near and Middle East. Attention to backgrounds and present regional differences in Turkey, Syria, Israel, Egypt, Iraq, etc. Prerequisites: Sociology-Anthropology 1a or 101a, and junior standing, or consent of instructor. Mr. Rubin.

193. Industrial Sociology. I; 3 cr. The factory as a social system; status systems in industry; lines of communication and authority; explanations of employee dissatisfaction in terms of group relations; and problems of minority groups in industry. Prerequisites:

Sociology-Anthropology 1a or 101a, or Sociology 1 or 2, and junior standing, or consent of instructor. Mr. Hart.

198. INDUSTRY AND COMMUNITY. II; 3 cr. The factory system and technological factors in community life; the role of industrial workers, leaders, and family in the community; the impact of community disorganization on the industrial worker. Prerequisite: Sociology 193 or consent of instructor. Mr. Hart.

260. SEMINAR: SOCIO-ECONOMIC CHANGE IN UNDERDEVELOPED AREAS. II; 2 cr. (This course is listed elsewhere as ECONOMICS 260.) Social and economic factors relating to stability, growth, and change in the non-western areas of the contemporary world. Prerequisites: Graduate standing and consent of instructor. Mr. Barnett, Mr. Ellsworth, Mr. Hart, Mr. Morgan, Mr. Parsons, Mr. Rubin, Mr. Shannon.

264. SEMINAR: MARRIAGE AND FAMILY. II; 2 cr. Recent research surveyed and analyzed. Prerequisites: Graduate standing and consent of instructor.

293. SEMINAR: INDUSTRIAL SOCIOLOGY. II; 2 cr. The nature of the sociology of industry; research problems and methods of research in industrial sociology. Prerequisites: Graduate standing and consent of instructor. Mr. Clinard or Mr. Hart.

299. SEMINAR: SOCIAL ORGANIZATION. I; 2 cr. (Formerly SOCIOLOGY 289.) An examination of the underlying principles of social organization, and critique of major theories developed to explain them. Prerequisites: Graduate standing and consent of instructor. Staff.

III. ANTHROPOLOGY

35. THE DEVELOPMENT OF MAN AND HIS CULTURE. I; 3 cr. Human evolution and the development of races: cultural origins and the growth of human civilization as revealed by prehistoric archaeology. Prerequisite: Sophomore standing. Mr. Baerreis.

AREA COURSES

78. CONTEMPORARY AMERICAN SOCIETY. II; 3 cr. (Formerly SOCIOLOGY 178.) The patterns of contemporary North American social life in the United States and Canada; cultural orientations, social structures, and dynamics of social change. Prerequisite: Sophomore standing. Credited toward the United States History and Institutions requirement. Mr. Rubin.

113. ETHNOGRAPHY AND ARCHAEOLOGY OF THE AMERICAN SOUTHWEST. II; 3 cr. A subarea course for the study of the cultures of the American Southwest in terms of its prehistoric development, its cultures at the time of initial contact with European civilizations and present problems of acculturation. Prerequisites: Sociology-Anthropology 1a or 101a or Anthropology 3 and junior standing, or consent of instructor. Staff.

114. THE INDIANS OF NORTH AMERICA. I; 3 cr. A description and analysis of native cultures, and the role of environmental and historical factors in North America. Prerequisites: Sociology-Anthropology 1a or 101a or Anthropology 3 and junior standing, or consent of instructor. Mr. Baerreis.

115. THE INDIANS OF CENTRAL AND SOUTH AMERICA. II; 3 cr. Aboriginal and contemporary Indian cultures south of Mexico, including descriptions of the higher civilizations. Prerequisites: Sociology-Anthropology 1a or 101a or Anthropology 3 and junior standing, or consent of instructor. (Anthropology 114 desirable.) Mr. Baerreis.

116. PEOPLES OF ASIA. I; 3 cr. A survey of modern and ancient societies and cultures of Asia. Prerequisites: Sociology-Anthropology 1a or 101a or Anthropology 3 and junior standing, or consent of instructor. Mr. Barnett.

118. PEOPLES OF AFRICA. II; 3 cr. The native peoples and cultures of Africa, with their

changes and status under European domination. Prerequisites: Sociology-Anthropology 1a or 101a or Anthropology 3 and junior standing, or consent of instructor. Mr. Ames.

119. PEOPLES OF THE PACIFIC. II; 3 cr. Native races and cultures of the Pacific as material for study of cultural development. Prerequisites: Sociology-Anthropology 1a or 101a or Anthropology 3 and junior standing, or consent of instructor. Mr. Hart.

186. PEOPLES OF EUROPE: SOUTH AND WEST. I; 3 cr. A study of comparative social organization with special attention to Southern and Western Europe. Survey of regional differences (i.e., Gascon, Sicilian, Macedonian, Basque, etc.) in patterns of living. Prerequisites: Sociology-Anthropology 1a or 101a or Sociology 1 and junior standing, or consent of instructor. Mr. Becker.

187. PEOPLES OF SCANDINAVIA. I, II; 3 cr. A study of trends in social institutions and social organization of Scandinavia. Prerequisites: Sociology-Anthropology 1a or 101a or Sociology 1 and junior standing, or consent of instructor.

188. PEOPLES OF EUROPE: NORTH AND EAST. II; 3 cr. A study of comparative social organization with special attention to Northern and Eastern Europe. Survey of regional differences (i.e., Hebridean, Welsh, Lower Saxon, Tyrolean, etc.) in patterns of living. Prerequisites: Sociology-Anthropology 1a or 101a or Sociology 1 and junior standing, or consent of instructor. Mr. Becker.

189. PEOPLES OF THE NEAR AND MIDDLE EAST. II; 3 cr. Description and analysis of societies and cultures of the Near and Middle East. Attention to backgrounds and present regional differences in Turkey, Syria, Israel, Egypt, Iraq, etc. Prerequisites: Sociology-Anthropology 1a or 101a and junior standing, or consent of instructor. Mr. Rubin.

A. PHYSICAL ANTHROPOLOGY

102. HUMAN EVOLUTION: PROBLEMS AND PRINCIPLES. I; 3 cr. A review of fossil men and primates; evidence bearing on racial origins and relations, including blood groups; the background of evolutionary principles involved. Prerequisites: Anthropology 3 or 35 and junior standing, or consent of instructor.

103. ADVANCED PHYSICAL ANTHROPOLOGY. II; 3 cr. The human skeleton and racial types, with laboratory training in methods used, and application of such methods to problems in race mixture, human biology, etc. Prerequisites: Anthropology 35 or 101 and junior standing, or consent of instructor.

104. HEREDITY, ENVIRONMENT, AND POPULATION. II; 3 cr. Factors influencing human breeding and population changes in modern and primitive societies; human qualities (mentality, vitality, etc.) as influenced by heredity and environment; racial differences and race mixtures. Prerequisites: Sociology-Anthropology 1a or 101a or Anthropology 3 or 101 and junior standing, or consent of instructor.

202. SEMINAR: RACE AND VARIATION. I; 2 cr. A review of literature, points of view, and methods covering the study of individual and group variation in living mankind. Prerequisite: Graduate standing.

B. ARCHAEOLOGY

108. ARCHAEOLOGY OF NORTH AMERICA. II; 3 cr. A survey of the main pre-Columbian cultures and evidences of ancient man on the North American continent north of Mexico. Prerequisites: Sociology-Anthropology 1a or 101a or Anthropology 3 and junior standing, or consent of instructor. Mr. Baerreis.

109. ARCHAEOLOGY OF MEXICO, CENTRAL AND SOUTH AMERICA. I; 3 cr. The development of the higher native civilization of the Middle and South American region as seen through archaeology, with particular emphasis on the Aztecs, Mayas, and Incas. Prerequisites: Sociology-Anthropology 1a or 101a or Anthropology 3 and junior standing, or consent of instructor. Mr. Baerreis.

242. SEMINAR: ARCHAEOLOGICAL PROBLEMS. II; 2 cr. Discussions of current archaeological literature and methods, and work on assigned problems. Prerequisite: Graduate standing. Mr. Baerreis.

C. CULTURAL ANTHROPOLOGY

40. CULTURAL ANTHROPOLOGY. II; 3 cr. A course dealing with the variations of human cultures throughout the world and the comparative study of human institutions. Prerequisites: Sociology-Anthropology 1a or 101a or Anthropology 3 or Sociology 1 and sophomore standing. Mr. Hart.

112. TECHNICAL ARTS OF PRIMITIVE PEOPLES. II; 3 cr. The laboratory study of such material crafts as stone-working, pottery, weaving, etc., and the significance of these techniques in primitive economies, as well as their meaning in the study of cultural development and archaeology. Prerequisites: Sociology-Anthropology 1a or 101a or Anthropology 3, junior standing, and consent of instructor. Mr. Baerreis.

140. ANTHROPOLOGICAL THEORY. I; 3 cr. A survey of the main theoretical movements in anthropology, including both historical and contemporary schools and movements. Prerequisites: Anthropology 40 and senior standing or consent of instructor. Mr. Hart.

141. APPLIED ANTHROPOLOGY. II; 3 cr. Methods in application of anthropology and analysis of contemporary cases relating to human problems resulting from cultural change. A course designed for students of agriculture, nutrition, engineering, and social science who are concerned with the modernization of underdeveloped regions of the world. Prerequisites: Sociology-Anthropology 1a or 101a or Anthropology 3 and junior standing, or consent of instructor. Mr. Barnett.

142. THE NEGRO IN THE NEW WORLD. II; 3 cr. A comparative study of New World Negro cultures with special reference to their African heritage, the slave trade, the plantation system as it developed in different countries and patterns of cultural borrowing from Indian and European groups. Prerequisites: Sociology-Anthropology 1a or 101a or Anthropology 3 and junior standing, or consent of instructor. Mr. Ames.

143. PRIMITIVE RELIGION. II; 3 cr. The origins, elements and forms of primitive religion, with their integration and role in society. Prerequisites: Sociology-Anthropology 1a or 101a and junior standing, or consent of instructor.

145. THE INDIVIDUAL AND HIS CULTURE. I; 3 cr. A comparative analysis of cultures in relation to their influence on personality development and the adjustment of the individual. Prerequisites: Sociology-Anthropology 1a or 101a or Anthropology 3 and junior standing, or consent of instructor. Mr. Barnett.

146. THE CHILD IN DIFFERENT CULTURES. II; 3 cr. The relationship of child development to particular cultural *milieux;* methods of child training in different cultures; the effects on the direction of development in a culture. Prerequisites: Sociology-Anthropology 1a or 101a or Anthropology 3 and junior standing, or consent of instructor. Mr. Barnett.

147. FIELD PROBLEMS AND METHODS. II; 3 cr. A survey of the methods of field work in cultural anthropology; the design of field studies; techniques for the collection and analysis of empirical data; and experimental field projects. Prerequisites: Anthropology 40 or 140 and senior standing or consent of instructor. Mr. Ames or Mr. Barnett.

148. ECONOMIC ANTHROPOLOGY. II; 3 cr. Production, distribution, and consumption in nonliterate societies. Land tenure and personal property concepts, prestige systems, and the incentives to labor. Prerequisites: Sociology-Anthropology 1a or 101a or Anthropology 3 and junior standing, or consent of instructor. Mr. Ames.

149. CULTURE CONTACT AND ACCULTURATION. I; 3 cr. An examination of the processes of cultural interchange. Attention will be given to the selective nature of cultural borrow-

ing and the way in which borrowed traits are modified and integrated into their new cultural setting. Prerequisites: Sociology-Anthropology 1a or 101a or Anthropology 3 and junior standing, or consent of instructor. Mr. Ames.

214. SEMINAR: ETHNOLOGICAL PROBLEMS, NORTH AMERICA. II; 2 cr. Discussion of ethnological problems of selected regions or areas of Indian cultures in North America and the interrelationships between regions. Prerequisite: Graduate standing. Mr. Baerreis.

240. SEMINAR: PROBLEMS IN CULTURAL ANTHROPOLOGY. II; 2 cr. Discussions of current anthropological literature and methods, and work on assigned problems. Prerequisite: Graduate standing or consent of instructor. Mr. Hart.

260. SEMINAR: SOCIO-ECONOMIC CHANGE IN UNDERDEVELOPED AREAS. II; 2 cr. (This course is listed elsewhere as ECONOMICS 260.) Social and economic factors relating to stability, growth, and change in the non-western areas of the contemporary world. Prerequisites: Graduate standing and consent of instructor. Mr. Barnett, Mr. Ellsworth, Mr. Hart, Mr. Morgan, Mr. Parsons, Mr. Rubin, Mr. Shannon.

D. LINGUISTICS

120. THE LANGUAGES OF THE WORLD. I; 3 cr. Types of language; the geographical distribution of language groups; the relation of linguistics to other divisions of knowledge. Prerequisite: Sophomore standing. Mr. Fowler.

121. PHONEMICS. II; 3 cr. Exercises in phonemic analysis followed by ten hours of practical work with a native speaker of a foreign language. Prerequisite: Sophomore standing. Mr. Fowler.

122. MORPHEMICS. II; 3 cr. Exercises in morphemic analysis followed by concentrated work on a descriptive statement of the structure of English. Prerequisite: Anthropology 121. Mr. Fowler.

E. INDEPENDENT WORK

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

180. INDEPENDENT WORK IN ANTHROPOLOGY. I, II, or Yr; *cr. See page 41 of this bulletin for requirements and procedures. Staff.

190. PROBLEMS IN ANTHROPOLOGY. I, II; 3 cr. Independent research in specific problems in physical anthropology, archaeology or cultural anthropology under supervision. Prerequisite: Consent of instructor. Staff.

200. RESEARCH AND THESIS. Yr; *cr. Prerequisite: Advanced graduate standing. Staff.

280. READING AND RESEARCH IN ANTHROPOLOGY. I, II, or Yr; *cr. Prerequisites: Graduate standing and consent of major professor. Staff.

F. INTERDEPARTMENTAL COURSE

290. INTERDEPARTMENTAL SEMINAR IN LATIN-AMERICAN PROBLEMS. II; 2 cr. (This course is listed elsewhere as ECONOMICS 290, GEOGRAPHY 290, HISTORY 290, and POLITICAL SCIENCE 290.) An inter-disciplinary inquiry into the factors influencing the use of resources in various regions in Latin America. Prerequisite: Graduate standing. Mr. Baerreis, Mr. Barnett, and members of other departments.

IV. SOCIAL DISORGANIZATION

A. GENERAL COURSES

2. SOCIAL DISORGANIZATION. I, II; 3 cr. Conditions and processes in personal and social maladjustment: nature of social disorganization and social problems; their relation to social change and basic ideological, technological and institutional structures and processes.

Prerequisites: Sociology-Anthropology 1a or 101a or Sociology 1 or Anthropology 3. Mr. Clinard, Mr. Hakeem, Mr. Shannon.

154. TREATMENT AND PREVENTION OF SOCIAL DISORGANIZATION. II; 3 cr. Proposed practical solutions of social disorganization and their evaluation in terms of a systematic theory of social disorganization. Eugenic, psychiatric, economic, sociological, and other suggested solutions. The role of group values in treatment programs. Prerequisites: Sociology-Anthropology 1a or 101a and Sociology 2 and junior standing, or consent of instructor. Mr. Clinard.

161. CRIMINOLOGY. I; 3 cr. Crime as a form of deviant behavior: its relation to societal values and social structure; personality and community factors in criminal behavior; the professional criminal and organized crime; theories of treatment and control; correctional methods and the administration of justice. Prerequisites: Sociology-Anthropology 1a or 101a or Sociology 2 and sophomore standing, or consent of instructor. Mr. Clinard.

162. THE SOCIAL PROBLEMS OF OLD AGE. I; 3 cr. (Formerly SOCIOLOGY 189.) The extent of our present and future old age problem; a comparative view of the role of old people in various societies; the factors that account for the changed position of the aged in our society. The incidence of psychoses and other problems among the old and proposed solutions for dealing with disorganization among the aged. Prerequisites: Sociology-Anthropology 1a or 101a or Sociology 1 or 2 and junior standing, or consent of instructor.

164. PROBLEMS OF AMERICAN MINORITY GROUPS. II; 3 cr. The nature of minority groups and their problems. Social and economic adjustments in our society of the Negro, Mexican, Indian, Asiatic, and various nationality groups. The problem of anti-Semitism. Proposals for the reduction of inter-group tensions. Prerequisites: Sociology-Anthropology 1a or 101a or Sociology 1 or 2 and junior standing, or consent of instructor. Mr. Clinard.

169. PROCESSES OF SOCIAL DISORGANIZATION. I; 3 cr. Factors and conditions that underlie disagreement about fundamental values; their relation to personal and social maladjustment; evaluation of various theories of social disorganization; social disorganization in differing societies; relation of social disorganization to mental illness and alcoholism; group approaches to social reintegration. Prerequisites: Sociology-Anthropology 1a or 101a or Sociology 1 or 2 and junior standing, or consent of instructor. Mr. Clinard.

235. SEMINAR: RESEARCH IN SOCIAL DISORGANIZATION. II; 2 cr. Qualitative and quantitative methods of research with reference to various types of social disorganization; relationships between case study and statistical methods. Analysis of important research studies in social disorganization. Prerequisites: Graduate standing and consent of instructor. Mr. Clinard.

282. SEMINAR: CRIMINOLOGY. I; 2 cr. Conditions and processes in the development of criminal careers: social and psychogenic theories of crime; case studies of individual offenders; development of methods of research. Prerequisites: Graduate standing and consent of instructor. Mr. Clinard.

B. CORRECTIONAL ADMINISTRATION COURSES

156. JUVENILE DELINQUENCY. I; 3 cr. Nature and interpretation of delinquency; statistics; causation; prevention; role of police; detention; juvenile court; community agencies; correctional schools; youth services; probation; post-institutional placement and supervision; treatment procedures. Prerequisites: Sociology-Anthropology 1a or 101a or Sociology 1 or 2 and sophomore standing, or consent of instructor. Mr. Hakeem.

160. TREATMENT OF OFFENDERS. II; 3 cr. Principles of treatment of offenders; application of social science principles to treatment of offenders; attitude formation and change; group dynamics; interviewing; guidance and counseling; social re-education. Prerequisites: Sociology 170 and senior standing, or consent of instructor. Mr. Hakeem.

161. Criminology. I; 3 cr. Crime as a form of deviant behavior: its relation to societal values and social structure; personality and community factors in criminal behavior; the professional criminal and organized crime; theories of treatment and control; correctional methods and the administration of justice. Prerequisites: Sociology-Anthropology 1a or 101a or Sociology 2 and sophomore standing, or consent of instructor. Mr. Clinard.

165. Prevention and Control of Delinquency and Crime. I; 3 cr. A critical review of policies and programs which have been proposed or tried for the prevention and control of delinquency and crime. Examination and evaluation of specific programs. Principles involved in prevention and control. Prerequisites: Sociology 156 or 161 and junior standing, or consent of instructor. Mr. Hakeem.

168. Elementary Principles of Probation and Parole. II; 3 cr. Probation and parole as methods for treating offenders; history; organization and administration; eligibility; selection; revocation and termination; procedures and techniques; trends. Prerequisites: Sociology 161 and junior standing, or consent of instructor. Mr. Hakeem.

170. Correctional Institutions. I; 3 cr. Nature and history of punishment; punishment vs. treatment of offenders; detention facilities, jails, reformatories, prisons; history; organization and administration; personnel; classification; custody and discipline; programs and activities; inmate society; trends. Prerequisites: Sociology 161 and junior standing, or consent of instructor. Mr. Hakeem.

179. Internship in Correctional Administration. I, II; *cr. Field work under supervision for 10 to 12 full weeks or equivalent in a correctional institution or agency; periodic conferences and reports on work assignments; concurrent reading and reports; final report and oral examination. Prerequisite: Consent of instructor. Mr. Hakeem.

254. Seminar: Advanced Probation and Parole. II; 2 cr. Special problems in probation and parole; problems in supervision; means for making constructive impact on probationers and parolees; services to probationers and parolees; factors associated with outcome; prediction studies; parole and probation manuals; study of cases. Prerequisites: Graduate standing and consent of instructor. Mr. Hakeem.

256. Seminar: Administration of the Criminal Law. II; 2 cr. (Conducted jointly by the Department of Sociology and Anthropology and the Law School.) Problems of interest to both the lawyer and the social scientist in those areas in the administration of the criminal law including the detection and apprehension of criminals, the functions of the district attorney, the judge, the jury, the prison administrator and probation, parole and prevention services, and their interrelationships. Prerequisite: Consent of instructor. Mr. Hakeem, Mr. Remington, Mr. Young.

258. Seminar: Institutional Treatment of Adult Offenders. I; 2 cr. Constructive use of the institutional setting; impact of institutional life on the prisoner; social structure of the institution; review and evaluation of specific programs and experiments in institutional treatment; institutional problems; preparation for release. Prerequisites: Graduate standing and consent of instructor. Mr. Hakeem.

CURRICULUM IN CORRECTIONAL ADMINISTRATION

Special Departmental Adviser: Professor Michael Hakeem

Increasingly, correctional institutions and agencies are recognizing the need for specially trained personnel to implement their programs for the treatment of juvenile and adult offenders. This is true of jails, reformatories, prisons, juvenile detention and correctional institutions, probation and parole departments, juvenile courts, crime and delinquency prevention projects, and so forth. Administrators are more and more insisting on recruitment of workers who have completed a course of training such as that provided by this curriculum.

Modern and progressive correctional agencies have developed facilities and programs designed for the social treatment and retraining of offenders. Treatment and retraining and their attendant operations and services—prehearing and presentence investigation; intake and short-contact procedures; presentation of cases; screening and classification; orientation procedures; counseling and guidance; group therapy; case supervision; progress evaluation; prerelease preparation; parole planning; case referral, etc.—call for professionally trained career-service personnel. A combination of academic preservice training and internship training provides the best preparation for these correctional services.

The University of Wisconsin through the Department of Sociology and Anthropology has been one of the pioneers in establishing a curriculum in correctional training. Through the years this curriculum has been altered and expanded to keep up with developments in the field, and is in line with the suggested standards of the Committee on Personnel Standards of the American Correctional Association.

The curriculum rests on a broad base provided by sociology and related disciplines. The special courses in Correctional Administration emphasize the application of the knowledge, procedures, and theories contributed by them. In addition, the technical and operational information, skills, and orientation needed by correctional workers are covered.

An important part of the preparation for correctional work is an internship by means of which practical experience in the field is secured. A number of correctional institutions and agencies throughout the country have established, with the co-operation of the University, internship programs that provide excellent training opportunities. Each year arrangements are made for a number of selected students to undertake such an internship. This is usually done in the summer months, preferably between the junior and senior years, and carries 6 credit hours. (See SOCIOLOGY 179.)

Successful completion of this curriculum leads to a B.A. or B.S. degree. (For information on the graduate curriculum in Correctional Administration see the bulletin of the Graduate School.) The work of the first two years is the same as that for the B.A. or B.S. General Course which gives a broad, liberal foundation for specialized work.

It is suggested that students who have decided to major in this curriculum or who seek advice about it consult the Special Departmental Adviser. Following are the requirements for the curriculum in Correctional Administration:

BASIC COURSES

(At least 28 credit hours are required.)

SOCIOLOGY-ANTHROPOLOGY 1a or 101a	Man, culture, and society, 3 cr.
SOCIOLOGY 2	Social disorganization, 3 cr.
SOCIOLOGY 32, or SOCIOLOGY 132*	Interpretative social statistics, 3 cr. Introductory social statistics, 3 cr.
SOCIOLOGY 139	Introductory social psychology, 3 cr.
PSYCHOLOGY 1	Introduction to psychology, 4 cr.
PSYCHOLOGY 105	Psychology of human adjustment, 3 or 4 cr.
SOCIAL WORK 145a	Introduction to the field of social work, 3 cr.
EDUCATION, POLITICAL SCIENCE, PSYCHOLOGY, SOCIAL WORK	Courses (exclusive of Psychology 1 and 105 and Social Work 145a) totaling a minimum of 6 credit hours must be selected from these fields with the approval of the adviser. Election of courses in Education subject to Section 17.

* Students who plan to do graduate work should take Sociology 132 rather than Sociology 32.

The following courses are particularly recommended:
Education: 125, 181, 184
Political Science: 13, 115, 139, 143, 170
Psychology: 50, 147, 148, 165, 185
Social Work: 113, 162, 177, 185

COURSES IN CORRECTIONAL ADMINISTRATION

(At least 15 credit hours are required.)

Sociology 156	Juvenile delinquency, 3 cr.
Sociology 160	Treatment of offenders, 3 cr.
Sociology 161	Criminology, 3 cr.
Sociology 165	Prevention and control of delinquency and crime, 3 cr.
Sociology 168	Probation and parole, 3 cr.
Sociology 170	Correctional institutions, 3 cr.
Sociology 179	Internship in correctional administration (not to exceed 6 cr.)

V. RURAL SOCIOLOGY

Below 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 Society. I; 3 cr. Study of changing group relations in rural families, neighborhoods, communities, interest groups, and social institutional arrangements. Prerequisite: Sophomore standing. Mr. Kolb.

27. Rural Organization and Leadership. II; 2 cr. History, scope and function of rural organizations in social life. Characteristics and activities of social, educational, recreational and occupational groups. History, description and analysis of selected types in Wisconsin. Problems of organization and leadership. Prerequisite: Sophomore standing. Mr. Barton.

125. Structure and Functioning of American Rural Society. I; 3 cr. A functional analysis of the group, institutional and status structure of contemporary American rural society with implications for action programs. Prerequisites: Junior standing and an introductory course in sociology, or consent of instructor. Mr. Wilkening.

126. Rural Standards of Living. II; 2 cr. Consumption behavior in the main commodity groups: food, housing, clothing, education, recreation, etc.; growth of consumer consciousness and governmental and co-operative agencies that give it expression. Prerequisites: Junior standing and an introductory course in rural or general sociology or consent of instructor. Mr. Barton.

127. Rural Community Organization. II; 2 cr. History of the rural community and its social organization; principles including leadership and processes of conflict and cooperation; agencies serving the rural community; studies of selected cases. Prerequisites: Junior standing and an introductory course in rural or general sociology or consent of instructor. Mr. Wileden.

128. Methods of Research in Rural Sociology. I; 2 cr. A review of the methods currently employed by rural social research agencies, with special emphasis on the more recent developments in interviewing techniques, schedule and scale construction, attitude and opinion measurement and experimental design. Prerequisites: Junior standing, an introductory course in sociology, and consent of instructor. Mr. Sewell.

129. Technological Change in American Rural Society. I; 2 cr. The nature of technological change in farming and in family living, and how it is influenced by situational, psychological and social factors, with particular attention to the role of the pro-

fessional worker in effecting such changes. Prerequisites: Junior standing and an introductory course in sociology or consent of instructor. Mr. Wilkening.

130. POPULATION TRENDS AND PROBLEMS IN RURAL SOCIETY. II; 2 cr. Changes in number, vitality differentials, population characteristics, migration. The relationship of the dynamics of population changes and problems in agriculture; rural areas in the United States; selected countries of the world. Prerequisites: Junior standing and an introductory course in sociology, or consent of instructor. Mr. Marshall.

131. RURAL COMMUNITY AND WELFARE AGENCIES. I; 3 cr. The organization of rural communities in the United States, rural problem areas, and the institutions and agencies through which a rural welfare program must function. (This course is required of all Social Work majors.) Prerequisites: Junior standing and an introductory course in rural sociology or sociology or Social Work 145. Mr. Barton

185. MODERN AMERICAN COMMUNITIES. II; 3 cr. Rural backgrounds of American culture. Development of American social institutions, social structure and values as seen in selected rural and urban communities. European images of America and evaluation of America's social strengths. Prerequisite: Major in American Institutions or junior standing. Mr. Barton. (For Sociology majors may be counted toward 20 hours of related social science, but not toward the 30 credits in sociology.)

225. SEMINAR IN RURAL SOCIAL RESEARCH. Yr; 2 cr. An examination of current research problems, theories and methods. Prerequisites: Graduate standing and consent of instructor. Staff.

VI. STATISTICS

32. INTERPRETATIVE SOCIAL STATISTICS. I, II; 3 cr. For majors in sociology, anthropology, and social work who do not plan to do graduate work. The logic and interpretation of typical statistical articles and reports met with in sociological, anthropological, and social work literature. Lectures and laboratory. Prerequisite: Sophomore standing. Mr. Thomlinson.

132. INTRODUCTORY SOCIAL STATISTICS. I; 3 cr. A first course in statistics for graduate students and those undergraduate majors in sociology, anthropology, and social work who expect to do advanced work. The theory and application of elementary statistics as a method of social research and analysis. Lectures and laboratory. Prerequisite: Junior standing; and for Sociology and Anthropology majors, one semester of college algebra or equivalent.

182. CORRELATION IN SOCIOLOGICAL RESEARCH. I; 3 cr. The application of correlation techniques to sociological research, with special reference to student theses. Gross, partial, and multiple correlation, quantitative and qualitative. Prerequisite: Sociology 132 or equivalent.

183. SAMPLING IN SOCIOLOGICAL RESEARCH. II; 3 cr. The theory and practice of sampling applied to sociological problems, with special attention to student theses. Includes analysis of variance. Prerequisite: Sociology 132 or equivalent.

232. STATISTICAL RESEARCH IN SOCIOLOGY. I; 3 cr. (Formerly SOCIOLOGY 232a–b.) Definition of problems, preparation of questionnaires and scales, dummy tables, preliminary trials, organization of field work, editing returns, analysis, report writing. Prerequisites: Graduate standing and consent of instructor.

VII. SOCIAL PSYCHOLOGY

136. PUBLIC OPINION. I; 3 cr. Organized and unorganized communication processes. Press, radio, motion pictures as agencies of mass-impression. Analysis of symbolic processes, publics and audiences. Censorship and propaganda, their personnel and strategy. Pre-

requisites: Sociology-Anthropology 1a or 101a or Sociology 1 and junior standing, or consent of instructor. Mr. Gerth.

137. SOCIAL BEHAVIOR DYNAMICS. II; 3 cr. (This course is listed elsewhere as PSYCHOLOGY 137.) The influence of social factors on decision-making. Emphasis on the analysis and prediction of social behavior in situations of role change and role conflict, multiple group membership, long-range or career planning, ambiguity and risk-taking, acceptance of new behavior, and related situations. Prerequisites: Sociology 139 and junior standing, or consent of instructor. Mr. Brim.

138. SMALL GROUP RESEARCH. I; 3 cr. (Formerly SOCIOLOGY 190.) Comparative analysis and critical evaluation of concepts, hypotheses, techniques and results of research on small groups (including group dynamics, interaction analysis, sociometrics, sociodrama, etc.); training in applied experimental methods and the development of research instruments. Prerequisites: Sociology-Anthropology 1a or 101a and Sociology 139 and junior standing, or consent of instructor. Mr. Brim.

139. INTRODUCTORY SOCIAL PSYCHOLOGY. I, II; 3 cr. (This course is listed elsewhere as PSYCHOLOGY 139.) An introduction to the general area of social psychology, covering such topics as motivation, attitude, value, communication, leadership, etc. Prerequisites: Sociology-Anthropology 1a or 101a or Sociology 1 or Psychology 1 and sophomore standing. Mr. Gilchrist.

150. COLLECTIVE BEHAVIOR. II; 3 cr. The social psychology of organized and unorganized social movements, mobs, crowds, masses, fashions, extraordinary psychic states; charlatans, experts and culture heroes. Voluntary and compulsory associations; their leadership, social composition, organization, and tactics. The power structure and dynamics of social movements. Prerequisites: Sociology-Anthropology 1a or 101a or Sociology 1 and junior standing, or consent of instructor. Mr. Gerth.

155. IDEOLOGICAL CONFLICT. II; 3 cr. General aspects of conflict, its ideological concomitants, and its alternatives. Techniques of influencing morale, both constructively and in so-called psychological warfare. Attention to World War II, its aftermath, and the "cold war." Prerequisites: Sociology-Anthropology 1a or 101a or Sociology 1 or 2 or Anthropology 3 and junior standing, or consent of instructor. Mr. Becker.

192. PROBLEMS IN EMPIRICAL SOCIAL BEHAVIOR RESEARCH. I, II; 2–3 cr. (This course is listed elsewhere as JOURNALISM 192, POLITICAL SCIENCE 192, SOCIAL STUDIES 192, and SOCIAL WORK 192.) Supervised individual or joint work on problems in research, including carrying out of projects and/or independent reading or methodology. Prerequisite: Consent of instructor. Mr. Fisher.

194. INTRODUCTION TO PUBLIC OPINION RESEARCH. I; 3 cr. (This course is listed elsewhere as AGRICULTURAL ECONOMICS 194, AGRICULTURAL JOURNALISM 194, JOURNALISM 194, POLITICAL SCIENCE 194, PSYCHOLOGY 194, RURAL SOCIOLOGY 194, SOCIAL STUDIES 194, and SOCIAL WORK 194.) Theory and practice of *survey* techniques. Planning, design, sampling, types of data, questionnaire construction, interviewing, field operations, content analysis and coding, machine tabulation, analysis of data, utilization of findings. Examples in a variety of fields. Two hours lecture; two hours laboratory or field work. Prerequisite: Junior standing. Mr. Fisher.

197. PERSONALITY AND SOCIAL STRUCTURE. II; 3 cr. An analysis of relations between personality, social interaction and culture. Prerequisites: Sociology-Anthropology 1a or 101a or Sociology 1 or Anthropology 3 and junior standing, or consent of instructor.

237. SEMINAR: PUBLIC OPINION. I; 2 cr. A social-psychological and sociological analysis of propaganda, lobby and pressure groups, and censorship. Role of leader in public opinion and other forms of social control. Prerequisites: Graduate standing and consent of instructor. Mr. Gerth.

238. SEMINAR: CURRENT METHODOLOGICAL ISSUES IN SOCIAL PSYCHOLOGY. II; 2 cr. Presentation of the design of on-going research projects and discussion of methodological problems by research workers in social psychology, including staff members and advanced graduate students. Prerequisites: Graduate standing and consent of instructor. Staff.

239. SEMINAR: ADVANCED SOCIAL PSYCHOLOGY. II; 2 cr. The theoretical and systematic foundations of social psychology. Prerequisites: Graduate standing and consent of instructor. Mr. Gerth or Mr. Fisher.

250. SEMINAR: MASS MOVEMENTS. II; 2 cr. Mass psychology and socio-political movements. Their forms of leadership, recruitment, organization, symbols, tactics and strategies in democratic and totalitarian societies. Prerequisites: Graduate standing and consent of instructor. Mr. Gerth.

262. SEMINAR: ANALYSIS OF PREJUDICE AND DISCRIMINATION. I; 2 cr. Intensive analysis of the social-psychological factors underlying prejudice and discrimination. Prerequisites: Graduate standing and consent of instructor. Mr. Barnett.

294. SEMINAR IN THE DESIGN AND PROCESS OF SURVEY RESEARCH. II; 3 cr. (This course is listed elsewhere as JOURNALISM 294, POLITICAL SCIENCE 294, SOCIAL STUDIES 294, and SOCIAL WORK 294.) Presentation of initial study designs or of research in progress by members of the seminar, for critiques leading both to further development of the project itself and to illustration of research problems in the social sciences. Prerequisite: Consent of instructor. Mr. Fisher.

297. SEMINAR: PERSONALITY. II; 2 cr. Research topics that relate the development of personality to social-cultural environment. Prerequisites: Graduate standing and consent of instructor.

VIII. POPULATION

104. HEREDITY, ENVIRONMENT, AND POPULATION. II; 3 cr. Factors influencing human breeding and population changes in modern and primitive societies; human qualities (mentality, vitality, etc.) as influenced by heredity and environment; racial differences and race mixtures. Prerequisites: Sociology-Anthropology 1a or 101a or Anthropology 3 or 101 and junior standing.

130. POPULATION TRENDS AND PROBLEMS IN RURAL SOCIETY. II; 2 cr. Changes in number, vitality differentials, population characteristics, migration. The relationship of the dynamics of population changes and problems in agriculture; rural areas in the United States; selected countries of the world. Prerequisites: Junior standing and an introductory course in sociology, or consent of instructor. Mr. Marshall.

163. WORLD POPULATION PROBLEMS. I; 3 cr. Population growth and composition in relation to natural resources, cultural achievement, migration and war. Birth control and differential fertility. Prerequisites: Sociology-Anthropology 1a or 101a or Sociology 1 or Geography 6 or Economics 1a and junior standing, or consent of instructor. Mr. Thomlinson.

166. ECONOMICS OF POPULATION. II; 3 cr. (This course is listed elsewhere as ECONOMICS 166.) Changes in the size and location of populations, as related to levels of income and business activity. Prerequisites: Sociology-Anthropology 1a or 101a or Sociology 1 or 2 or Economics 1a and junior standing, or consent of instructor. Mr. Morgan.

181. POPULATION AND SOCIETY. II; 3 cr. The influence of population numbers, birth rate, death rate, marriage rate, differential fertility, sex ratio, age composition, and migration on social values, social action, and social structure. Prerequisites: Sociology-Anthropology 1a or 101a and junior standing or consent of instructor.

184. METHODS IN POPULATION RESEARCH. II; 3 cr. Correction of basic data. Refined

measures of fertility, marriage, population increase, etc. Construction and use of life tables. Migration, post-censal population estimates, vital phenomena and business cycles. Prerequisites: Sociology 132 and 163 or their equivalent. Mr. Thomlinson.

267. SEMINAR: POPULATION PROBLEMS. II; 2 cr. Prerequisites: Graduate standing and Consent of instructor.

271. SEMINAR ON THE GEOGRAPHY OF POPULATION PROBLEMS. (This course is listed elsewhere as GEOGRAPHY 271.) 2–3 cr. Mr. Trewartha.

SOCIAL STUDIES

120. HUMAN RELATIONS FOR ENGINEERS. I, II; 3 cr. Analysis of human relations problems characteristic of the engineering profession. Policies and procedures Prerequisites: Senior standing and registration in the College of Engineering. Mr. Lescohier.

192. PROBLEMS IN EMPIRICAL SOCIAL BEHAVIOR RESEARCH. I, II; 2–3 cr. (This course is listed elsewhere as POL. SCI. 192, SOCIAL WORK 192, and SOCIOLOGY 192.) Supervised individual or joint work on problems in research, including carrying out projects and/or independent reading on methodology. Prerequisite: Consent of instructor. Mr. Fisher.

194. INTRODUCTION TO PUBLIC OPINION RESEARCH. I; 3 cr. (This course is listed elsewhere as AGR. ECON. 194, AGR. JOURN. 194, JOURNALISM 194, POL. SCI. 194, PSYCHOLOGY 194, RURAL SOC. 194, SOCIAL WORK 194, and SOCIOLOGY 194.) Theory and practive of *survey* techniques. Planning, design, sampling, types of data, questionnaire construction, interviewing, field operations, content analysis and coding, machine tabulation, analysis of data, utilization of findings. Examples in a variety of fields. Two hours lecture; two hours laboratory or field work. Prerequisite: Junior standing. Mr. Fisher.

199. CAUSES OF INTER-AMERICAN MISUNDERSTANDINGS. I, II; 2 cr. An interdepartmental course open to American and Latin-American students who are interested in searching for the causes of misunderstandings not only between peoples of the United States and Latin America but also among Latin-American peoples. Lectures, reports and discussion. Prerequisite: Junior standing or consent of instructor. Mr. Kroeber, Mr. Bohstedt and staff.

270a–b. SEMINAR IN PUBLIC PLANNING. Yr; 2–3 cr. Processes in decision-making with respect to physical design and administration in regional, state, and local planning. Participation by members of the interdepartmental committee of the Regional Planning Course. Prerequisite: Graduate standing. Mr. Clarenbach, Mr. Ratcliff.

294. SEMINAR IN THE DESIGN AND PROCESS OF SURVEY RESEARCH. II; 3 cr. (This course is listed elsewhere as JOURNALISM 294, POL. SCI. 294, SOCIAL WORK 294, and SOCIOLOGY 294.) Presentation of initial study designs or of research in progress by members of the seminar, for critiques leading both to further development of the project itself and to illustration of research problems in the social sciences. Prerequisite: Consent of instructor. Mr. Fisher.

SOCIAL WORK

PROFESSORS CLARKE, MILES, *director;* ASSOCIATE PROFESSORS DOWNING, ORCHARD, TETER; ASSISTANT PROFESSORS KADUSHIN, SOFFEN, TODD; LECTURER SCHENK; SPECIALISTS (FIELD WORK SUPERVISORS) NAGEL, WOODSIDE.

The undergraduate major in Social Work is intended to give the student a basic liberal education with a well-rounded selection of courses from the social sciences and, in the junior and senior years, some pre-professional courses in social work.

MAJOR. For Social Work as a major, 15 credits are required in sociology and anthro-

pology. The required courses are: Sociology 1a, 32, or 132,* Rural Sociology 131. Six hours of advanced credits (including Sociology 139, 151, or Anthropology 40) are required.

Twenty hours of related courses in the social sciences are also required as a part of the major. These courses are: Economics 1a and one advanced 3-credit course, preferably in labor; Political Science 7 or 107 and one 3-credit advanced course in government administration; Psychology 1 and one 3-credit advanced course.

Fifteen credits of social work courses are required. Social Work 145a and b are the only required courses. The additional courses may be selected from those available to undergraduate students. Any student who majors in social work or sociology cannot count toward graduation more than 40 credits in both subjects combined.

I. PRE-PROFESSIONAL COURSES

100. Senior Thesis. Yr; 4 cr. Staff.

113. Theory and Practice of Group Leadership. Yr; 2–3 cr. Importance and meaning of group experience. Needs of group members. Qualities of leadership. Section a: 3 cr. Field work in selected recreational agencies. Section b: 2 cr. Class work only. Prerequisites: Senior standing, demonstrated leadership ability, and consent of instructor. Staff.

114. Organization of Recreation Services. II; 3 cr.

120. Social Security. II; 3 cr. (See Economics 120.)

125. Methods of Public Welfare Investigation. I, II; 3 cr. Motivations of those who apply for public assistance; techniques of interviewing; methods of meeting statutory requirements of eligibility, analyzing resources; casework and case load management in public assistance. Prerequisites: Social Work 145 and junior standing.

128. Descriptive Social Work Statistics. 1–2 cr. Fundamentals of organizing and presenting quantitive materials for planning, interpretive, and administrative purposes. The logic of statistical investigations and analysis of statistical reports and literature. Prerequisite: Graduate standing. Mr. Teter.

145a. The Field of Social Work. I; 3 cr. Fields, methods, principles, personnel of social work. Required of social work majors. Prerequisite: Junior standing. Staff.

145b. The Field of Social Work. II; 3 cr. Environmental influences including culture, economic organization, population, government; development of public and voluntary services. Required of social work majors. Prerequisite: Social Work 145a. Staff.

162. Child Welfare. I, II; 3 cr. Problems of dependent, neglected and delinquent children; methods of study and treatment utilized by federal, state and local governments and by private agencies. Prerequisites: Junior standing and Social Work 145a. Mr. Nagel, Miss Orchard.

177. Social Legislation. I; 3 cr. Statutes and court decisions on marraige, divorce, adoption, illegitimacy, poverty, etc. The reciprocal effects of law and social work. Prerequisites: Junior standing and Social Work 145 or concurrent registration. Miss Clarke.

180. Independent Reading in Social Work. I, II; *cr. Reading may be in any field for which the student has an adequate background. Staff.

II. SOCIAL TREATMENT

214 a–b. Administration of Public Recreation. Yr; 2–3 cr. Policies and procedures in the administration of local public recreation. First semester: management of the program and staff, supervisory procedures. Second semester: properties administrations, fiscal practice. (May be taken for two credits only when offered in Extension.) Mr. Hutchins.

* Students who plan to do graduate work are urged to elect Sociology 132 rather than Sociology 32.

254 (Sociology). Seminar in Probation and Parole.

258. (Sociology) Seminar in Correctional Administration. I, II; 2 cr.

263. Seminar in Case Work Supervision. I; 2 cr. Consideration of learning patterns, and the principles and methods of supervision in social case work. Prerequisite: Open to social agency personnel with two years of graduate social work training plus case work experience and second-year graduate students who have had previous experience in case work. Miss Todd.

270a. Field Work. I, II; 2 cr. Supervised practice in a social agency in Madison, Milwaukee or elsewhere in the state. Prerequisite: Social Work 275a or concurrent registration. Staff.

270b. Field Work. I, II; 2 cr. Advanced first-year supervised practice in a social agency in Madison, Milwaukee or elsewhere in the state. Prerequisite: Social Work 270a. Staff.

271a. Field Work. I, II; 2 cr. Second-year supervised practice in a social agency in Madison, Milwaukee or elsewhere in the state. Prerequisite: Social Work 270b. Staff.

271b. Field Work. I, II; 2 cr. Advanced second-year practice in a social agency in Madison, Milwaukee or elsewhere in the state. Prerequisite: Social Work 271a. Staff.

273a. Social Policy and Administration. I; 3 cr. Social work as an institution in modern society; legal, religious, and secular influences in the history of social work; development of public and voluntary social services in urban and rural areas. Prerequisites: Graduate standing and consent of instructor. Staff.

273b. Social Policy and Administration. II; 3 cr.. Community relationships in public and voluntary social services; principles of social welfare administration; role of the social welfare administrator in American society. Prerequisites: Graduate standing and Social Work 273a. Staff.

274a. Human Growth and Development. I; 3 cr. Normal growth and development from birth to adolescence; the interaction of emotional, social, and physical factors in growth and development. Prerequisites: Graduate standing and consent of instructor. Staff.

274b. Human Growth and Development. I; 3 cr. Normal growth and development from adolescence through senescence; physical, emotional and social problems encountered during each phase and the range of social adjustments to these problems. Prerequisite: Social Work 274a. Staff.

275a. Social Work Methods. I; 3 cr. Generic aspects of social work methods in case work, group work, and community organization; concepts and processes. Prerequisites: Graduate standing and consent of instructor. Staff.

275b. Social Work Methods. II; 3 cr. Role of the social worker in helping individuals and groups; intensive study of methods in case work, group work, and community organization. Prerequisite: Social Work 275a. Staff.

282. (Sociology) Seminar in Criminology. I; 2 cr.

283a. Supervision and Administration in Group Work. I; 3 cr. An analysis of process in supervision, administration, and program planning in group work. Policy making and program planning. Prerequisites: Graduate standing and consent of instructor.

283b. Supervision and Administration in Group Work. II; 3 cr. An analysis of process in supervision, administration, and program planning in group work. Policy making and program planning. Prerequisites: Graduate standing and consent of instructor. Mr. Soffen.

284a Psychopathology for Social Workers. I; 2 cr. Study of the social implications

of the more common neuroses, psychoses, mental deficiency, convulsion disorders and neurological disturbances. Prerequisite: Consent of instructor. Dr. Reek.

284b. PSYCHOPATHOLOGY FOR SOCIAL WORKERS. II; 2 cr. The social implications and treatment of behavior disorders of children and adults, including a survey of psychological tests and their significance for social diagnosis and treatment. Prerequisites: Social Work 284a and consent of instructor. Dr. Reek.

289a. CASE WORK THEORY. I; 3 cr. Differential diagnosis and treatment in social case work with emphasis on psychosocial effects of physical and mental illness. Effects of these problems and factors specific to practice of case work in various settings. Emphasis on treatment methods, interviewing techniques, and other skills. Prerequisites: Graduate standing, Social Work 275a and b. Staff.

289b. CASE WORK THEORY. II; 3 cr. Differential diagnosis and treatment in social case work with emphasis on psychosocial effects of physical and mental illness. Effects of these problems and factors specific to practice of case work in various settings. Emphasis on treatment methods, interviewing techniques, and other skills. Prerequisites: Graduate standing, Social Work 275a and b. Staff.

286. SPECIALIZED MEDICAL PROBLEMS FOR SOCIAL WORKERS. II; 2 cr. Emphasis upon major disease groups with opportunity for clinical observation. Lectures and demonstrations by medical specialists. Discussion of emotional and social implications of each disease studied. Prerequisites: Social Work 236 and consent of instructor. Miss Gane.

III. SOCIAL WELFARE PLANNING

208. SEMINAR IN COMPARATIVE SOCIAL WORK. I. The social services and their socio-economic bases in various European and South American countries. Prerequisite: Consent of instructor. Staff.

212. INTERNATIONAL ASPECTS OF SOCIAL WORK. II; 2 cr. Public and private international organizations with social work functions. Prerequisites: Consent of instructor. Staff.

IV. SOCIAL WELFARE ADMINISTRATION

220. SEMINAR IN SOCIAL SECURITY. Yr; 2–4 cr. The history, present status, current problems and proposed development of the major social security institutions of the United States. Prerequisite: Graduate standing. Mr. Miles, Mr. Witte.

288. SOCIAL WORK ADMINISTRATION. II; 3 cr. Problems and principles in welfare administration. Special emphasis upon finance, personnel standards, and management. Prerequisites: Graduate standing and Social Work 273a and b. Staff.

V. RESEARCH AND STATISTICS

SOCIOLOGY 132. INTRODUCTORY SOCIAL STATISTICS. I; 3 cr.

SOCIOLOGY 182. INTERMEDIATE SOCIAL STATISTICS: CORRELATION. I; 3 cr.

SOCIOLOGY 183. INTERMEDIATE SOCIAL STATISTICS: SAMPLING. II; 3 cr.

192. PROBLEMS IN EMPIRICAL SOCIAL BEHAVIOR RESEARCH. I, II; 2–3 cr. Supervised individual or joint work on problems in research, including carrying out of projects and/or independent reading on methodology. Prerequisite: Consent of instructor. Mr. Fisher.

194. INTRODUCTION TO PUBLIC OPINION RESEARCH. I; 3 cr. Theory and practice of *survey* techniques. Planning, design, sampling, types of data, questionnaire construction, interviewing, field operations, content analysis and coding, machine tabulation, analysis of data, utilization of findings. Examples in a variety of fields. Two hours lecture; two hours laboratory field work. Prerequisite: Junior standing.

200. Research and Thesis. Yr; 2 cr.

280. Reading and Research in Social Work. I, II; *cr. Work suited to individual graduate students may be arranged; this may be in conjunction with dissertation. Staff.

287. Methods of Social Work Research. I; 3 cr. Analysis of methods used in social research, and of problems of project design and programming. Distinctive characteristics of investigations directed to planning, administrative, and scientific objectives. Prerequisites: Graduate standing, Social Work 273a and b. Mr. Teter.

294. Seminar in the Design and Process of Survey Research. II; 3 cr. Presentation of initial study designs or of research in progress by members of the seminar, for critique leading both to further development of the project itself and to illustration of research problems in the social sciences. Prerequisite: Consent of instructor. Mr. Fisher.

SPANISH AND PORTUGUESE

Professors Herriott, Kasten, Neale-Silva; Associate Professors Hesse, Mulvihill, *chairman*, Rosaldo, Sanchez-Barbudo, Singleton; Assistant Professors Rosa, Sanchez; Instructor Lunardini.

Nature of the Courses. The elementary courses have been planned to meet the needs of students who take up Spanish for the first time at the University of Wisconsin, as well as of those who have begun the study in high school. There are two types of beginning Spanish courses: (1) the traditional course, 4 hours, carrying 4 credits; (2) the oral Spanish course, 4 hours of class plus 4 hours of oral practice, with a proportionate reduction in the amount of home study. This course also carries 4 credits.

In the regular second-year courses, 10a and 10b, emphasis is placed on the acquisition of a reading knowledge of the language. Special sections are provided for those who have had oral training at Wisconsin. The second-year practice course (16) is intended to supplement the training offered in 10a and 10b. Spanish 16 may be taken concurrently with Spanish 10a and 10b. The regular third-year course is 21, comprising reading of representative masterpieces with a background of literary history. Oral sections of Spanish 21 are provided for students with previous oral language training. The other third-year course is Spanish 23, which is not open to students majoring in Spanish or Hispanic Studies. International Relations majors may substitute Spanish 23 for 21. The third-year practice courses are 25 and 27, which are intended to supplement the training offered in 47 and 21. Courses 47 and 48 are special third-year courses intended to be introductory to the study of Spanish and Spanish-American civilization. Comparative Literature 55 is a course offering an approach to Spanish and Portuguese literature to students without a knowledge of these languages. Comparative Literature 56, similar in nature, covers the literatures of the Latin-American countries.

Courses in elementary, intermediate, and advanced Portuguese are also offered. Portuguese is important in a comparative study of Romance languages, and of practcial value as the language of Brazil.

The advanced practice courses in Spanish are 112, 117, 124, 127 and 190; 112 and 124 offer training in general advanced composition and conversation, and 117 emphasizes the use of the language in commerce and industry.

Several of the advanced courses in literature and civilization are given in Spanish. A careful rotation is established so that students specializing in literature may have adequate instruction in all genres and periods. The philological courses are intended for graduate students, but 128 is open to undergraduates.

New students are assigned to classes on the basis of their ratings in a placement test, as described in Section 16, page 38. The foreign-language requirements for the B.A. degree are set forth in Section 21, page 42. The requirements for the B.S. (general) degree are found in Section 24, page 45.

MAJOR. 28 credits in advance of 1b of which at least 6 must be in second-year courses and 6 in practice courses (16a, 16b, 25a), 6 in Spanish 21, and 10 in courses of the 100-group. In the 100-group courses a minimum of 4 must be in literature. 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 8 credits in a second language taken either in high school or college. This rule applies also to those working toward a teaching certificate. It is recommended that students majoring in Spanish fulfill this requirement by electing Portuguese.

All who intend to specialize in Spanish are advised to elect related courses in classical and modern languages and literatures, comparative literature, history, philosophy, art history and criticism, and the courses included in the field of Hispanic Studies.

A major in Portuguese consists of 16 credits beyond 10b, and must include 4 credits in composition and conversation.

TEACHING MAJOR AND MINOR. See School of Education.

HISPANIC STUDIES AS A FIELD OF CONCENTRATION. Students interested in this major field should consult page 68.

REPORTING HISPANIC AFFAIRS. (See JOURNALISM 121.) Does not carry credit in Spanish. Prerequisite: Spanish 10b or equivalent. Mr. Hesse, Mr. Rosaldo.

MAJOR IN INTERNATIONAL RELATIONS. (Specialization in the Latin-American region.) Students interested in this major field should consult page 00.

FOREIGN NEWS SERVICE. This branch of journalism, which emphasizes the Hispanic field, is described in the special section on the School of Journalism.

SEMINAR OF MEDIEVAL SPANISH STUDIES. A well-equipped seminar for independent research in this field, founded by Professor Solalinde, is now under the direction of Professor Kasten. It has separate quarters at 1212 West Johnson Street.

LECTURES ON HISPANIC LIFE AND CIVILIZATION. The department presents every year a series of open lectures on phases of Spanish and Spanish-American life and civilization. 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.

"THE WISCONSIN SPANISH TEACHER." This mimeographed bulletin is published twice a year by the department. It is devoted to the presentation of educational matters of interest to all teachers of Spanish in the state of Wisconsin.

SPANISH CLUB. The Club Cervantes-Camões meets once a month and presents interesting programs during the year. A number of Spanish plays are staged, thus affording an opportunity to the student for participating in Spanish dramatics.

ANTONIO G. SOLALINDE SCHOLARSHIP. Through the efforts of Psi chapter of Sigma Delta Pi (national Spanish honor society), a scholarship in memory of Professor Solalinde has been established to be granted on the basis of scholastic merit and financial need. For further information, apply to the chairman of the department.

H. C. BERKOWITZ SCHOLARSHIP. From a fund established in honor of Professor H. C. Berkowitz, a scholarship amounting to fifty dollars is awarded annually to an undergraduate student in the department on the basis of scholarship and general merit.

SPANISH

1a. FIRST-SEMESTER SPANISH. I, II; 4 cr. Spanish grammar, elementary reading, oral practice and cultural background. For students who have had no Spansih. Two types of sections: grammar-reading sections and oral sections. The latter meet eight times a week, home work being proportionately reduced. Mr. Hesse, Mr. Sánchez and staff.

1b. SECOND-SEMESTER SPANISH. I, II; 4 cr. Continuation of above course. Prerequisite: Spanish 1a or one year of high-school Spanish. Mr. Hesse, Mr. Sánchez and staff.

10a. THIRD-SEMESTER SPANISH. I, II; 3 cr. Intensive class reading; study of vocabulary, idioms and constructions. Prerequisite: Spanish 1b or two years of high-school Spanish. Mr. Hesse and staff.

10b. FOURTH-SEMESTER SPANISH. I, II; 3 cr. Continuation of the above course. Prerequisites: Spanish 10a or three years of high-school Spanish. Mr. Hesse and staff.

13a. RAPID READING. I; 1 cr. Emphasis on sight reading. Should be taken concurrently with 10a and 10b. Can be credited by semesters. Not open to majors or minors in Spanish. Prerequisite: Spanish 1b. Mr. Hesse and staff.

13b. RAPID READING. II; 1 cr. Continuation of above course. Mr. Hesse and staff.

15a. ELEMENTARY CONVERSATION. I, II; 2 cr. Should be taken concurrently with 10a or 10b. Can be credited by semesters. Cannot be taken after finishing 10b. Prerequisite: Spanish 1b or equivalent. Mr. Neale-Silva and staff.

15b. ELEMENTARY CONVERSATION. II; 2 cr. Continuation of above course. Mr. Neale-Silva and staff.

16a. ELEMENTARY COMPOSITION, CONVERSATION, AND GRAMMAR REVIEW. I; 2 cr. Should also be taken concurrently with 10a. Can be credited by semesters. Prerequisite: Spanish 1b or equivalent. Mr. Neale-Silva and staff.

16b. ELEMENTARY COMPOSITION, CONVERSATION, AND GRAMMAR REVIEW. II; 2 cr. Continuation of above course. Prerequisite: Spanish 16a. Mr. Neale-Silva and staff.

25a. INTERMEDIATE COMPOSITION AND CONVERSATION. I, II; 2 cr. Majors should combine Spanish 25 with Spanish 21. Prerequisite: Spanish 16b. Mr. Neale-Silva and staff.

25b. INTERMEDIATE COMPOSITION AND CONVERSATION. I, II; 2 cr. Continuation of the above course. Mr. Neale-Silva and staff.

27. SPANISH COMMERCIAL LETTER WRITING. I, II; 2 cr. Prerequisite: Consent of instructor. Mr. Rosaldo.

ADVANCED PRACTICE COURSES

112. COMPOSITION AND CONVERSATION. Yr; 2 cr. Study of construction, idioms; oral work. Prerequisite: Spanish 25b. Mr. Neale-Silva and staff.

117. COMMERCIAL AND INDUSTRIAL LANGUAGE PRACTICE IN HISPANIC COUNTRIES. II; 2 cr. Study of commercial and technological Spanish. Mr. Rosaldo.

124. ADVANCED COMPOSITION AND CONVERSATION. Yr; 2 cr. Analysis of important questions of syntax and style; emphasis on idiomatic, everyday Spanish. Prerequisite: Spanish 112 or graduate standing. Mr. Neale-Silva.

127. ADVANCED SPANISH GRAMMAR. II; 2 cr. A general review of Spanish syntax with practice in the writing of sentences. Mr. Beym.

190. SPANISH PHONETICS. I; 2 cr. Theory of Spanish sounds with practical training in pronunciation. Mr. Singleton.

195. VERSIFICATION AND DICTION. II; 2 cr. Study of metric forms; analysis, readings. Prerequisite: Spanish 190. Mr. Neale-Silva.

TEACHERS' COURSE

TEACHING OF SPANISH. See SCHOOL OF EDUCATION.

PHILOLOGY

128. HISTORICAL SPANISH GRAMMAR. Yr; 2 cr. An introductory course in Spanish pho-

nology, morphology, and syntax. Prerequisite: Spanish 190 or consent of instructor. Offered 1955–56. Mr. Herriott, Mr. Kasten.

CIVILIZATION

47. Spain of Today. II; 3 cr. Readings and illustrated lectures on the social, economic, political, and intellectual status of present-day Spain. Prerequisite: Spanish 10b. Mr. Mulvihill.

48. Spanish America of Today. I; 3 cr. Readings and lectures on social, economic, and political conditions in Spanish America. Prerequisite: Spanish 10b. Mr. Neale-Silva, Mr. Rosaldo.

150. Spanish Civilization. Yr; 2 cr. Main aspects of the cultural evolution of Spain as a frame of reference for literary manifestations. Conducted in Spanish; illustrated lectures. Prerequisite: 6 credits in third-year reading courses 21 or 23. Mr. Sánchez-Barbudo.

151. Spanish-American Civilization. Yr; 2 cr. Cultural evolution of Latin America from pre-Hispanic days to the present. Conducted in Spanish; illustrated lectures. Prerequisite: 6 credits in third-year reading courses 21 or 23. Mr. Neale-Silva, Mr. Rosaldo.

LITERATURE

(Prerequisite to all 100-courses in Spanish or Spanish-American literature: 6 credits in third-year reading courses 21 or 23. A total of only 6 credits may be credited in third-year reading courses.)

21a. Elementary Survey of Spanish Literature. I; 3 cr. Introduction to the study of Spanish literature (eighteenth to twentieth centuries); readings, discussions, and literary history. Prerequisite: Spanish 10b or equivalent. Mr. Rosa and staff.

21b. Elementary Survey of Spanish Literature. II; 3 cr. Continuation of above course. (Twelfth to seventeenth centuries.) Mr. Rosa and staff.

23a–b. Modern Spanish Readings. Yr; 3 cr. Selected Spanish and Spanish-American novels, dramas, and poems produced since 1898. Historical and literary background. Lectures, translations, analysis and discussions. Prerequisite: Spanish 10b. Mr. Rosa and staff.

100. Thesis. Yr; 2 cr. Mr. Neale-Silva and staff.

101. Advanced Readings in Spanish Literature. Yr; 3 cr. Reading and analysis of representative works of Spanish literature. May not be counted toward an advanced degree. Mr. Mulvihill.

131. Advanced Survey of Spanish Literature. Yr; 3 cr. Literary history of Spain with abundant illustrative readings. Mr. Kasten.

132. Survey of Medieval Literature. Yr; 2 cr. Reading of texts, lexicography, and history. Offered 1956–57. Mr. Kasten.

134. Spanish Renaissance. Yr; 2 cr. A study of the most significant authors and their works from the *Celestina* to Cervantes. Offered 1955–56. Mr. Herriott.

135. Survey of Golden-Age Literature. Yr; 3 cr. Picaresque novel, poetry, and theater of the classical period. Mr. Hesse.

137. Survey of Eighteenth-Century Literature. Yr; 2 cr. Prose, poetry and drama of the classical period. Mr. Sánchez.

138. Survey of Nineteenth-Century Literature. Yr; 3 cr. A study of literary manifestations from Romanticism to the generation of 1898. Lectures and discussions. Offered 1955–56. Mr. Sánchez-Barbudo.

139. Survey of Twentieth-Century Literature. Yr; 3 cr. The generation of 1898 and its successors. Offered 1954–55. Mr. Sánchez-Barbudo.

144. Survey of Spanish Poetry. Yr; 2 cr. Principal works and authors of Castilian lyr poetry from the thirteenth century to the present. Mr. Sánchez-Barbudo.

146. Survey of Spanish-American Literature. Yr; 3 cr. Poetry, novel and drama fro the colonial period to the present. Offered 1955–56. Mr. Neale-Silva, Mr. Rosaldo.

155. Survey of Hispanic Thought. Yr; 3 cr. Chief intellectual figures and currents thought in the Hispanic world. Mr. Sánchez-Barbudo.

164. Golden-Age Drama. Yr; 2 cr. Study of the drama from 1580 to 1700. Offered 1955–56. Mr. Hesse.

165. Cervantes. Yr; 2 cr. Development of Cervantes as craftsman and thinker. Li guistic and philosophical commentary on *Don Quijote* and significant minor works. M Singleton.

170. Nineteenth-Century Drama. Yr; 2 cr. A study of representative dramatists the period (1800–1898). Lectures, readings, discussions, reports. Mr. Sánchez.

176. Spanish-American Essay and Novel. Yr; 2 cr. Principal novelists and essayists the nineteenth and twentieth centuries. Offered 1954–55. Mr. Neale-Silva, Mr. Rosaldo.

Spanish and Portuguese Masterpieces in Translation. (See Comparative Literature 5 Does not carry credit in Spanish.

Latin-American Literature in English Translation. (See Comparative Literature 5 Does not carry credit in Spanish. Mr. Rosaldo.

Cervantes and the Spanish Golden Age. (See Comparative Literature 143.) Does n carry credit in Spanish.

GRADUATE COURSES

201. Methods of Investigation and Bibliographical Information. Yr; 2 cr. Spani paleography, problems of textual criticism and bibliographical research. Required of can didates for the doctorate who have not had this training elsewhere. Offered 1954–55. M Kasten.

202. Literary Criticism in Spain and Spanish America. Yr; 2 cr. Study of the princip currents in literary criticism and literary theory in Spain and Hispanic America.

211. Spanish Didactic Literature. Yr; 2 cr. Moral, philosophical and historical litera ture of the Middle Ages and the Golden Age. Mr. Kasten.

213. Fifteenth Century. Yr; 2 cr. *La Celestina* and its antecedents. Mr. Herriott.

215. Spanish Chroniclers of the New World. Yr; 2 cr. The idea of the New Worl and its development in the Hispanic writers of the colonial period. Mr. Rosaldo.

217. Eighteenth-Century Literature. Yr; 2 cr. Studies in the chief trends and autho of the period. Discussion, reports, lectures. Mr. Sánchez.

219. Costumbrismo. Yr; 2 cr. The early nineteenth-century "artículo de costumbres and some of its antecedents. Discussions, reports, lectures. Mr. Sánchez-Barbudo.

221. Introductory Seminar in Spanish-American Literature. Yr; 2 cr. Mr. Neale Silva, Mr. Rosaldo.

223. Introductory Seminar in Medieval Literature: The Spanish Epic. Yr; 2 cr. Mr Kasten.

225. Introductory Seminar in Dramatic Literature of the Sixteenth and Seventeenth Centuries. Yr; 2 cr. An intensive study of the plays of one dramatist: Lope de Vega Tirso de Molina or Calderón. Mr. Hesse.

227. Introductory Seminar in Non-Dramatic Literature of the Sixteenth and Seventeenth Centuries: Cervantes. Yr; 2 cr. Mr. Singleton.

229. Introductory Seminar in Modern Spanish Literature: Contemporary Spanish Poetry. Yr; 2 cr. Mr. Mulvihill, Mr. Sánchez-Barbudo.

255. Philological Seminar: Old Spanish. Yr; 2 cr. Mr. Kasten.

258. Seminar in Historical Spanish Syntax and Lexicography. Yr; 2 cr. Chronological study of representative Spanish texts. Mr. Kasten.

259. Seminar in Modern Language: Modern Spanish. Yr; 2 cr. Offered 1955–56. Mr. Kasten.

273 Romance Philology. Yr; 2 cr. Mr. Kasten.

276. Seminar in Spanish-American Literature. Yr; 2 cr. Mr. Neale-Silva, Mr. Rosaldo.

282. Seminar in Medieval Literature. Yr; 2 cr. Mr. Kasten.

284. Seminar in Dramatic Literature of the Sixteenth and Seventeenth Centuries. Yr; 2 cr. Mr. Hesse.

286. Seminar in Non-Dramatic Literature of the Sixteenth and Seventeenth Centuries: Cervantes. Yr; 2 cr. Mr. Singleton.

288. Seminar in Modern Spanish Literature. Yr; 2 cr. Mr. Mulvihill, Mr. Sánchez-Barbudo.

290. Interdepartmental Seminar on Latin America. II; 2 cr. An interdisciplinary inquiry into the factors influencing the use of resources in various regions in Latin America. Prerequisites: Graduate standing, and two semesters of courses on Latin America (or equivalent experience) and consent of the instructor. Mr. Rosaldo and members of other co-operating departments. This course does not carry credit in Spanish or Portuguese.

Romance Philology. (See Comparative Philology 273.) Mr. Kasten.

PORTUGUESE

1a–1b. Elementary Portuguese. Yr; 4 cr. Portuguese grammar, conversation and reading. Mr. Rosa and staff.

10a. Third-Semester Portuguese. I; 3 cr. Reading of Portuguese and Brazilian texts. Prerequisite: Portuguese 1b. Mr. Rosa and staff.

10b. Fourth-Semester Portuguese. II; 3 cr. A continuation of 10a. Prerequisite: Portuguese 10a. Mr. Rosa and staff.

15. Elementary Conversation. Yr; 2 cr. Prerequisite: Portuguese 1b.

25. Intermediate Composition and Conversation. Yr; 2 cr. Grammar review and oral practice. Prerequisite: Two years of Portuguese. Mr. Rosa.

112. Advanced Composition and Conversation. Yr; 2 cr. Advanced oral practice and writing. Prerequisite: Portuguese 25 or consent of instructor. Mr. Rosa.

128. Historical Grammar of Portuguese. I; 3 cr. Prerequisite: Three years of college Portuguese or consent of instructor. Mr. Kasten.

131. Advanced Survey of Portuguese and Brazilian Literatures. Yr; 3 cr. I. Literary history of Portugal; II. Literary history of Brazil with emphasis on the modern period. Mr. Kasten, Mr. Rosa.

150. Portuguese and Brazilian Civilization. Yr; 2 cr. Lectures, readings and class discussions. Prerequisite: Portuguese 10b. Mr. Kasten.

176. Modern Brazilian Novel. Yr; 2 cr. Study of outstanding contemporary Brazilian novelists. Prerequisite: Portuguese 10b. Mr. Kasten.

204. Camões. Yr; 2 cr. Problems in the drama, lyric and epic poetry of Camões. Mr. Kasten.

SPEECH

Professors Borchers, Curvin, Dietrich, Ewbank, Haberman, *chairman*, Irwin, Mitchell, Weaver; Associate Professors Brembeck, Brockhaus, Gard; Assistant Professors Buerki, Gauger (Education), Hejna, Highlander.

The courses in this department have two main functions: 1. The education of students in the scientific and artistic aspects of speech both public and private providing organized knowledge and personal proficiency; 2. The preparation of specially 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; (f) radio and television speaking, programming, and production. The courses are so arranged as to make possible systematic and progressive study during the sophomore, junior, and senior years. Unless specifically indicated to the contrary, courses in speech are not open to freshmen.

Major. A minimum of 30 credits including courses 1, 2, 3* or 4, 6, 18 or 25, and 141. 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.

Theater. The well-equipped Wisconsin Union Theater provides unusual facilities for training students in acting and in producing plays. A number of plays are staged each semester.

Radio and Television. The State stations, WHA, WHA-FM and WHA-TV, offer many attractive opportunities for practical experience to competent students who are interested in radio and television.

Speech Clinics. The Speech and Hearing Clinic, a general diagnostic and training center for all types of speech and hearing disorders, serves as a laboratory for advanced courses in Speech Correction and Pathology. Those students and others who desire remedial help should apply early each semester. There are expanded opportunities for experience in the summer session in specialized speech clinics in delayed speech, cerebral palsy, cleft palate, and stuttering.

The Easter Seal Cerebral Palsy Center in Children's Orthopedic Hospital also provides special training opportunities for qualified students.

Forensic Activities. The department sponsors and supervises an extensive program of intramural and intercollegiate discussion, debates and other speech contests which provide special training for students with unusual talent.

**1. Fundamentals of Speech. I, II; 3, 2, or 1 credits. For *one credit,* lecture course designed to give 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 3 credits may be earned in any combina-

* See bulletin of the School of Education.
** May be taken by students seeking to meet the Speech proficiency requirement for the University Teachers' Certificate under Option B.

tion of Speech 1 and Speech 7 and such combination must include the lecture hour of Speech 1. Open to all students except freshmen. Lecture and several recitation sections. Mr. Weaver and staff.

**2. APPLICATION OF SPEECH FUNDAMENTALS. I, II; 3 cr. Application of Speech 1 principles. Concentration on body, voice, language, audience attitude, subject-matter. Emphasis on individual evaluation through rating scales, recordings, sound pictures, reports. Prerequisite: Speech 1. Miss Borchers and staff.

**3. ARGUMENTATION AND DEBATE. I; 3 cr. The theory of argument with practice in preparation and delivery of various types of argumentative speeches and debates. Prerequisite: 2 credits in an elementary course. Mr. Brembeck.

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. Mr. Brembeck.

**6. VOICE TRAINING. I, II; 3 cr. Training and practice designed to improve vocal conditions for all speech purposes. Exercises for flexibility, range, relief from tension, articulation and enunciation. Prerequisites: For majors and minors, Speech 1,* which may be taken concurrently; for others, consent of instructor. Not open to senior majors or minors. Mr. Curvin and staff.

**7. PUBLIC SPEAKING. I, II; 2 cr. For those who wish to develop fundamental skill in direct public address. 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 3 credits may be earned in any combination of Speech 1 and Speech 7 and such combination must include the lecture hour of Speech 1. Mr. Brembeck and staff.

8a. EXTEMPORE SPEAKING. I, II; 2 cr. A course in public speaking open only to freshman physical education men and freshman engineers. Mr. Dietrich and staff.

8b. EXTEMPORE SPEAKING. I, II; 2 cr. A continuation of 8a. Mr. Dietrich and staff.

9. EXTEMPORE SPEAKING. I, II; 3 cr. Lectures and recitation. A course in public speaking open only to freshman mechanical engineers. Mr. Dietrich and staff.

**13. ADVANCED PUBLIC SPEAKING. II; 2 cr. Continuation of Speech 7. Prerequisite: 2 credits in Speech 1 or 7. Mr. Brembeck.

18. FUNDAMENTALS OF ORAL INTERPRETATION. I, II; 2 cr. Emphasis on understanding and appreciation of literature and on ways of arriving at meanings through denotation, connotation, imagery, mood, and theme. Prerequisites: For majors and minors, Speech 6; for others, junior standing and consent of instructor. Mr. Curvin.

19. ELEMENTS OF DRAMATIC PRODUCTION. II; 2 cr. Theater organization and business management; play analysis: fundamentals of acting, directing, staging, lighting, costuming and make-up. Prerequisites: Sophomore standing and consent of instructor. Mr. Mitchell.

22. INTERPRETATION OF LITERARY TYPES. II; 3 cr. The study and oral interpretation of various types of literature, both prose and poetry. Problems of interpretative and impersonative forms. Prerequisite: Speech 18 or consent of instructor. Mr. Curvin.

25. CORRECTION OF SPEECH DISORDERS. I; 3 cr. An elementary consideration of the disorders of speech and their treatment. Prerequisites: Speech 1* and junior standing. Mr. Irwin. Sophomore standing. Mr. Hejna.

29. FUNDAMENTALS OF ACTING. I; 2 cr. Prerequisites: For majors and minors, Speech 16

* Wherever listed as a prerequisite, Speech 1 signifies 1 credit in the lecture hour of Speech, plus 2 practice hours in either Speech 1 or 7.

** May be taken by students seeking to meet the Speech proficiency requirement for the University Teachers' Certificate under Option B.

or concurrent registration; for others, junior standing and consent of instructor. Mr. Mitchell.

39. HISTORY OF THE THEATER. II; 2 cr. A history of the physical theater and the written drama. Prerequisite: Sophomore standing. Mr. Mitchell.

40. FUNDAMENTALS OF STAGECRAFT. I; 2 cr. History of scenic art. Elementary theory and practice of stagecraft. Prerequisite: Consent of instructor. Mr. Buerki.

100. SENIOR THESIS. Yr; 2 cr. Upper-group status. Staff.

**105. SPEECH COMPOSITION. I; 3 cr. An advanced course stressing theories of style, study of model speeches and writing of speeches. Prerequisites: For majors and minors, Speech 2, 3, or 4; for others, consent of instructor. Mr. Haberman.

106. STAGE LIGHTING. II; 2 cr. (See ART EDUCATION 106.) Stage lighting with reference to historical development; switchboards, lighting instruments; color and theories of stage lighting with applications. Prerequisites: Junior standing, Speech 40, or consent of instructor. Mr. Buerki.

107. ART HISTORY OF THE THEATER AND THE STAGE FROM ANTIQUITY TO PRESENT. I. (See ART HISTORY 107.)

108. BRITISH DRAMA 1660–1820. I. (See ENGLISH 10b.)

109. BRITISH DRAMA 1820 TO THE PRESENT. II. (See ENGLISH 109.)

**110. ELEMENTS OF RADIO BROADCASTING. I, II; 2 or 3 cr. General introduction to broadcasting, practice in preparing and producing programs of various types. Prerequisites: For majors and minors, Speech 6; for others, junior standing and consent of instructor. Mr. Ewbank and staff.

114. REGIONAL WRITING, THE STORY AND THE PLAY. II; 2 cr. Work in collecting regional materials and adapting them to story, dramatic, and radio forms. Prerequisite: Consent of instructor. Mr. Gard.

115. BROADCASTING WORKSHOP. II (limited enrollment); 3 cr. Acting, directing and producing various types of radio programs. Prerequisite: Speech 110. Mr. Curry.

116. RADIO, TELEVISION AND SOCIETY. I; 2 or 3 cr. The history of radio and television program development; comparative study of broadcasting practices in other countries; radio and television as social forces and cultural influences. Prerequisite: Junior standing. Mr. Ewbank.

117. WRITING FOR RADIO. I; 2–3 cr. Analysis of model scripts. Writing continuity and various types of radio programs. Prerequisite: Speech 110. Mrs. Stanley.

118. RADIO SPEECH FORMS. II; 3 cr. Preparation, production, and evaluation of radio speech forms including the talk, newscast, discussion, interview, announcement, and the documentary and special events programs. Formulation of critical standards. Prerequisite: Speech 110. Mr. Highlander.

119. STAGE DIRECTION. Yr; 3 cr. Principles and practice of play direction. Prerequisites: For majors and minors, Speech 29; for others, senior standing and consent of instructor. Mr. Dietrich.

120. PLAYWRITING. I; 3 cr. Prerequisites: Junior standing and consent of instructor. Mr. Mitchell.

121. VOICE SCIENCE. I; 3 cr. The anatomy, physiology, and physics of voice production

---

** May be taken by students seeking to meet the Speech proficiency requirement for the University Teachers' Certificate under Option B.

with a survey of experimental work. Prerequisites: For majors and minors, Speech 2 and junior standing; for others, consent of instructor. Mr. Weaver.

122. Advanced Dramatic Reading. I; 3 cr. Theory and practice of play-reading, using a wide variety of dramatic materials and forms. Prerequisite: Speech 22 or consent of instructor. Mr. Curvin.

123. Interpretation of Classic Literature. II; 3 cr. An advanced application of principles and techniques of oral interpretation to classic forms of literature. Prerequisites: For majors and minors, Speech 22 and consent of instructor; for others, senior standing and consent of instructor. Mr. Curvin.

125. Speech Pathology. I; 3 cr. An advanced study of the nature and underlying causes of disorders of speech. Prerequisite: Speech 25 or consent of instructor. Mr. Irwin.

126. Advanced Correction of Speech Disorders. II; 3 cr. A technical and professional course in the rehabilitation of speech. Clinical practice. Prerequisites: For majors and minors, Speech 2 and 25; for others, Speech 125 or consent of instructor. Mr. Irwin.

127. Language Disturbances Related to Brain Injury. I; 3 cr. A study of speech diagnostic and therapeutic procedures in cerebral palsy and aphasia. Integrated with work in diagnostic and rehabilitation centers at University Hospitals. Prerequisites: Speech 125 and consent of instructor. Mr. Irwin.

129. Advanced Problems in Acting. II; 2 cr. Acting problems arising from differences in the type and style of dramatic production with emphasis upon individual and group performance. Prerequisite: Speech 29 or consent of instructor. Mr. Mitchell.

130. The American Theater. Colonial Period to Civil War. I; 3 cr. History of the theater as an institution of national life and culture. Prerequisite: Junior standing. Mr. Curvin.

131. The American Theater. Civil War to Present Day. II; 3 cr. Prerequisite: Junior standing. Mr. Curvin.

135. Advanced Argumentation and Debate. II; 3 cr. Advanced consideration of theories, practices, and experimental studies in argumentation and debate. Analysis of classic debates. Problems in coaching debate. Prerequisite: Speech 3 or 4 or consent of instructor. Mr. Brembeck.

136. Theory and Practice of Group and Public Discussion. II; 3 cr. The function of discussion in our society. Analysis of and practice in various discussion types. The influence of discussion on opinions and attitudes. Prerequisite: Speech 3 or 4 or consent of instructor. Mr. Ewbank.

140. Stage Design. (See Art Education 140.) Yr; 3 cr. I. General principles of design in relation to scenic designing. Individual and group presentations on model stage. II. Advanced application of these principles; scenic construction and lighting with practical application. Prerequisite: Speech 40, or graduate standing in speech, or junior standing in art education. Mr. Buerki, Mr. Colescott.

141. Psychology of Speech. II; 3 cr. The place and function of speech in individual and group social behavior. Prerequisites: For majors and minors, junior standing and Speech 2; for others, consent of instructor. Mr. Weaver.

143. Modern Acoustic Instrumentation. (See Education 143.) II; 3 cr. An advanced consideration of the principles of clinical audiometry in speech and hearing therapy. Prerequisite: Consent of instructor. Mr. Irwin.

154. Ancient Public Address. II; 3 cr. A survey of orators, oratory, and oratorical theory in Greece and Rome from 900 B.C. to 200 A.D. Prerequisite: Consent of instructor. Not offered 1954–55. Mr. Haberman.

155. PUBLIC ADDRESS, 200 A.D TO 1700 A.D. II; 3 cr. A history of public address with emphasis on 17th-century England. Prerequisite: Consent of instructor. Not offered 1954-55. Mr. Haberman.

156. AMERICAN PUBLIC ADDRESS. I; 3 cr. History of American public address; studies of great speakers in various areas of our national life. Prerequisite: Consent of instructor. Mr. Ewbank.

157. BRITISH PUBLIC ADDRESS. II; 3 cr. A study of British public address from 1750 to the present. Prerequisite: Consent of instructor. Mr. Haberman.

160. INTRODUCTION TO TELEVISION. I, II; 3 cr. Introduction to the theory and practice of television including types of programs, studio procedures, camera techniques, and production problems. Prerequisite: Consent of instructor. Limited enrollment. Mr. Dietrich.

161. TELEVISION PRODUCTION AND DIRECTION. I, II; 3 cr. Aesthetics of picture composition, shot sequences, camera movement, dramatic action, control room operations, and direction of various program types. Prerequisites: Speech 160 and consent of instructor. Limited enrollment. Mr. Dietrich.

162. WRITING FOR TELEVISION. (I in 1955–56 and every third semester thereafter.) 3 cr. Preparation and evaluation of television scripts; documentaries, dramas, features, adaptations from other media, continuity, film narration. Prerequisites: Speech 160 and consent of instructor.

179. FIELD WORK IN SPEECH CORRECTION. Yr; 3 cr. Prerequisite: Major in speech correction. Mr. Hejna.

185. INTRODUCTION TO PHONETICS. I; 3 cr. Prerequisites: For majors and minors, Speech 2 or 25 or consent of instructor; for others, consent of instructor. Mr. Irwin.

186. ADVANCED PHONETICS. II. (See ENGLISH 186.)

200. RESEARCH. Yr; 1–4 cr. Staff.

205. SEMINAR, ANCIENT THEORIES OF PUBLIC ADDRESS. I; 2 cr. Mr. Haberman.

206. SEMINAR, MEDIEVAL AND MODERN THEORIES OF PUBLIC ADDRESS. II; 2 cr. Mr. Haberman.

210. SEMINAR, RADIO AND TELEVISION. II; 2 cr. Mr. Ewbank, Mr. Dietrich.

219. SEMINAR, DRAMATIC PRODUCTION. II; 2 cr. Mr. Mitchell.

220. SEMINAR, THEORY OF ORAL INTERPRETATION. II; 2 cr. Mr. Curvin.

223. LECTURE-RECITAL AND CRITICISM. I; 3 cr. Oral study of classic literature. Esthetic principles in criticism of material, situation, and performance. Lecture-recital developed and presented. Prerequisite: Speech 122 or consent of instructor. Mr. Curvin.

227. SEMINAR, SPEECH PATHOLOGY. Yr; 2 cr. Mr. Irwin.

229. SEMINAR, DRAMATURGY. I; 2 cr. Mr. Curvin.

240. SEMINAR, STAGE DESIGN. (See ART EDUCATION 240.) II; 2 cr. Designers: Appia, Bakst, Bel Geddes, Bibiennas, Burnacini, Cheney, Craig, Jones, Reinhardt, Serlio, Simonsen, *et al.* Theory of stage design, use of line, mass, color, and light. Prerequisites: Graduate standing and consent of instructor. Mr. Buerki.

255. SEMINAR, PERSUASION. I; 2 cr. Mr. Ewbank.

TEACHERS' COURSES

METHODS OF REHABILITATION OF SPEECH. II. See School of Education.

METHODS IN SPEECH READING FOR CHILDREN. I. See School of Education.

SPEAKING AND LISTENING IN THE HIGH SCHOOL. I, II. See School of Education.

SEMINAR IN SPEECH EDUCATION. I. See School of Education.

HEARING REHABILITATION. II. See School of Education.

ZOOLOGY

PROFESSORS CROW, EMLEN, *chairman*, HASLER, HERRICK, MCSHAN, MEYER, NOLAND, RIS, WOLFE; ASSOCIATE PROFESSORS BILSTAD, FRASER, MORRISON; ASSISTANT PROFESSORS LYSENKO, NEESS.

MAJOR. 30 credits, including the five courses in the table below, or their alternatives:

REQUIRED COURSES	ALTERNATIVES
ZOOL. 1, Animal Biology	ZOOL. 2 or 17 or I.L.S. 33–34
ZOOL. 105, Vert. Embryol.	ZOOL. 104, Comp. Anat. or Vert.
ZOOL. 127, Comp. Physiol. (4 cr.)	ZOOL. 121 or 144
ZOOL. 141, Invert. Zool.	ZOOL. 119 plus either ZOOL. 101 or 112
ZOOL. 143, Ecology	Any two of the following: ZOOL. 115, 124, 125, 140, BOTANY 160 or 164 (not both), WILDLIFE MANAGEMENT 118

Not more than one introductory course (Zool. 1, 2, 17, I.L.S. 33–34) will be accepted toward the major. I.L.S. 33–34 will be accepted as 3 credits toward the major. Zoology majors in the School of Education must take Botany 1 or 17 as part of the major. Students considering graduate study in zoology are advised to take one year each of botany, physics and advanced chemistry; also mathematics through calculus; and to acquire a reading knowledge of two foreign languages, preferably French and German. Those wishing to do senior thesis work should secure the consent of the professor under whom they wish to work before the end of their junior year.

1. ANIMAL BIOLOGY. I, II; 5 cr. Anatomy and physiology of the vertebrate body; introduction to histology, embryology, heredity and evolution. Miss Bilstad, Mr. Fraser, Mr. Wolfe and staff.

2. GENERAL ZOOLOGY. II; 5 cr. Classification, structure, physiology, and life history of representative types which are of interest to man. Bird trips. Mr. Hasler and staff. (May be elected as alternative to Zoology 1 for fulfilling the Letters and Science requirement in science by nonprofessional and nonzoology majors.)

6. HEREDITY. I; 3 cr. (Same as GENETICS 6.) Principles of heredity and their application to plants, animals and man. This course is designed for students who desire a general elementary course. (Those who desire a laboratory course and who can satisfy the prerequisites should elect Zoology 106.) Lectures and discussion. Mr. Crow, Mr. Shackelford.

17. SURVEY OF ZOOLOGY. II; 3 cr. Introduction to the study of zoology for nonprofessional students. Open to freshmen but not to students who take Zoology 1. Mr. Neess and staff.

101. INTRODUCTION TO ENTOMOLOGY. II; 3 cr. (Same as ENTOMOLOGY 101.) Principles of entomology, including morphology and classification. A general collection of insects is required of each student. Prerequisite: An elementary course in zoology. Mr. Dicke.

104. COMPARATIVE ANATOMY OF VERTEBRATES. I; 5 cr. Lectures comparing structure of organ systems in the different vertebrate groups. Laboratory dissection of shark, mudpuppy and cat. Prerequisite: Introductory course in zoology. Mr. Wolfe.

105. VERTEBRATE EMBRYOLOGY. II; 5 cr. The early embryology of vertebrates and the development of organ systems. Prerequisite: Introductory course in zoology. Mr. Meyer.

106. GENETICS. I; 3 cr. (Same as GENETICS 106.) Principles of genetics and their application to plants, animals and man. (For a non-laboratory course without prerequisites, see ZOOLOGY 6.) Lectures, discussion, and laboratory. (Laboratory alone may be elected for 1 credit.) Prerequisites: College algebra and a year each of college biology and chemistry, or consent of instructor. Mr. Crow, Mr. Shackelford.

107. ORGANIC EVOLUTION. II; 2 cr. A discussion of organic evolution and how it has taken place. Prerequisites: Introductory course in zoology and junior standing or consent of instructor. Mr. Emlen.

108. PROTOZOOLOGY. II; 3 cr. Structure, physiology, life history, and adaptations of protozoa, especially the non-parasitic forms. Prerequisite: One year of biological science. Offered 1955–56 and in alternate years. Mr. Noland.

109. ADVANCED VERTEBRATE EMBRYOLOGY. I; 3 cr. The development of organs considered from the functional and comparative standpoints. Each student undertakes a special problem in organogenesis. Offered 1954–55 and in alternate years. Prerequisites: Zoology 105 and consent of instructor. Mr. Meyer.

110. ANATOMY AND PHYSIOLOGY OF INSECTS. I; 3 cr. (Same as ENTOMOLOGY 110.) A study of the anatomy, histology and basic physiology of organ systems in insects. Prerequisite: A course in entomology. Offered 1955–56 and in alternate years. Mr. Beck, Mr. Noland.

111. MICROTECHNIQUE. I, II; 3 cr. Training in the preparation of histological material. Fixing, imbedding, sectioning and staining of animal tissues. Prerequisite: Introductory course in zoology. Miss Bilstad.

112. MEDICAL ENTOMOLOGY. I; 3 cr. (Same as ENTOMOLOGY 112 and VETERINARY SCIENCE 112.) A study of arthropods and how they affect their hosts together with a consideration of the pathogenic protozoa which may be transmitted by them. Prerequisite: Introductory course in zoology or Veterinary Science 1. Offered 1954–55 and in alternate years. Mr. Herrick, Mr. Dicke.

113. COMPARATIVE ANIMAL HISTOLOGY. I; 4 cr. A comparative study of the tissues of vertebrates. Prerequisite: Zoology 104 or 105. Miss Bilstad.

114. FISHES, AMPHIBIANS AND REPTILES. I; 3 cr. The classification, natural history and geographic distribution of fishes, amphibians and reptiles. Prerequisite: Introductory course in zoology. Offered 1954–55 and in alternate years. Mr. Neess.

115. FIELD ORNITHOLOGY. II; 3 cr. Identification and life histories of Wisconsin birds. Objectives and methods of modern field studies of birds. Laboratory, field trips. Prerequisite: A college course in a biological science. Mr. Emlen.

116. FUNDAMENTALS OF CYTOLOGY. I; 3 cr. (Same as BOTANY 116.) Microscopic structure, chemical composition and function of cytoplasmic and nuclear components. Mitosis and meiosis. Relations to heredity, reproduction, development and cellular physiology. Prerequisites: A college course in zoology or botany, Chemistry 1, junior standing. Mr. Ris.

119. ANIMAL PARASITES OF MAN. II; 3 cr. Morphology, life history, diagnosis and control of the important animal parasites affecting man. For medical students and others interested in public health programs. Prerequisite: Introductory course in zoology. Mr. Herrick, Mr. Lysenko.

120. HELMINTHOLOGY. I; 3 cr. (Same as VETERINARY SCIENCE 120.) A study of the helminths of various animals including man. Prerequisite: Introductory course in zoology or Veterinary Science 1. Offered 1955–56 and in alternate years. Mr. Herrick.

121. Advanced Physiology of Insects. II; 3 cr. (Same as Entomology 121.) A detailed study of the dynamic aspects of insect physiology. Prerequisites: Entomology 110, and a course in organic or biochemistry. Offered 1955–56 and in alternate years. Mr. Beck.

122. Endocrinology. I; 3 cr. The physiology of the glands of internal secretion, including those concerned with reproduction. Prerequisites: Zoology 142 or 104 or 105; Chemistry 1a, or consent of instructor. Mr. Meyer.

123. Human Protozoology. II; 3 cr. (Same as Med. Microbiology 123.) Study of the protozoa which parasitize man. Prerequisite: Year of biological science or consent of instructor. Mr. Lysenko.

124. Conservation of Aquatic Resources. I; 2 cr. General limnology; study of aquatic habitats and communities and their conservation. Prerequisite: Introductory course in zoology. Mr. Hasler.

125. Ecology of Fishes. II; 3 cr. Physiological, taxonomic, ecological and behavioral aspects of fishes. Laboratory, field trips. Prerequisites: One semester each of zoology and chemistry and consent of instructor. Offered 1955–56 and in alternate years. Mr. Hasler, Mr. Neess.

126. Field Zoology. I; 3 cr. Field trips; observing habitats and collecting of local animals; identification and study of collected species in the laboratory. Prerequisite: Zoology 141 or consent of instructor. Mr. Neess.

127. Comparative Physiology. I; 4 cr. (Same as Physiology 127.) (2 credits without laboratory.) Physiological mechanisms and specializations of vertebrates and invertebrates as related to their ecology and phylogeny. Prerequisites: A year each of zoology and chemistry or consent of instructor. Mr. Morrison.

128. Mammalogy. I; 3 cr. Classification, structural and physiological adaptations, life histories and environmental relations of mammals; laboratory and field work. Prerequisite: Zoology 104 or consent of instructor. Offered 1954–55 and in alternate years. Mr. Emlen.

129. Advanced Ornithology. II; 3 cr. Structure, phylogenetic relations and adaptations of birds. Laboratory dissection of representative birds. Prerequisites: Zoology 104 or 142 and 115 or its equivalent. Offered 1955–56 and in alternate years. Mr. Emlen.

132. Invertebrate Embryology. I; 3 cr. A comparative study of development in insects, molluscs and other invertebrates. Prerequisites: Zoology 119 or 141, and consent of instructor. Mr. Fraser.

136. Human Genetics. II; 2 cr. (Same as Genetics 136.) Principles of heredity and variation in man. Prerequisite: Zoology 6 or Genetics 6. Mr. Crow.

140. Insect Ecology. II; 3 cr. (Same as Entomology 140.) Insects in relation to their environment. Prerequisite: A course in zoology or entomology. Offered 1955–56 and in alternate years. Mr. Medler.

141. General Invertebrate Zoology. II; 3 cr. Structure, function, classification and life histories of the major groups of invertebrates. Prerequisite: Introductory course in zoology. Mr. Fraser.

142. General Vertebrate Morphology. I; 3 cr. Morphological characteristics of the Chordata including the early embryology of the frog. Prerequisite: Introductory course in zoology. Offered 1954–55 and in alternate years. Mr. Wolfe.

143. Ecology. I; 3 cr. The relationship between living things and their environment; the dependence of one form of life on another; community organization; succession; behavior of populations. Prerequisites: Introductory course in zoology; one semester of chemistry or consent of instructor. Mr. Neess.

144. General Physiology. II; 3 cr. (Same as Physiology 144.) An examination of basic physiological processes largely at the cellular level and employing the tools and methods of physical science. Prerequisites: A year of physics and a course in physiology, biochemistry or physical chemistry, or consent of instructor. Mr. Morrison.

145. Experimental Embryology. II; 3 cr. Methods, results and theoretical implications of experimental analysis of development in embryos and in other morphogenetic systems. Topics in classical experimental embryology, chemical embryology, developmental genetics, regeneration, insect development. Prerequisite: Vertebrate Embryology (Zoology 105) or consent of instructor. Mr. Bucklin.

151. Biological Problems in the Invertebrates. II; 2 or 4 cr. (Lecture and discussion only, 2 credits.) Lectures on classical and current research problems in invertebrate zoology; laboratory on finer anatomy and histology, and study of less common types of invertebrates. Prerequisite: Zoology 141 or consent of instructor. Offered 1954–55 and in alternate years. Mr. Noland.

201. Proseminar. I; 1 cr. History of zoology. Given in first semester 1954–55 and in alternate years. Mr. Noland.

203. Seminar. I, II; 1 cr. Sections in eight fields of zoological research. Staff.

211. Special Research Techniques. I; 3 cr. Theory and practice of certain special techniques used in zoological research; laboratory projects in which these techniques are employed. Prerequisites: Chemistry 120, 121 and consent of instructor. Mr. McShan.

216. Cytology. Yr; 3 cr. An introduction to cytological technique and the general field of cellular biology. Prerequisites: Microtechnique and Chemistry 1a. Mr. Ris.

217. Zoological Serology. II; 3 cr. Development and application of serological techniques. Laboratory projects. Prerequisites: Zoology major or consent of instructor and Chemistry 120. Offered 1954–55 and in alternate years. Mr. Wolfe.

220. Colloquium. Yr; 0 cr. Oral reports and discussions of advanced zoological subjects. Mr. McShan.

223. Endocrinology of Reproduction. I; 3 cr. The anatomy and physiology of the reproductive organs; the chemistry and action of hormones concerned with reproduction. Prerequisites: Senior or graduate standing and consent of instructor. Offered 1955–56 and in alternate years. Mr. Meyer.

231. Biometric Techniques in Ecological Research. (Same as Wildlife Management 231.) Yr; 1 cr. Discussion of contemporary problems and advanced methods in statistical analysis of ecological research data. Oral reports on statistical problems handled in current literature or individual graduate research projects. Prerequisite: Agronomy 136 or its equivalent. Mr. Neess, Mr. Hickey.

COLLEGE OF AGRICULTURE

RUDOLPH K. FROKER, Dean and Director
VINCENT E. KIVLIN, Associate Dean
NOBLE CLARK, Associate Director of Experiment Station
HENRY L. AHLGREN, Associate Director of Extension
MISS FRANCES ZUILL, Associate Dean of Home Economics
A. J. HAAS, Executive Secretary

FACULTY

ADAMS, JOHN LESTER, JR., *Ph.D.*, Assistant Professor of Poultry Husbandry
AHLGREN, HENRY LAWRENCE, *Ph.D.*, Associate Director of Extension and Professor of Agronomy
ALBERT, ARTHUR ROBERT, *B.S.*, Associate Professor of Soils
ALLEN, NATHANIEL NEWTON, *Ph.D.*, Professor of Dairy Husbandry
ALLEN, OSCAR NELSON, *Ph.D.*, Professor of Bacteriology
ALLEN, THOMAS CORT, *Ph.D.*, Professor of Entomology
ANDERSON, HJALMER OLIVER, *M.S.*, Instructor in Agricultural Economics
ANDERSON, LAURENS, *Ph.D.*, Assistant Professor of Biochemistry
ANDREW, ROBERT HARRY, *Ph.D.*, Associate Professor of Agronomy
ANNIN, GERALD EVERETT, *M.S.*, Associate Professor of Poultry Husbandry
APPLE, JAMES WILBER, *Ph.D.*, Professor of Entomology
ARAWINKO, ZIGMUND MARION, *B.S.*, Instructor in Agronomy
ARNY, DEANE CEDRIC, *Ph.D.*, Associate Professor of Agronomy and Plant Pathology
ATTOE, OSBORNE JAMES, *Ph.D.*, Professor of Soils

BACKUS, MYRON PORT, *Ph.D.*, Professor of Plant Pathology and Botany
BAKKEN, HENRY HARRISON, *M.A.*, Professor of Agricultural Economics
BARRINGTON, GORDON PACKARD, *M.S.*, Assistant Professor of Agricultural Engineering
BARTON, JOHN RECTOR, *B.A.*, *B.D.*, Associate Professor of Rural Sociology
BAUMANN, CARL AUGUST, *Ph.D.*, Professor of Biochemistry
BAUMEISTER, GEORGE FREDERICK, *B.S.*, Associate Professor of Agricultural Extension
BEACH, BURR ABRAHAM, *D.V.M.*, Emeritus Professor of Veterinary Science
BEAN, WALTER DAVID, *B.S.*, Assistant Professor of Agricultural Extension
BECK, GAIL EDWIN, *M.S.*, Instructor in Horticulture
BECK, STANLEY DWIGHT, *Ph.D.*, Assistant Professor of Entomology
BEELER, ROBERT SIDNEY, *M.S.*, Assistant Professor of Agricultural Journalism
BENJAMIN, DANIEL MARSHALL, *Ph.D.*, Assistant Professor of Entomology
BENSON, ROBERT HAYNES, *M.S.*, Instructor in Dairy Husbandry
BERGE, ORRIN IRWIN, *M.S.*, Associate Professor of Agricultural Engineering
BERGER, KERMIT CARL, *Ph.D.*, Professor of Soils
BERMAN, DAVID THEODORE, *Ph.D.*, *D.V.M.*, Associate Professor of Veterinary Science
BEUSCHER, JACOB, *LL.B.*, *S.J.D.*, Professor of Agricultural Economics and Law
BIRD, HERBERT RODERICK, *Ph.D.*, Professor of Poultry Husbandry
BJORAKER, WALTER THOMAS, *Ph.D.*, Associate Professor of Agricultural Education
BOCK, ROBERT MANLEY, *Ph.D.*, Assistant Professor of Biochemistry
BOHSTEDT, GUSTAV, *Ph.D.*, Professor of Animal Husbandry
BOSLEY, DAVID ALOYSIUS, *M.S.*, Instructor in Horticulture
BRANDLY, CARL ALFRED, *D.V.M.*, Professor of Veterinary Science and Bacteriology

BRANN, JOHN WILLIAM, *M.S.*, Emeritus Assistant Professor of Plant Pathology
BRAY, ROBERT WOODBURY, *Ph.D.*, Professor of Animal Husbandry
BRIGGS, GEORGE MCSPADDEN, *B.S.*, Emeritus Professor of Agronomy
BRINK, ROYAL ALEXANDER, *M.S., Sc.D.*, Professor of Genetics
BROOKS, LYNNDON ARDEN, *B.S.*, Instructor in Agricultural Engineering
BRUHN, HJALMAR DIEHL, *M.S.*, Professor of Agricultural Engineering
BRUNS, EDWARD GEORGE, *B.S.*, Assistant Professor of Agricultural Engineering
BUCHHOLTZ, KENNETH PAUL, *Ph.D.*, Associate Professor of Agronomy
BURCALOW, FRANK VICTOR, *M.S.*, Professor of Agronomy
BURCH, CLARK WAYNE, *D.V.M.*, Assistant Professor of Veterinary Science
BURRIS, ROBERT HARZA, *Ph.D.*, Professor of Biochemistry

CALBERT, HAROLD EDWARD, *Ph.D.*, Associate Professor of Dairy Industry
CARSTENSEN, VERNON, *Ph.D.*, Professor of Agricultural Economics and History
CARTTER, BRUCE LANPHER, *M.S.*, Associate Professor of Agricultural Extension
CASIDA, JOHN EDWARD, *Ph.D.*, Assistant Professor of Entomology
CASIDA, LESTER EARL, *Ph.D.*, Professor of Genetics
CHAPMAN, ARTHUR BARCLAY, *Ph.D.*, Professor of Genetics
CHAPMAN, CLINTON JOSEPH, *B.S.*, Professor of Soils
CHAPMAN, R. KEITH, *Ph.D.*, Associate Professor of Entomology
CLARK, ROBERT CROWTHERS, JR., *Ph.D.*, Professor of Rural Sociology and State 4-H Club Leader
CLARK, WARREN WILLIAM, *M.S.*, Emeritus Professor of Agricultural Extension
CLARK, (WILLIAM) NOBLE, *M.S.*, Professor; Associate Director of the Agricultural Experiment Station
CLODIUS, ROBERT LEROY, *Ph.D.*, Associate Professor of Agricultural Economics
COLLENTINE, ARTHUR OWEN, *B.S.*, Assistant Professor of Dairy Husbandry
COMBS, OVA BEETEM, *M.S.*, Professor of Horticulture
COOK, HUGH L., *Ph.D.*, Associate Professor of Agricultural Economics
COOPER, DELMER CLAIR, *Ph.D.*, Professor of Genetics
CORLEY, ERNEST LEE, *B.S.*, Instructor in Dairy Husbandry
CRAMER, ALBERT JULIUS, *B.S.*, Assistant Professor of Dairy Husbandry
CROW, JAMES FRANKLIN, *Ph.D.*, Professor of Genetics and Zoology
CROWLEY, JAMES WILLIAM, *Ph.D.*, Assistant Professor of Dairy Husbandry

DANA, MALCOLM NIVEN, *Ph.D.*, Assistant Professor of Horticulture
DARLING, HENRY MELVIN, *Ph.D.*, Professor of Plant Pathology
DAVIS, JACK ROLAND, *B.S.*, Instructor in Agronomy
DAY, LEE MONROE, *Ph.D.*, Assistant Professor of Agricultural Economics
DEVER, DONALD ANDREW, *Ph.D.*, Assistant Professor of Entomology
DICKE, ROBERT JEROME, *Ph.D.*, Professor of Entomology
DICKSON, JAMES GEERE, *Ph.D.*, Professor of Plant Pathology
DUFFEE, FLOYD WALDO, *B.S.*, Professor of Agricultural Engineering

EBLING, WALTER HENRY, *Ph.D.*, Assistant Professor of Agricultural Economics
EKERN, PAUL CHESTER, *Ph.D.*, Assistant Professor of Soils and Meteorology
ELFNER, JOSEPH SHERBURNE, *M.S.*, Assistant Professor of Horticulture
ELLARSON, ROBERT SCOTT, *M.S.*, Instructor in Wildlife Management
ELVEHJEM, CONRAD ARNOLD, *Ph.D.*, Professor of Biochemistry; Dean, Graduate School
ENGELBERT, LINCOLN EDWIN, *Ph.D.*, Assistant Professor of Soils
ERNSTROM, CARL ANTHON, *M.S.*, Instructor in Dairy and Food Industries

FARRAR, CLAYTON LEON, *Ph.D.*, Professor of Entomology
FELTS, LAVERN LAWRENCE, *M.S.*, Assistant Professor of Animal Husbandry
FISHER, ELLSWORTH H., *Ph.D.*, Associate Professor of Entomology
FLUKE, CHARLES LEWIS, JR., *Ph.D.*, Professor of Entomology

FOLLETT, ALBERT OSCAR, *B.S.*, Assistant Professor of Agricultural Economics
FOSGATE, OLIN TRACY, *B.S.*, Instructor in Dairy Husbandry
FOSTER, EDWIN MICHAEL, *Ph.D.*, Professor of Bacteriology
FRAZIER, WILLIAM CARROLL, *Ph.D.*, Professor of Bacteriology
FROKER, RUDOLPH KNUGAARD, *M.A.*, Professor of Agricultural Economics; Dean, College of Agriculture; Director of Agricultural Experiment Station and Agricultural Extension
FROST, WILLIAM DODGE, *Ph.D., Dr. P.H.*, Emeritus Professor of Bacteriology
FULLER, JAMES GARFIELD, *M.S.*, Emeritus Professor of Animal Husbandry
FULTON, ROBERT WATT, *Ph.D.*, Assistant Professor of Horticulture

GABELMAN, WARREN HENRY, *Ph.D.*, Assistant Professor of Horticulture
GARD, ROBERT EDWARD, *M.A.*, Associate Professor of Agricultural Extension Education
GIESLER, FREDERICK JACOB, *B.S.*, Assistant Professor of Animal Husbandry
GILBERT, FRANKLIN ANDREW, *M.S.*, Assistant Professor of Horticulture
GRABER, LAURENCE FREDERICK, *Ph.D.*, Professor of Agronomy
GRAF, TRUMAN FREDERICK, *Ph.D.*, Assistant Professor of Agricultural Economics
GRAUL, EDWARD JOHN, *M.S.*, Emeritus Professor of Soils
GRUMMER, ROBERT HENRY, *Ph.D.*, Professor of Animal Husbandry

HAAS, ALFRED JOHN, Professor; Executive Secretary, College of Agriculture
HAASL, BERNARD PHILIP, *B.S.*, Instructor in Animal Husbandry
HAGEDORN, DONALD JAMES, *Ph.D.*, Associate Professor of Agronomy and Plant Pathology
HALL, ISAAC FULTS, *Ph.D.*, Professor of Agricultural Economics
HALPIN, JAMES GARFIELD, *B.S.*, Professor of Poultry Husbandry
HALVORSON, HARLOW WALDRON, *M.S.*, Associate Professor of Agricultural Economics
HANSON, EARLE WILLIAM, *Ph.D.*, Associate Director of Plant Pathology
HANSON, ROBERT PAUL, *Ph.D.*, Associate Professor of Veterinary Science
HARRIS, ROY THEODORE, *Emeritus* Assistant Professor of Dairy Husbandry
HATCH, KIRK LESTER, *B.S.*, Emeritus Professor of Agricultural Extension
HAUSER, EDWARD RICHARD, *Ph.D.*, Assistant Professor of Animal Husbandry
HAWK, HAROLD WILLIAM, *B.S.*, Instructor in Genetics
HAYES, JOHN BARRY, *B.S.*, Professor of Poultry Husbandry
HAZARD, ALINE WATSON, *B.S.*, Assistant Professor of Agricultural Journalism
HEAN, CLARENCE SCOTT, *B.A.*, Emeritus Professor and Librarian, College of Agriculture
HEIZER, EDWIN ELBERT, *Ph.D.*, Professor of Dairy Husbandry
HEMBRE, INGVALD OSCAR, *M.S.*, Assistant Professor of Agricultural Extension
HERRICK, CHESTER ALBERN, *Ph.D., Sc.D.*, Professor of Veterinary Science and Zoology
HERRLING, EUGENE HENRY, *B.S.*, Instructor in Plant Pathology
HIBBARD, BENJAMIN HORACE, *Ph.D.*, Emeritus Professor of Agricultural Economics
HICKEY, JOSEPH JAMES, *Ph.D.*, Associate Professor of Wildlife Management
HILDEBRANDT, ALBERT CHRISTIAN, *Ph.D.*, Assistant Professor of Plant Pathology
HITT, ROBERT GEORGE, *M.S.*, Instructor in Genetics
HOBSON, ASHER, *Ph.D.*, Emeritus Professor of Agricultural Economics
HOCH, EDWARD HEINRICH, *B.S.*, Instructor in Animal Husbandry
HOLDEN, EUGENE DAVENPORT, *M.S.*, Associate Professor of Agronomy
HOLM, LEROY GEORGE, *Ph.D.*, Associate Professor of Horticulture
HOPKINS, ANDREW WINKLE, *B.L.*, Emeritus Professor of Agricultural Journalism
HOUGAS, ROBERT WAYNE, *Ph.D.*, Assistant Professor of Genetics
HULL, HAROLD HAIGHT, *Ph.D.*, Assistant Professor of Soils

IRWIN, MALCOLM ROBERT, *Ph.D.*, Professor of Genetics

JACKSON, HOWARD CAMPBELL, *Ph.D.*, Professor of Dairy Industry
JACKSON, MARION LEROY, *Ph.D.*, Professor of Soils
JAMES, JOHN AMBROSE, *B.S.*, Emeritus Professor of Agricultural Education

JAMES, REUBEN, *B.S.*, Assistant Professor of Agronomy
JOHNSON, M. MILDRED, *M.S.*, Instructor in Bacteriology
JOHNSON, MARVIN JOYCE, *Ph.D.*, Professor of Biochemistry
JONES, MYRTLE EDITH, *B.A.*, Instructor in Agricultural Economics
JORGENSEN, EMIL A., *M.S.*, Associate Professor of Agricultural Education and Agricultural Extension
JORNS, BYRON CHARLES, Assistant Professor of Agricultural Journalism

KAESBERG, PAUL JOSEPH, *Ph.D.*, Assistant Professor of Biochemistry
KEARL, BRYANT EASTHAM, *Ph.D.*, Associate Professor of Agricultural Journalism
KEITT, GEORGE WANAMAKER, *Ph.D., Sc.D.*, Professor of Plant Pathology
KIDDER, HAROLD E., *B.S.*, Instructor in Genetics
KIVLIN, VINCENT EARL, *M.S.*, Professor of Agricultural Education; Associate Dean, College of Agriculture
KLINGBEIL, GEORGE CARL, *M.S.*, Assistant Professor of Horticulture
KNIGHT, STANLEY GLENN, *Ph.D.*, Associate Professor of Bacteriology
KOLB, JOHN HARRISON, *Ph.D.*, Professor of Rural Sociology
KOWALCZYK, TADEUCZ, *D.V.M,*. Instructor in Veterinary Science
KREITLOW, BURTON WILLIAM, *Ph.D.*, Associate Professor of Agricultural Education
KROSS, JOHN IGNATIUS, *M.S.*, Associate Professor of Agricultural Economics
KUNTZ, JAMES EUGENE, *Ph.D.*, Assistant Professor of Plant Pathology

LANGDON, GRACE ELIZABETH, *M.A.*, Associate Professor of Agricultural Journalism
LANGORD, LEONARD ROGER, *B.S.*, Instructor in Horticulture
LARDY, HENRY ARNOLD, *Ph.D.*, Professor of Biochemistry
LAROCK, MAX JAMES, *B.A.*, Professor of Agricultural Engineering
LARSON, RUSSELL HAROLD, *Ph.D.*, Assistant Professor of Plant Pathology
LEBEN, CURT CHARLES, *Ph.D.*, Assistant Professor of Plant Pathology
LEDERBERG, JOSHUA, *Ph.D.*, Professor of Genetics
LEITH, BENJAMIN DONALD, *B.S.*, Emeritus Professor of Agronomy
LINK, KARL PAUL, *Ph.D.*, Professor of Biochemistry
LONGENECKER, GEORGE WILLIAM, *M.S.*, Professor of Horticulture; Executive Director, University Arboretum
LOOMER, CHARLES WILLIAM, *Ph.D.*, Associate Professor of Agricultural Economics

MCCABE, ROBERT ALBERT, *Ph.D.*, Associate Professor of Wildlife Management
MCCANNON, NELLIE ROSE, *M.S.*, Assistant Professor of Agricultural Journalism
MCCLURKIN, ARLAN WILBUR, *D.V.M.*, Instructor in Veterinary Science
MCCOY, ELIZABETH FLORENCE, *Ph.D.*, Professor of Bacteriology
MCGIBBON, WILLIAM HENRY, *Ph.D.*, Professor of Poultry Husbandry
MCKENZIE, THOMAS, Instructor in Animal Husbandry
MCNALL, PRESTON ESSEX, *Ph.D.*, Professor of Agricultural Economics
MCNEEL, WAKELIN, *B.A.*, Emeritus Professor; State Leader of Boys and Girls Clubs
MCNUTT, SAMUEL HEZEKIAH, *D.V.M.*, Professor of Veterinary Science

MARSHALL, DOUGLAS GORDON, *Ph.D.*, Professor of Rural Sociology
MATTHIAS, VILAS WILLIAM, *B.S.*, Assistant Professor of University Farms
MAXCY, RUTHFORD BURT, *B.S.*, Instructor in Dairy and Food Industry
MEDLER, JOHN THOMAS, *Ph.D.*, Associate Professor of Entomology and Agronomy
MILLER, ARTHUR HARVEY, *M.S.*, Instructor in Agricultural Economics
MILLER, EDWARD ERNST, *Ph.D.*, Associate Professor of Soils
MILWARD, JAMES GARFIELD, *M.S.*, Emeritus Professor of Horticulture
MITCHELL, DONALD RICHARDS, *M.S.*, Assistant Professor of Agricultural Economics
MOORE, JAMES GARFIELD, *M.S.*, Emeritus Professor of Horticulture
MOORE, JOHN DUAIN, *Ph.D.*, Professor of Plant Pathology
MORRISSEY, LESTER GLEN, Instructor in Agricultural Engineering

MORSE, ERSKINE VANCE, *Ph.D.*, Assistant Professor of Veterinary Science
MORTENSON, WILLIAM PETER, *Ph.D.*, Associate Professor of Agricultural Economics
MOULTON, FRANK S., *M.S.*, Assistant Professor of Agricultural Engineering
MUCKENHIRN, ROBERT JOHN, *Ph.D.*, Professor of Soils; Assistant Director of Experiment Station
MUCKS, ARLIE MAX, *B.S.*, Professor; Assistant Director of Agricultural Extension
MYREN, DELBERT THEODORE, *B.S.*, Instructor in Agricultural Journalism

NEAL, NORMAN PERCY, *Ph.D.*, Professor of Agronomy
NEITZKE, CARL HERMAN, *B.E.*, Assistant Professor of Agricultural Engineering
NICHOLS, ROY ELWYN, *Ph.D., D.V.M., D.V.Sc.*, Professor of Veterinary Science
NIEDERMEIER, ROBERT PAUL, *Ph.D.*, Associate Professor of Dairy Husbandry
NIELSEN, ETLAR LESTER, Associate Professor of Agronomy

OGDEN, WILLIAM BUTLER, *M.S.*, Associate Professor of Horticulture

PARSONS, KENNETH HERALD, *Ph.D.*, Professor of Agricultural Economics
PATTON, ROBERT FRANKLIN, *M.S.*, Assistant Professor of Plant Pathology
PENN, RAYMOND J., *Ph.D.*, Professor of Agricultural Economics
PETERSON, ARTHUR EDWIN, *Ph.D.*, Assistant Professor of Soils
PETERSON, DONALD RICHARD, *Ph.D.*, Assistant Professor of Agronomy
PETERSON, THEODORE ARTHUR, *M.F.*, Instructor in Forestry and Wildlife Management
PETERSON, WILLIAM HOWARD, *Ph.D.*, Emeritus Professor of Biochemistry
PHILLIPS, PAUL HORRELL, *Ph.D.*, Professor of Biochemistry
PITTENGER, EMORY MELVIN, *A.B., B.L.S.*, Assistant Professor and Librarian, College of Agriculture
POPE, ARTHUR LLOYD, *Ph.D.*, Associate Professor of Animal Husbandry
POUND, GLENN SIMPSON, *Ph.D.*, Professor of Plant Pathology
POWERS, RICHARD DALE, *B.S.*, Instructor in Agricultural Journalism
PRICE, WALTER VAN, *Ph.D.*, Professor of Dairy Industry
PRONIN, DMITRI THEODORE, *F.E.*, Instructor in Agricultural Engineering

RAPER, KENNETH BRYAN, *Ph.D.*, Professor of Bacteriology
RIEMAN, GUSTAV HERMAN, *Ph.D.*, Professor of Genetics
RIKER, ALBERT JOYCE, *Ph.D.*, Professor of Plant Pathology
ROBERTS, RAY HARLAND, *Ph.D.*, Professor of Horticulture
ROSS, JOHN ELTON, *M.S.*, Assistant Professor of Agricultural Journalism
ROWLANDS, WALTER AUGUSTUS, *B.S.*, Professor of Agricultural Economics; Director of Branch Stations

SARLES, WILLIAM BOWEN, *Ph.D.*, Professor of Bacteriology
SCHAARS, MARVIN ARNOLD, *Ph.D.*, Professor of Agricultural Economics
SCHOENEMAN, JOHN ALFRED, *B.S.*, Assistant Professor of Horticulture
SCHORGER, ARLIE WILLIAM, *Ph.D.*, Professor of Wildlife Management
SCHWALBACH, JAMES ALFRED, *M.S.*, Assistant Professor of Agricultural and Extension Education
SEWELL, WILLIAM HAMILTON, *Ph.D.*, Professor of Rural Sociology
SHACKELFORD, RICHARD MAX, *Ph.D.*, Assistant Professor of Genetics
SHANDS, HAZEL LEE, *Ph.D.*, Professor of Agronomy
SHANDS, RUEBUSH GEORGE, *Ph.D.*, Professor of Agronomy
SHENEFELT, ROY DAVID, *Ph.D.*, Associate Professor of Entomology
SHOEMAKER, KARL GARDNER, *M.A.*, Associate Professor of Agricultural Economics
SIMON, JOSEPH, *D.V.M.*, Assistant Professor of Veterinary Science
SLEDGE, GEORGE WILLARD, *D.E.D.*, Assistant Professor of Agricultural and Extension Education
SMITH, DALE WILFRED, *Ph.D.*, Associate Professor of Agronomy

SMITH, DAVID CLYDE, *Ph.D.*, Professor of Agronomy
SMITH, VEARL ROBERT, *Ph.D.*, Professor of Dairy Husbandry
SMITH, WILLIAM KENNETH, *Ph.D.*, Professor of Genetics and Agronomy
SORDEN, LELAND GEORGE, *B.S.*, Assistant Professor of Agricultural Extension
SORENSEN, DALE KENWOOD, *M.S., D.V.M.*, Instructor in Veterinary Science
SPRAIN, DONALD GEORGE, *B.S.*, Instructor in Dairy Husbandry
STAHMANN, MARK ARNOLD, *Ph.D.*, Associate Professor of Biochemistry
STALLARD, JOHN EARL, *B.S.*, Assistant Professor of Dairy Husbandry
STANIFORTH, SYDNEY DALTON, *Ph.D.*, Assistant Professor of Agricultural Economics
STEENBOCK, HARRY, *Ph.D., Sc.D.*, Professor of Biochemistry
STONE, WILLIAM HAROLD, *M.S.*, Assistant Professor of Genetics
STRANG, ALLEN JOHN, *B.A.*, Lecturer in Agricultural Engineering
STROMMEN, ARTHUR MALCOLM, *M.S.*, Professor of Agronomy
STRONG, FRANK MORGAN, *Ph.D.*, Professor of Biochemistry
STRUCKMEYER, BURDEAN ESTHER, *Ph.D.*, Associate Professor of Horticulture
SUMNER, WILLIAM ALLISON, *Ph.M.*, Professor of Agricultural Journalism
SUND, JULIAN MAGNUS, *M.S.*, Assistant Professor of Agronomy
SUNDE, MILTON LESTER, *Ph.D.*, Assistant Professor of Poultry Husbandry
SUOMI, VERNER EDWARD, *B.E.*, Associate Professor of Soils
SWANSON, ARTHUR MARTIN, *Ph.D.*, Professor of Dairy Industry
SWANSON, RANDALL COVER, *B.S.*, Associate Professor of Agricultural Engineering

TANNER, CHAMP B., *Ph.D.*, Assistant Professor of Soils
THOMSEN, LOUIS CHARLES, *B.S.*, Professor of Dairy Industry
TODD, ARLIE C., *Ph.D.*, Associate Professor of Veterinary Science
TORRIE, JAMES HIRAM, *Ph.D.*, Professor of Agronomy
TRENK, FRED BENJAMIN, *M.S.*, Professor of Forestry and Wildlife Management
TRUOG, EMIL, *M.S.*, Emeritus Professor of Soils
TYLER, WILBER JONES, *Ph.D.*, Associate Professor of Dairy Husbandry

VANDERVEST, WALTER LOUIS, *M.S.*, Assistant Professor of Agronomy
VERGERONT, GLEN WALLACE, *B.A.*, Assistant Professor of Dairy Husbandry
VOIGT, GARTH KENNETH, *Ph.D.*, Assistant Professor of Soils

WADE, EARL KENNETH, *M.S.*, Assistant Professor of Plant Pathology
WAHL, MILTON REGINALD, *B.S.*, Instructor in Dairy Plant
WALKER, JOHN CHARLES, *Ph.D.*, Professor of Plant Pathology
WALLENFELDT, EVERT, *M.S.*, Professor of Dairy Industry
WECKEL, KENNETH GRANDVILLE, *Ph.D.*, Professor of Dairy Industry
WEDIN, WALTER FREDERICK, *Ph.D.*, Assistant Professor of Horticulture
WERNER, GEORGE MCKINLEY, *B.S.*, Professor of Dairy Husbandry
WHITE, MAURICE EVERETT, *M.S.*, Assistant Professor of Agricultural Journalism
WILDE, SERGIUS ALEXANDER, *F.E., Sc.D.*, Professor of Soils
WILEDEN, ARTHUR FREDERICK, *M.S.*, Professor of Rural Sociology
WILKENING, EUGENE ARTHUR, *Ph.D.*, Associate Professor of Rural Sociology
WILKINSON, J. FRANK, *B.S.*, Associate Professor of Agricultural Education; Director, Farm Short Course
WILLIAMS, DAVID HUMPHREY, *B.S.*, Professor of Agricultural Extension
WILLIAMS, JESSE NOAH, JR., *Ph.D.*, Associate Professor of Biochemistry
WILSON, JOE BRANSFORD, *Ph.D.*, Associate Professor of Bacteriology
WILSON, PERRY WILLIAM, *Ph.D.*, Professor of Bacteriology
WILTBANK, JAMES N., *M.S.*, Instructor in Genetics
WINDER, WILLIAM CHARLES, *Ph.D.*, Associate Professor of Dairy Industry
WIPF, F. LOUISE, *Ph.D.*, Instructor in Veterinary Science

WITZEL, STANLEY ARTHUR, *M.S.*, Professor of Agricultural Engineering
WOJTA, ALFRED JOSEPH, *B.S.*, Assistant Professor of Agricultural Engineering and Soils
WORNER, NANCY WATTS, *B.S.*, Instructor in Genetics
WRIGHT, ANDREW HAMILTON, *M.S.*, Professor of Agronomy
WRIGHT, EARL ORVILLE, *B.S.*, Instructor in Dairy and Food Industry
WRIGHT, GEORGE L., *B.S.*, Associate Professor of Agricultural Extension
WRIGHT, MADISON JOHNSTON, *Ph.D.*, Assistant Professor of Agronomy

ZEASMAN, OTTO REINHART, *B.S.*, Professor of Soils
ZEHNER, CLOYD ERNEST, *B.S.*, Assistant Professor of Dairy Husbandry
ZIEGLER, GEORGE ALBERT, *B.S.*, Assistant Professor of Horticulture

COLLEGE OF AGRICULTURE

The College of Agriculture performs three distinct functions for the citizens of Wisconsin:

(1) It provides, with the co-operation of the other schools and colleges of the University, collegiate instruction in agriculture and its related fields; (2) it conducts, through the organization of its Experiment Station, research in the natural and social sciences as they relate to agriculture and homemaking; and (3) it disseminates to the farmers and homemakers of the state, through its Agricultural Extension organization, information on the latest research findings that pertain to the problems of farming and homemaking. The content of this bulletin deals exclusively with the instructional function of the College of Agriculture.

OPPORTUNITIES IN AGRICULTURE

Young men, particularly those with a farm background or those who have lived in rural communities and understand rural problems, will find many opportunities in the broad field of agriculture. These opportunities fall into four general classifications, namely: (1) farming; (2) agricultural teaching and extension work; (3) agricultural commerce and industry; and (4) agricultural research.

FARMING—There is opportunity for success in farming. The agricultural college graduate may be trained in the application of modern up-to-date methods which today are indispensable to profitable farming. He has had an opportunity to broaden greatly his perspective and to increase his capacity to deal effectively with farm problems. Consequently, the qualified graduate may do well in a managerial capacity for another farm owner or in directing his own farming enterprise.

TEACHING AND EXTENSION WORK—In many rural communities, vocational agriculture instructors are teaching high-school youth the techniques of improved scientific farming methods. County agricultural agents, agricultural college extension specialists, and agricultural extension representatives in the United States Department of Agriculture are effectively disseminating among the farm youth and farmers of the various states information on the latest agricultural methods and practices made available by the agricultural experiment stations. Only men with adequate farm background and good training in an agricultural college may hope for placement in agricultural teaching or extension work.

AGRICULTURAL COMMERCE AND INDUSTRY—In the business world a considerable demand for agricultural college graduates exists. Private and governmental financial institutions engaged in farm loan activities, and newspaper, advertising and radio broadcasting agencies have taken many agriculturally trained graduates. Others have been absorbed by canning, feed and seed, fertilizer, dairy products, meat packing, commercial hatchery, and farm implement companies.

AGRICULTURAL RESEARCH—Agricultural experiment stations and various federal and privately owned agencies find need for trained men who have specialized in some one phase of natural or social science relating to agriculture. To equip himself best for a position in the field of agricultural research, a student should continue his study beyond the usual four years of college and plan to earn a master's or doctor of philosophy degree in the field of his special interest.

FACILITIES AND STAFF

The College of Agriculture possesses splendid physical facilities for conducting its research and instructional work. Prepared to provide training in nineteen related agricultural fields, the College of Agriculture has a staff of highly trained men of professional rank.

CAMPUS ACTIVITIES

Students enrolled in the College of Agriculture will find several active student organizations on the agricultural campus. In addition to maintaining the *Wisconsin Country Magazine,* student monthly publication, from which those who are interested may receive rich, practical experiences in writing, soliciting advertising, circulation problems, newspaper financing, or editing, students also support the following organizations:

Alpha Zeta—A chapter of the national honorary agricultural fraternity; *Agricultural Economics Society*—for students interested in agricultural economics; *Agricultural Engineers*—for students in agricultural engineering; *Babcock Dairy Science Club*—for students interested in dairy industry; *Blue Shield*—a club for students interested in rural life and those who want to become rural workers and leaders; *Future Farmers of America*—a collegiate club consisting of former F.F.A. members and others who plan to teach vocational agriculture; *Landscape Council Ring*—an organization for students in landscape gardening; *Saddle and Sirloin Club*—for students interested in the breeding of livestock. This club sponsors the annual Wisconsin Little International Livestock and Dairy Shows; *U. W. 4-H Club*—former 4-H Club members comprise the membership of this group; and *U. W. Poultry Club*—for students interested in the poultry industry.

Serving to integrate the activities of the above mentioned agricultural organizations, in addition to those which are open only to students in Home Economics, is the *Agricultural-Home Economics Student Council* which has two representatives from each of the established groups. The council sponsors all of the agricultural campus all-student functions and seeks to promote a closer relationship between the faculty and student body.

ADMISSION

Requirements for admission to the College of Agriculture will be found in the General Information bulletin.

STUDENT EXPENSE

For information regarding living costs, tuition and fees, and student employment, consult the General Information bulletin.

LOAN FUNDS AND UNDERGRADUATE SCHOLARSHIPS

Students should consult the General Information bulletin for a list of available scholarships and loan funds. Many of these are open to all students in the University while others are limited. Attention is directed to the funds establishing scholarships and loans for students enrolled in Agriculture.

Twenty-seven scholarships, varying from $100 to $150 each, will be awarded to *freshmen* in the agricultural courses who are residents of Wisconsin. An essay on an assigned topic must be presented, together with references and other information, before August 1.

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

Peter Young Scholarships—Awarded to junior students who qualify for the senior year in Agriculture and Home Economics. For information consult the Associate Dean, College of Agriculture.

Agricultural Loan Fund—For information address the Associate Dean, College of Agriculture.

E. R. Jones Loan Fund—For students in the College of Agriculture.

Henry A. and Minnie P. Huber Scholarship Loan Fund—For scholarship loans to farm boys and girls who are interested in the study of agriculture and farm management.

Agricultural Student Council Loan Fund—For students enrolled in the College of Agriculture.

Borden Award—Awarded to highest junior in the field of Dairy Industry.

Daughters of Demeter Loan Fund—For students enrolled in the College of Agriculture.

For further information regarding application for the above loans or scholarships, write Associate Dean V. E. Kivlin, College of Agriculture, Madison 6, Wisconsin.

ROOM AND BOARD

THE UNIVERSITY RESIDENCE HALLS

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

The Wisconsin Union. In the Union the University provides a variety of dining services for students, operated on a cost basis and under the supervision of trained dietitians. The combined dining rooms in the Union accommodate 3,500 students a day; the cafeteria, the largest room, serves three meals daily, featuring a low-cost student special. Every type of dining preference is met by the Union and costs are very low.

Co-operative Houses for Men. The University owns and operates five co-operative houses for men located in the first block east of the campus near the library, the Wisconsin Union, the gymnasium, student churches, the lake, tennis courts, and the business district. Together they accommodate 120 men.

SELF-SUPPORT

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

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

THE LONG COURSE

OBJECTIVES—The Long Course in Agriculture is the regular four-year collegiate course leading to the degree of Bachelor of Science in Agriculture. Four years of university work, or the equivalent, are necessary to complete the work for a degree. Serving a two-fold purpose, namely to give a broad, general training and a specific technical knowledge of agriculture, the Long Course prepares students for the more desirable commercial, managerial, and professional positions.

ADMISSION—The methods by which one may be admitted to the Long Course in the College of Agriculture are the same as for any other college or school in the University. See General Information bulletin.

FEES, BOOKS, AND MISCELLANEOUS COSTS—The student in Agriculture who is a resident of the state of Wisconsin should expect to spend from $125 to $150 each semester for his general fees and books. The only additional expenses the student need be concerned about are board, room, clothes, laundry, and entertainment. For further details see General Information bulletin.

MAJORS—A major consists of a minimum of 15 and a maximum of 25 elective credits in one department.

In planning a course of study the student should make certain that he includes all the courses required for a degree, including the major requirements of a minimum of 15 *elective* credits in the department. The staff members of any department will be glad to discuss with prospective majors the opportunities which their particular field has to offer and recommend the courses that should be taken in preparing for a specific objective.

A FLEXIBLE COURSE OF STUDY

The Long Course is designed to permit the student a liberal selection of subjects. The only subjects which the Long Course student *must* take to fulfill the requirements for graduation are those listed below, which normally are taken in the freshman and sophomore years. Beyond those, the student may select any undergraduate subjects to which he is eligible, in any part of the University he chooses, provided: (1) he takes a minimum of 45 *elective and required* credits within the College of Agriculture; (2) he takes a minimum of 20 *elective* credits outside the College of Agriculture; and (3) he satisfies the requirements for a major.

An outline of the course of study for a four-year period is given herewith. A total of 124 credits and 248 grade-points is required for graduation. *The reader should give particular attention to notations included beneath each year's curriculum.*

THE LONG COURSE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman composition	3	English 1b—Freshman composition[1]	3
Chemistry 1a—General chemistry	5	Chemistry 1b—Qualitative analysis	5
Agronomy 1 or Animal-Dairy Husbandry 1[2]	3	Agronomy 1 or Animal-Dairy Husbandry 1	3
Freshman Elective (a)	3–5	Freshman Elective (b)	3–5
Freshman Lectures[3]	1	Military Science	0
Military Science	0	Physical Education[4]	0
Physical Education[4]	0		
	15–17		14–16

SOPHOMORE YEAR

Bacteriology 1—General survey	4	Agr. Econ. 4—Principles of agricultural economics[2]	3
Econ. 1a—General economics	4	Biochem. 3 or 10—Elementary biochemistry[5]	4
Soils 1—Soils and soil fertility[5]	4	Sophomore Elective (d)	3–5
Sophomore Elective (c)	3–5	Electives	4
Military Science	0	Military Science	0
	15–17		14–16

[1] Students earning a grade of *A* in English 1a may be excused from English 1b. They may even be exempt from the full year of freshman English provided they pass the exemption tests which are given during the second week of residence.

[2] Students majoring in landscape gardening may substitute Art Education 50 for Animal Husbandry 1 and may take Agricultural Economics 117 in place of Agricultural Economics 4. Students majoring in Floriculture will substitute Entomology 1 for Animal Husbandry 1.

[3] See information on Freshman Lectures on page 264.

[4] See information on Military Science and Physical Education Requirements on page 264.

[5] A choice is offered between Soils 1 and Biochemistry 3 or 10. Only one is required but both may be taken if desired.

Freshman and Sophomore Electives a, b, c, and d must include *four courses* totaling from 12–20 credits from the following:

Mathematics	2 courses or a maximum of 10 credits
Physics 1	2 courses or a maximum of 10 credits
Botany 1	Not more than 1 course, or a maximum of 5 credits
Zoology 1	Not more than 1 course, or a maximum of 5 credits
Agricultural courses	1 or 2 courses 3–5 crs. each, but if 2 courses are taken they must be selected from different departments

JUNIOR AND SENIOR YEARS

The student ordinarily will carry from 15 to 17 credits per semester during his junior and senior years. At the beginning of his junior year the student with the help of his adviser, should plan a program, well balanced with respect to elective and required subjects, especially in the major, so that he may easily complete all of the requirements for the degree during the senior year.

REQUIREMENT IN AMERICAN HISTORY AND AMERICAN INSTITUTIONS

Undergraduate students whose programs allow them at least 21 credits of liberal (non-professional) electives will be required to complete satisfactorily either:

A. A year course in American History chosen from the following:

History of the United States (History 4)
Representative Americans (History 112)
History of American Thought and Culture (History 113)
The Origin, Growth and Development of the Constitution (History 117)
Social Development of the American People (History 121)
American Economic Life (History 122)

OR

B. A three-credit course in American History and a semester chosen from the following:

American Government and Politics (Political Science 7)
History of American Political Thought (Political Science 165)
The American Economy (Economics 1a)
A course in American History numbered above 100

Undergraduate students in programs which allow them less than 21 credits of liberal electives may be regarded as having fulfilled the requirement when they have satisfactorily completed a three-credit course in American History.

An undergraduate student may absolve the requirement at any time prior to the beginning of his junior year by passing an attainment examination in which the material covered is that of History 4.

THE MIDDLE COURSE

Students who are interested in taking regular academic work in Agriculture at the University, with emphasis on the practical aspects of agriculture, for a period of two years, may enroll in the Middle Course in Agriculture. Entrance requirements for the Middle Course are the same as for the Long Course (see page 260). Upon satisfactory completion of this course, a student is eligible to receive the title of Graduate in Agriculture.

Students enrolled in the Middle Course are required to take Physical Education and Military Science.

A minimum of 64 credits and 128 grade-points is necessary to complete the requirements for graduation. Of the 64 credits a maximum of 15 elective credits may be taken outside the College of Agriculture. Courses taken in the College of Letters and Science to meet requirements of the Long Course are considered in the Middle Course as electives outside the College of Agriculture.

The Middle Course provides the maximum opportunity for choosing work for a vocational objective. Students should have a definite objective in mind when enrolling so that the proper choice of courses may be made.

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—General chemistry	5
Electives	6	or Biochemistry 3 or 10	4
Freshman Lectures	1	Electives	8–9
Military Science[1]	0	Military Science[1]	0
Physical Education	0	Physical Education	0
	15		16

In the sophomore year 16–17 credits of elective work must be carried each semester.

Students enrolled in the Middle Course who wish to transfer to the Long Course should expect to spend more than the usual four years in order to complete the requirements for a bachelor's degree. Further information may be obtained by writing Associate Dean V. E. Kivlin, College of Agriculture, Madison 6, Wisconsin.

PRE-FORESTRY

The University of Wisconsin does not offer a course in forestry. However, it does offer, in the College of Agriculture, two years of work in pre-forestry study. Upon the satisfactory completion of the pre-forestry course, a student may transfer to another institution where forestry is given and there complete his work toward a degree in forestry.

The pre-forestry work suggested is similar to the prerequisite training required by most forestry schools. However, it is advisable that the student, in the spring semester of his freshman year, confer with his adviser relative to the forestry institution he should plan to attend after he will have completed his two-year pre-forestry course. This will enable the student and his adviser to plan more thoroughly the student's course of study for his sophomore year at the University of Wisconsin. Practically all institutions that offer degrees in forestry require that training in the summer forestry camp be completed before the beginning of the junior year. The following curriculum for the freshman year is recommended for students intending to take forestry:

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—Principles and practices in crop production	3	Botany 1—General botany	5
Math. 1 or 2—Algebra and trigonometry	4	Entomology 1—Elementary entomology (farm insects)	3
Freshman Lectures	1	Military Science[1]	0
Military Science[1]	0	Physical Education	0
Physical Education	0		
	16		16

SOPHOMORE YEAR

The courses chosen during the sophomore year should be those that will conform to those requirements of the institution to which the student hopes to transfer to complete his work in forestry.

---

[1] See information on Military Science and Physical Education requirements on page 264.

The following suggested program should enable students, who qualify scholastically, to meet the requirements for admission to most forestry schools:

First Semester	Credits	Second Semester	Credits
*Bacteriology 1—General survey	4	Agr. Econ. 4	3
Economics 1a—General economics	4	Zoology 1	5
*Soils 1—Soils and soil fertility	4	Physics 1	5
Geology 1—General geology	5	Social Science Elective	4
Military Science 1	0	Military Science 1	0
	17		17

Students may elect courses in geography, political science, sociology, speech and additional courses in entomology, physics, botany, and zoology.
* Required for the B.S. degree in agriculture.

PRE-VETERINARY

The University of Wisconsin does not confer the veterinary degree of Doctor of Veterinary Medicine. The institutions which do grant this degree require that their students have a minimum of two (2) years of pre-veterinary work. These veterinary colleges operate on a restricted enrollment basis. A high scholastic rating must be maintained by the pre-veterinary student if he anticipates acceptance at a veterinary college. The completion of the pre-veterinary work does not assure a student of admission to a veterinary college. A student in a veterinary college is required to take four (4) years of professional study regardless of the number of years of pre-veterinary work which he may have had. Veterinary colleges require general farm experience of their applicants.

To enable residents of Wisconsin to obtain the necessary college work which will qualify them for entrance to a veterinary college, the College of Agriculture offers the following pre-veterinary course:

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman composition	3	English 1b—Freshman composition	3
Chemistry 1a or 5—General chemistry	5	Chemistry 1b—Qualitative analysis	5
Animal-Dairy Husbandry 1	3	Zoology 1 or Botany 1	5
Zoology 1 or Botany 1	5	Mathematics 1	4
Freshman Lectures	1	Military Science	0
Military Science	0	Physical Education	0
Physical Education	0		
	17		17

SOPHOMORE YEAR

Chemistry 10—Quantitative analysis	4	Chemistry 120, 121—Organic chemistry	5
Genetics 6	3	Physics 61	5
Poultry 1	3	Speech 7	2
Animal Husbandry 126	4	Political Science 7—American government and politics	3
Mathematics 2	4	Elective in Animal-Dairy Husbandry	2
Military Science	0	Military Science	0
	18		17

MISCELLANEOUS RULES AND REGULATIONS

For Freshmen

Freshman Lectures—All students in agriculture are required to take Freshman Lectures, which allows one credit. The course must be taken during the first semester of the freshman year. Only transfer and advanced standing students who enter the course in agriculture with sophomore standing or above shall be excused from this requirement.

Military Science and Physical Education Requirement—All male freshmen are required to enroll in military science at the time of registration with the provision that the following will be exempted from taking military science: (a) students who qualify and are accepted for membership in the Regimental Band; (b) students who do not meet the established physical requirements for military science as certified by the Student Health Department; and (c) students who for other reasons are exempted or excluded by the Department of Military Science. Subject to the aforementioned conditions governing enrollment in military service, undergraduate men are required to complete: (1) two hours of physical education per week for freshmen and (2) three hours of military science for four semesters. (Additional information may be found in the first-semester time table.)

For Sophomores

Majors—Majors should be chosen not later than the close of the sophomore year in order that the student may secure a well-balanced program. For majors see page 260 and pages 294–301.

Sophomore Honors and Sophomore High Honors are awarded on the basis of a minimum of two full years of work, not less than 60 credits, completed in residence in the College of Agriculture for the first half of the four-year course. A student who earns, during these two years, 195 grade-points plus two and one-half grade-points for each credit above 60 will be awarded Sophomore Honors. A student earning 225 grade-points, plus three grade-points for each credit above 60, during these two years, will be awarded Sophomore High Honors.

For Juniors

Major Requirements—Juniors should plan their study schedules so that they will begin to meet the requirements for their majors. The major cannot be chosen after registation for the first semester of the senior year. See page 260.

For Seniors

Senior Summary—Students beginning their first semester of work in the senior year are given their senior summaries at the associate dean's office before they make out their study schedules so that they may check their past work and be certain that all the requirements for graduation will be satisfied during the senior year.

Senior Honors and Senior High Honors are awarded on the basis of a minimum of two full years of work, not less than 60 credits, completed in residence in the College of Agriculture, for the second half of the four-year course. The student who earns, during this two-year period, 195 grade-points plus two and one-half grade-points for each credit above 60, will be awarded Senior Honors. The student earning 225 grade-points plus three grade-points for each credit above 60 during these two years will be awarded Senior High Honors.

Senior-Graduate—Seniors in the College of Agriculture who are within six credits of having completed all the requirements for graduation and who have the minimum required grade-point average of 2.75 may be admitted to the Graduate School and earn residence credit to apply toward an advanced degree at the same time they are completing their requirements for the bachelor's degree.

MISCELLANEOUS RULES AND REGULATIONS

Requirements for Graduation—1—Completion of the required courses as indicated in page 260. 2—A total of 124 credits and 248 grade-points. 3—No unsatisfied failures or incompletes. 4—An average of two grade-points per credit during the last two semesters of work. 5—A major of 15 to 25 credits in a department. Not more than 25 elective credits in one department may count toward graduation. 6—A minimum of 20 elective, or non-required, credits outside the College of Agriculture. 7—A minimum of 45 credits including required, optional, major and elective courses within the College of Agriculture.

Minimum and Maximum Study Loads—Each student is required to take class and laboratory work totaling from 12 to 17 credits per semester, including Freshman Lectures and the Military Science or Physical Activity requirement as required of all freshmen. (See preceding page.) A student desiring to take less than 12 or more than 17 credits must secure permission in advance from the Executive Committee of the College.

Promotions—A student becomes a sophomore on the completion of 25 credits and 50 grade-points; a junior on the completion of 58 credits and 116 grade-points; and a senior on the completion of 88 credits and 176 grade-points.

Course Restriction—(1) Freshman and sophomore students are not permitted to take courses numbered 100 or above offered in the College of Agriculture but may take courses outside the college on the same basis as other students are permitted to enroll in them; undergraduates may not take courses numbered 200 or above. (2) Undergraduates below the rank of senior are not permitted to carry topical work (Course 180). (3) Undergraduates may not receive credit for more than two semesters of seminar in a single department.

Advisers—After completing the freshman year, a student in Agriculture may select any member of the agricultural teaching staff to be his adviser. During his last two semesters, a senior student must choose an adviser from the department in which he is majoring.

Quality of Work—To remain in good scholastic standing, a student is expected to maintain a minimum average of *C* (2.0) in all of the subjects which he is taking.

Failures—Unless he is excused from doing so by the Executive Committee, any student who receives a grade of "fail," indicated by "F," must remove the failure by repeating the course and securing a passing grade as soon as the subject is again offered during the period such student is in residence at the University. A course that has been failed shall take precedence over other courses in being fitted into the student's study schedule when it is next offered. A failure cannot be removed by correspondence study or by repeating the subject at another collegiate institution.

Incompletes—A student who receives an "incomplete," shown as "INC," must complete the subject not later than the close of the semester in which it is again offered during the student's residence at the University. If not so completed, the grade for the subject will lapse into a failure unless the time for completion has been extended by the Executive Committee.

Change of Schedule—Any change in the student's schedule, however small or seemingly insignificant, must be requested by the student's going to his adviser, indicating his request and securing his adviser's approval on the proper forms and taking the forms to the associate dean's office where the Executive Committee will either approve or reject the request. Any course dropped without permission of the Executive Committee will be recorded as a "fail," and must be removed in the same manner as any other failure, as specified above.

Thesis—The undergraduate thesis when required as part of the major requirement, shall consist of no more and no less than four credits.

Agricultural and Non-Agricultural Courses—Courses taken outside the College as a part of the major are not considered as a portion of the 45 credits required in the College of Agriculture. Courses taught in departments outside the College of Agriculture, though listed in departments of the College of Agriculture, are not to be considered as part of the 45 required credits. Courses given by staff members of the Forest Products Laboratory, approved by the College of Agriculture, shall be considered as agriculture. Credits in Education 75 may be counted toward graduation only by those students who complete the requirements for the University Teachers' Certificate.

OTHER COURSES IN THE COLLEGE OF AGRICULTURE

HOME ECONOMICS COURSE

A four-year course in Home Economics leading to the degree of Bachelor of Science (Home Economics) is given at the University under the direction of the College of Agriculture. A bulletin containing detailed information on the course in Home Economics may be obtained by writing to the Associate Dean for Home Economics, Home Economics Building, Madison 6, Wisconsin.

GRADUATE WORK IN AGRICULTURE

Graduate work is offered in each of the nineteen departments in Agriculture. Students wanting to take work toward a master's or doctor of philosophy degree will enroll in the Graduate School. For further details and information relating to scholarships and fellowships, procure Graduate School bulletin from the Dean of the Graduate School, Bascom Hall, Madison 6, Wisconsin.

THE FARM SHORT COURSE

The Farm Short Course is designed for young men between the ages of 17 years or over who expect to farm. Covering three winter periods of 5 weeks each, the course, which is held from the middle of November to the middle of March, provides training in both the natural and social sciences as they relate to the problems of Wisconsin farmers. The satisfactory completion of the work offered in the Farm Short Course entitles one to a certificate awarded by the University of Wisconsin. Further information including a bulletin may be obtained by writing to the Director of the Farm Short Course, College of Agriculture, Madison 6, Wisconsin.

THE WINTER DAIRY COURSE

To train men in the dairy industry to understand the more modern manufacturing methods, the College of Agriculture provides the six-week Winter Dairy Course, beginning early in September. No entrance examination is required. However, anyone who attends must be at least 16 years of age, must have had an eighth-grade education, and must have had at least six months of practical experience in a creamery, cheese factory, or other dairy manufacturing plant. High-school graduates may be admitted without having had practical experience. A bulletin containing detailed information on the Winter Dairy Course may be obtained by writing to the Chairman of the Department of Dairy and Food Industry, College of Agriculture, Madison 6, Wisconsin.

SPECIAL SHORT COURSES

In addition to the courses mentioned heretofore, the College of Agriculture sponsors a number of special short service courses which vary from one day to two weeks in length. These courses are held on the campus and are arranged according to requests.

DEPARTMENTS OF INSTRUCTION

Abbreviations used in the announcement of courses:
Yr—course continues through the year; I—given during the first semester; II—given during the second semester; I and II—repeated each semester; Cr—credits, i.e., hours of credit per semester; *—credits to be arranged.

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 case 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.

Each department offers courses numbered:

100. THESIS. Yr; 2 cr. Prerequisites: Senior standing and consent of instructor. Staff.

180. SPECIAL PROBLEMS. I, II; *cr. Prerequisites: Senior standing and consent of instructor. Staff.

200. RESEARCH. Yr; *cr. Prerequisites: Graduate standing and consent of instructor. Staff.

AGRICULTURAL ECONOMICS

PROFESSORS BAKKEN, CARSTENSEN (also History), FROKER, HALL, MCNALL, PARSONS, PENN, *chairman*, SCHAARS; ASSOCIATE PROFESSORS CLODIUS, COOK, HALVORSON, KROSS, LOOMER, MORTENSON, SHOEMAKER; ASSISTANT PROFESSORS DAY, EBLING, FOLLETT, GRAF, MITCHELL, STANIFORTH; INSTRUCTOR MILLER.

Agricultural Economics courses are intended to give students a knowledge of economic principles relating to agriculture. The courses deal with farm management, production, marketing, co-operation, processing industries, credit, prices, agricultural data, land tenure, land utilization, land policies, rural local government, taxation, the place of agriculture within the economy, farmer movements, and agricultural policies.

Students may take Agricultural Economics: first, as a full major by those who decide to make it a main line of study preparatory to teaching, research, or other economic work; second, as a joint major with work in other departments; and third, as a full major by students interested in agricultural commerce. The agricultural commerce program of study should be arranged by the student in consultation with his adviser in the Department of Agricultural Economics.

Students are advised to take Economics 1a and 1b and Agricultural Economics 4 and 8 in the sophomore year.

4. INTRODUCTION TO THE ECONOMICS OF AGRICULTURE. II; 3 cr. A general introduction to the economics of agriculture; economic problems and principles in the organization of agriculture; the place of agriculture in modern life; general relations of government to agriculture. Required of all agricultural students. Prerequisite: Economics 1a. Mr. Clodius.

8. FARM RECORDS AND ACCOUNTS. I; 2 cr. Includes principles and techniques of double entry bookkeeping; interpretation of farm financial and operating statements. Mr. Mitchell.

10. Farm Organization and Management. II; 3 cr. Methods and practices applied to farm business management. Prerequisite: Junior standing. Mr. Mitchell.

26. Marketing Fruits and Vegetables. (Same as Horticulture 26.) I; 3 cr. Economic development of the produce industry, marketing channels, functions, and agencies; economic factors involved in grading, inspection, standardization, and merchandising; pricing problems; terminal and country markets; governmental programs. Offered in 1955–56 and alternate years. Prerequisite: Agricultural Economics 4. Mr. Kross.

106. Basic Economic Data in Agriculture. I; 3 cr. A survey of major agricultural data bodies from federal and state sources; their origins, characteristics, elements of organization and processing and sources. Prerequisite: Agricultural Economics 4 or Economics 1b. Mr. Ebling.

107. Agricultural Data Systems and Methods. II; 3 cr. A critical analysis and evaluation of the various systems and methods used in providing data on agriculture; historical development of systems and methods. Prerequisite: Agricultural Economics 106 or consent of instructor. Mr. Ebling.

111. Advanced Farm Management. I; 3 cr. Economic analysis of practical farm operations with case studies; attention to farm planning and basic theoretical concepts. Prerequisite: Senior standing. Mr. Day.

114. Farm Law. II; 3 cr. Legal problems in connection with buying, leasing, operating and transferring a farm; land contracts, leases, mortgages, notes, wills, and inheritance laws. Prerequisite: Junior standing. Mr. Eckhardt.

115. History of American Agriculture. I; 3 cr. Prerequisite: Junior standing. Mr. Carstensen.

117. Outlines of Land Economics. I; 3 cr. Economic principles underlying utilization and conservation of land and natural resources. Prerequisites: Economics 1a and junior standing. Mr. Penn, Mr. Loomer.

125. Marketing Agricultural Products. 1; 3 cr. Principles and practices of agricultural marketing; market prices and costs; case studies. Prerequisite: Economics 1a. Mr. Schaars.

126. Economics of Agricultural Processing Industries. I; 3 cr. Economic theory of production, pricing and market control applied to agricultural processing; government regulation and public policy; case studies. Prerequisite: A course in marketing or equivalent. Mr. Clodius.

127. Co-operation. I, II; 3 cr. Analysis of marketing organization, methods and theory underlying producer and consumer co-operatives at home and abroad. Prerequisite: Junior standing. Mr. Bakken, Mr. Schaars.

128. Marketing Dairy Products. I; 3 cr. Economic factors involving marketing milk and milk products; trade channels, market organizations, sales, pricing plans, costs, regulation, consumer demand. Prerequisites: A course in economics and a course in agricultural marketing or consent of instructor. Mr. Cook.

129. Co-operative Management Problems. II; 2 cr. Consideration of business structure of co-operative associations; problems involving organization, membership relations, financing, trade and sales practices, administrative policies. Prerequisite: Agricultural Economics 127 or equivalent. Mr. Schaars.

134. Rural Local Government. (Same as Political Science 134.) I; 3 cr. The structure and functions of rural local government in the United States. Prerequisite: Political Science 7 or junior standing. Mr. Clarenbach.

152. Farmer Movements. II; 3 cr. History of farmers' efforts to improve their status

through organizations designed to control markets and influence legislation. Prerequisite: Economics 1a or consent of instructor. Mr. Carstensen.

155. PRICES OF AGRICULTURAL PRODUCTS. II; 3 cr. Analysis and interpretation of factors affecting agricultural prices; study of price trends and cycles, governmental policies affecting farm prices. Prerequisite: Two courses in economics. Mr. Halvorson.

160. ECONOMIC PROBLEMS OF UNDERDEVELOPED AREAS. I; 3 cr. Problems of development, selected areas; agricultural technology, economic institutions and population pressure; consumption, savings and capital formation; principles of economic development. Prerequisites: Senior standing and two courses in economics or equivalent. Mr. Parsons.

162. AGRICULTURAL POLICIES. II; 2 cr. Policies adopted by governmental, agricultural and other agencies affecting the economic position of agriculture; current policy problems. Prerequisite: Senior standing. Mr. Penn and staff.

179. URBAN LAND ECONOMICS. I; 3 cr. Urbanization, location, and structure of cities, urban land utilization, home ownership and tenancy, housing, credit, zoning, city and regional planning. Prerequisites: Economics 1a and junior standing. Mr. Ratcliff.

194. INTRODUCTION TO PUBLIC OPINION RESEARCH. (Same as AGR. JOURNALISM, RURAL SOCIOLOGY, SOCIOLOGY AND ANTHROPOLOGY.) I; 3 cr. Theory and practice of survey techniques. Planning, design, sampling, types of data, questionnaire construction, interviewing, field operations, content analysis of data, utilization of findings. Examples in a variety of fields. Prerequisite: Junior standing. Mr. Fisher.

210. SEMINAR IN THE ECONOMICS OF AGRICULTURAL PRODUCTION. I; 2 cr. Economic analysis and research procedure applied to the organization of agricultural production; economic theory in relation to the farm business. Mr. Day, Mr. Staniforth.

211. SEMINAR IN FARM MANAGEMENT. II; 2 cr. History and development of farm management; survey and evaluation of research and research methods. Mr. Day, Mr. Staniforth.

213. SEMINAR: LOCAL GOVERNMENT. I; 2 cr. Selected problems of current and longer-run import in rural government. Individual research, reports, and group discussion. Prerequisite: Graduate standing or consent of instructor. Mr. Clarenbach.

221. LAND ECONOMIC THEORY. II; 2 cr. Economics of land utilization, theories of rent, principles of land evaluation and taxation. Mr. Loomer.

225. SEMINAR: AGRICULTURAL MARKETING. I; 2 cr. Basic problems; organization and methods of marketing research; review of economic literature in marketing; marketing legislation. Offered 1954–55 and alternate years. Mr. Schaars.

226. SEMINAR: LAND PROBLEMS. Yr; 2 cr. Land tenure and utilization research and policy problems. Prerequisite: Graduate standing. Mr. Loomer, Mr. Penn.

227. SEMINAR: LEGAL-ECONOMIC ASPECTS OF CO-OPERATIVES. II; 2 cr. (Joint-listed with Law School.) The relationship of economic and legal problems in co-operative organization, stressing similarities to and difference with general corporation law. Mr. Bakken, Mr. Stedman.

228. SEMINAR: THEORY OF MARKETS AND MARKETING. II; 2 cr. Studies of the historical development of markets, modern market institutions such as auctions, clearing houses, exchanges, and boards of trade. Mr. Bakken.

229. SEMINAR: ADVANCED AGRICULTURAL ECONOMICS. II; 3 cr. The field of agricultural economics with respect to its origin and main issues. Mr. Parsons.

255. SEMINAR: PRICE ANALYSIS. II; 2 cr. Application of statistical and other methods involved in analyzing agricultural price and related problems. Prerequisite: Economics 196 or equivalent. Mr. Halvorson.

280. Special Work in Agricultural Economics. I, II; *cr. Staff

290. Interdepartmental Seminar in Latin-American Problems. (Same as Geography, History, Political Science, Sociology and Anthropology.) II; 2 cr. An interdisciplinary inquiry into the factors influencing the use of resources in various regions in Latin America. Prerequisites: Graduate standing and 5 credits in courses in the Latin-American Fields in the co-operating departments, or consent of the committee in charge. Staff, and members of other departments.

AGRICULTURAL AND EXTENSION EDUCATION

Professor Kivlin; Associate Professors Bjoraker, *chairman*, Gard, Jorgensen, Kreitlow, Wilkinson; Assistant Professors Schwalbach, Sledge.

Majors in this department are available in both Agricultural Education and Agricultural Extension. For the detailed curriculum in Agricultural Extension, see page 296.

Students in the College of Agriculture who wish to prepare for the teaching of agriculture in secondary schools must complete an academic minor in general science, biology, or in community relationships, and elective courses in animal husbandry, dairy husbandry, poultry husbandry, dairy industry, agronomy, horticulture, soils, agricultural engineering and agricultural economics as a background of agriculture and also the 18 credits in education required for the University Teachers' Certificate as outlined below. Farm experience beyond summers is necessary; the farm-reared students are desired. A scholarship record of 2.3 grade-points per credit is necessary to begin teacher-training preparation.

Students completing the requirements for graduation in Agriculture as suggested above and qualifying for a University Teachers' Certificate will receive the degree Bachelor of Science (Agriculture and Education) and a license to teach issued by the State Superintendent of Public Instruction. Such students must (a) register for the certificate in the School of Education at the beginning of the junior year; (b) receive the recommendation of the teacher-training committee of the Collge of Agriculture; and (c) complete the following courses:

	Credits
Educ. 73—The child: his nature and his needs	3
or	
Educ. 74—The school and society	
Educ. 75—The nature and direction of learning	5
Agr. Educ. 1—Rural education	2
Agr. Educ. 50—Teaching of Agriculture	5
Agr. Educ. 128—Program building in vocational agriculture	3

Students beginning work for a certificate may arrange their courses most satisfactorily by starting the requirements during the second semester of the sophomore year. Credits in Education 75 may be counted toward graduation only by students who complete the requirements for the University Teachers' Certificate. Students spend a total of five weeks in high-school vocational agricultural departments during the junior and senior years.

Not more than 5 credits in education taken in the School of Education may count toward the major in agricultural education. These 5 credits shall in no way be counted as a portion of the minimum number of 45 credits required in the strictly agricultural subjects. Agronomy 16, 2 credits, may be counted as a portion of the 5 credits of the major requirement outside the Department of Agricultural Education.

A new curriculum in Agricultural Extension was made available with the opening of the first semester in 1954–55. The detail of the suggested curriculum will be found on page 296. The suggested outline will give students planning to enter extension a broad training in the subject-matter fields in agriculture, basic work in the natural sciences, the

social sciences and in the humanities. In addition it provides courses in Agricultural Extension.

1. Rural Education. I; 2 cr. Origin and development of vocational education for rural communities. Problems, principles, and practices of rural education. Prerequisite: Sophomore standing. Mr. Sledge.

25. Rural Life. (See Rural Sociology 25.) I; 3 cr. May be included as part of a major in agricultural education. Prerequisite: Sophomore standing. Mr. Kolb.

50. Teaching of Agriculture. I, II; 1–5 cr. Directed teaching based upon participation in agricultural activities of vocational departments of agriculture. Prerequisite: Junior standing. Mr. Bjoraker.

101. Extension Work in Agriculture and Home Economics. I; 3 cr. Relationships and legal status of the various services for agriculture and home economics. Methods of organization and instruction used with adults and boys and girls. Mr. Jorgensen and staff.

103. Seminar. I, II; *cr. Problems in rural education for extension workers, teachers, and rural leaders. Staff.

105. Leadership in Agricultural Education. II; 2 cr. An analysis of the leadership function with consideration of the responsibilities of specific rural leaders; techniques of effective leadership, and methods of developing local leaders. Prerequisite: Junior standing. Mr. Bjoraker.

128. Program Building in Vocational Agriculture. I, II; 3 cr. The program of work, directed practice, part-time and evening school, adapted to teaching agriculture in secondary schools. Prerequisites: Major in agricultural education and senior standing. Mr. Bjoraker.

133. Seminar. Yr; *cr. Problems in Extension. Prerequisite: Senior standing. Staff.

150. Field Practice in Extension. I, II; 3 cr. Prerequisite: Junior standing. Staff.

151. 4-H Club Organization and Procedure. II; 3 cr. Prerequisite: Junior standing. Staff.

155. Principles of Adult Education. I; 2–3 cr. (Same as Education 155.) Philosophy and practice of adult education as evidenced through programs of forums, discussion groups, institutes, extension and correspondence courses, evening-school programs. Mr. Kreitlow.

168. Rural Education—Community Background. II; 3 cr. (Same as Education 168.) Influence of rural community life on the educational program. Principles involved in determining educational needs and in making needed adaptations in rural schools. Prerequisite: Senior standing. Mr. Kreitlow.

220. Issues in Rural Education. II; 3 cr. (Same as Education 220.) Survey and analysis of major issues and problems confronting rural education. Implications for rural life. Evaluations of proposed solutions. Prerequisite: Consent of instructor. Mr. Kreitlow.

AGRICULTURAL ENGINEERING

Professors Bruhn, Duffee, *chairman,* LaRock, Witzel, Zeasman; Associate Professors Berge, Swanson; Assistant Professors Barrington, Bruns, Moulton, Neitzke, Wojta; Lecturer Strang.

A five-year course combining agriculture with either civil or mechanical engineering is organized for the training of agricultural engineers. The complete curriculum for civil or mechanical engineering as combined with agriculture may be obtained from the departmental office. The degrees B.S. Agriculture and B.S. Mechanical Engineering; or B.S. Agri-

culture and B.S. Civil Engineering are granted at the end of five years, if all requirements have been met. Freshman majors in professional agricultural engineering should consult the chairman of the Agricultural Engineering Department before registration for the first semester, to arrange the proper sequence of courses.

For those interested in selling farm machinery, farm building and farm electrification equipment, a four-year curriculum has been organized. Copies may be obtained from the departmental office. Those who expect to follow this curriculum should report to an adviser in Agricultural Engineering by the beginning of the sophomore year.

1. Surveys and Structures. I, II; 4 cr. Agricultural surveying, drainage; farm building economics, costs, requirements, and planning. Mr. Moulton.

5. Farm Machinery. I, II; 3 cr. Construction, operation, adjustment, and management of farm field machinery. Mr. Duffee.

7. Farm Electrification. II; 3 cr. Elementary electricity, wiring, motors, farm electrical applications, and water systems. Mr. Barrington.

9. Farm Mechanics. I, II; 3 cr. The fundamentals of farm shop work, such as selection, sharpening, care, and correct use of shop tools and equipment. Mr. Barrington.

11. Elementary Drainage and Farm Structures. I, II; 2 cr. Drainage; farm building economics; costs; requirements and planning. Open only to Agricultural Engineering majors in the professional fields of Farm Structures, or Drainage, Irrigation and Soil Conservation and those not having had Agricultural Engineering 1. Mr. Moulton.

18. Architectural Drawing. I, II; 3 cr. (Same as Art Education 18.) Prerequisite: Drawing 10 or Drawing 12. Mr. Moulton.

28. Home Architecture I. I; 3 cr. (Same as Commerce 28 and Home Economics 28.) This course undertakes to develop an appreciation of the problems of architectural design both with respect to exterior and interior space planning. Prerequisite: Sophomore standing. Mrs. Leindorff.

29. Home Architecture II. II; 3 cr. (Same as Commerce 29.) Structural systems, use of materials, mechanical equipment, the relating of structure and plan, and the problems of cost estimating. Prerequisite: Agricultural Engineering 28 or consent of instructor. Mr. Strang, Mr. Weiler.

30. Home Architecture III. I; 3 cr. (Same as Commerce 30.) Each student is required to design a house, draw the plans, write the specifications, and prepare a detailed cost estimate. This course will be open only to students who have had some work in mechanical or architectural drawing. Prerequisite: Agricultural Engineering 29 or consent of instructor. Mr. Weiler, Mr. Strang.

101. Drainage and Irrigation Engineering. I; 2 cr. Field surveys and designs for farm and community drainage systems. Design of irrigation systems. Prerequisites: Agricultural Engineering 1 or Civil Engineering 11 and 12, or Civil Engineering 15 and 16. Offered 1954–55 and in alternate years. Mr. Witzel, Mr. Zeasman.

103. Farm Tractors. II; 3 cr. Construction, operating principles, care and adjustment of farm tractors. Prerequisite: Agricultural Engineering 5. Mr. Bruhn.

105. Farm Tractors and Machinery. II; 4 cr. Construction, operating principles, design and testing of tractors and equipment. For professional agricultural engineers. Prerequisites: Agricultural Engineering 5 and Mathematics 102b. Mr. Bruhn.

106. Soil and Water Conservation. I; 3 cr. (Same as Soils 106.) Causes and control of soil erosion, and their relationship to land use practices and patterns, future food production, supplies of water for crops, streams, lakes, and underground reserves. Prerequi-

sites: Soils 1 and Agricultural Engineering 1 or consent of instructor. Mr. Zeasman, Mr. Ekern.

121. SEMINAR. I; 1 cr. Review of current literature and studies of agricultural engineering problems. Prerequisite: Senior standing. Staff.

130. FARM ARCHITECTURE. II; 4 cr. Functional and structural design and construction of farm service buildings. Prerequisites: Agricultural Engineering 18 and Mechanics 3 or consent of instructor. Offered 1955–56 and in alternate years. Mr. Witzel.

AGRICULTURAL JOURNALISM

PROFESSOR SUMNER; ASSOCIATE PROFESSORS KEARL, *chairman,* LANGDON; ASSISTANT PROFESSORS BEELER, HAZARD, JORNS, MCCANNON, ROSS, WHITE; INSTRUCTORS MYREN, POWERS.

Rural communication is a rapidly growing field, with a keen demand for trained people to work on daily and weekly newspapers, radio and television stations, farm organizations, and businesses buying from or selling to the rural market.

The demand continues to be very strong for students with an agricultural degree who have also had some training in journalistic practice. Wisconsin is one of few institutions offering this combination.

Majors in the department will be expected to take Agricultural Journalism 1 or 8, 18, 103, 111 or 112, 115, and 130. Basic courses in news reporting, editing, and typography (Journalism 2, 3, and 4) are taken in the School of Journalism, College of Letters and Science. Five credits from this group count in the major, and the balance are counted as electives.

For students returning to the farm, courses 1 and 3 are suggested. For prospective extension workers, courses 1, 18, 115, and 130 are recommended. For research workers 1 or 8 and 115 are suggested.

1. AGRICULTURAL NEWS WRITING. I, II; 3 cr. Prerequisite: Sophomore standing or consent of instructor. Mr. Ross and staff.

2. PRACTICE IN EDITING. I, II; 1 cr. Prerequisite: A semester's work on the *Country Magazine* or consent of instructor. Mr. Ross.

3. AGRICULTURAL ADVERTISING. I, II; 3 cr. Prerequisite: Sophomore standing or consent of instructor. Mr. Sumner.

8. HOME ECONOMICS NEWS WRITING. I; 3 cr. Prerequisite: Sophomore standing or consent of instructor. Miss McCannon.

10. NEWS PHOTOGRAPHY. I, II; 3 cr. Special problems of photography for newspapers and magazines; practice with various cameras. Limited enrollment to majors with consent of instructor. Mr. Beeler.

18. FARM AND HOME RADIO WRITING. I; 2 cr. Includes a general survey of radio, continuity writing; script editing; news gathering and preparation; program planning and auditing; radio style. Prerequisites: Junior standing, Speech 110 or consent of instructor. Mr. White.

103. PUBLICITY MEDIA AND METHODS. II; 2 cr. Prerequisite: Agricultural Journalism 1 or 8, or consent of instructor. Mr. Kearl.

104. INTERPRETATION OF CONTEMPORARY AFFAIRS. (Same as JOURNALISM 104.) I; 3 cr. Training in editorial research and the preparation of background and editorial articles. Prerequisite: Consent of instructor. Mr. Hovey.

111. ADVANCED AGRICULTURAL WRITING. I; 2–3 cr. May be taken for 3 credits by majors in agricultural journalism. Prerequisite: Student in agriculture or consent of instructor. Mr. Powers.

112. Advanced Home Economics Writing. II; 2–3 cr. May be taken for 3 credits by majors in home economics journalism. Prerequisite: Student in home economics or consent of instructor. Miss McCannon.

115. Editing Bulletins and Circulars. I; 3 cr. Planning, writing, editing, laying out, and producing educational publications. Prerequisite: Senior or graduate standing. Miss Langdon.

130. Art, Photography, and Layout in Agriculture and Home Economics Journalism. I; 3 cr. Printing and engraving processes, principles of publication design, effective use of text and illustration in presenting technical information through the press, bulletins, exhibits, and other media. Prerequisite: Consent of instructor. Mr. Beeler, Mr. Jorns.

194. Introduction to Public Opinion Research. I; 3 cr. (See Agr. Econ. 194.)

208. Seminar. Yr; 2 cr. Reader interest. Mr. Sumner.

230. Seminar. I; 2 cr. Rural communications media. Mr. Kearl.

AGRICULTURAL LIBRARY

Assistant Professor Pittenger, *librarian.*

1. Library Practice. I; 2 cr. Library classification and arrangement, use of card catalogues, periodical indexes, abstract journals, public documents, standard reference works, and the compiling of bibliographies. Mr. Pittenger.

AGRONOMY

Professors Ahlgren, Burcalow, Graber, Neal, H. L. Shands, R. G. Shands, D. C. Smith, *chairman,* W. K. Smith, Strommen, Torrie, A. H. Wright; Associate Professors Andrew, Arny, Buchholtz, Hagedorn, Holden, Medler, Nielsen, Dale Smith; Assistant Professors James, Petfrson, Sund, Vandervest, M. J. Wright; Instructors Arawinko, Davis.

Not to exceed five credits from the following courses may be counted as a portion of the major requirements in Agronomy: Soils 26, Soils 125, Soils 127, Plant Pathology 7, Botany 117, Botany 129, Botany 146, and Genetics 6.

Students may point their majors toward the Canning Industry, the Seed Industry, and the Grain Marketing and Processing Industry by electing courses covering Dairy Industry, Entomology, Horticulture, Plant Pathology, Soils, and Genetics.

1. Principles and Practices in Crop Production. I, II; 3 cr. A survey of plant science with emphasis on the applications to agronomic practice. Required of all agricultural students. Mr. Andrew, Mr. Graber, Mr. M. J. Wright.

16. Crop Identification and Standards. II; 2 cr. A laboratory study of the identification and quality standards of field crops. Mr. Holden.

101. Ecology of Agronomic Plants. II; 3 cr. A study of climatic, soil, and biological factors of environment and their relationships to crop distribution and production. Prerequisite: Agronomy 1 or Botany 1. Mr. Andrew.

102. Pastures and Pasture Problems. I; 2 cr. Principles relating to the establishment and improvement of pastures in humid and arid regions. Prerequisite: Agronomy 1 or consent of instructor. Mr. M. J. Wright.

104. Grain Crops. I; 3 cr. Taxonomic aspects, origin and distribution, cultural and commercial relations. Prerequisite: Agronomy 1 or consent of instructor. Mr. H. L. Shands.

106. Forage Problems. II; 3 cr. Problems related to the culture of alfalfa, clovers, grasses, and other forages, with emphasis on growth, food reserves, morphology, and survival. Prerequisite: Junior standing. Mr. Dale Smith, Mr. Graber.

120. Weed Control. I; 3 cr. Identification of weeds, methods and principles of weed control. Prerequisite: Agronomy 1. Mr. Buchholtz.

130. The Improvement of Agronomic Plants. II; 3 cr. Techniques and principles involved in breeding and maintaining crop varieties. Prerequisite: Genetics 6 or equivalent. Mr. H. L. Shands, Mr. D. C. Smith.

131. Seminar. Yr; 1 cr. A review of current literature and studies of agronomic problems. Prerequisite: Senior standing or consent of instructor. Staff.

136. Biometry. I; 3 cr. Introduction to the logic and use of statistics in the planning, analysis and interpretation of biological data. Prerequisites: Mathematics 1 or 20 and 21, and junior standing. Mr. Torrie.

150. Advanced Plant Breeding. I; 3 cr. Problems and methods in the improvement of cereal, legume, grass, fiber, sugar, and other agronomic species. Pathological and physiological relationships will be considered. Prerequisites: Agronomy 130 or equivalent and Genetics 104. Mr. D. C. Smith and staff.

190. Experimental Design. II; 3 cr. The application of statistical methods to laboratory and field experiments. Prerequisite: A course in statistics or consent of instructor. Mr. Torrie.

220. Seminar. Yr; 1 cr. Graduate standing. Staff.

ANIMAL HUSBANDRY

Professors Bohstedt, Bray, Grummer, *chairman*; Associate Professor Pope; Assistant Professors Felts, Hauser

The courses offered in this department, and as supplemented by courses in related departments, teach the principles of livestock production. They prepare students for teaching, investigation, and extension; for positions in industries such as meat packing and feed manufacturing; livestock marketing (buying and selling); herdsmen, and livestock farm management.

Not to exceed five credits from the following courses may be counted as a portion of the major requirement in Animal Husbandry: Biochemistry 105, Genetics 6, Veterinary Science 29 and 30.

1. Livestock Production. I, II; 3 cr. (Same as Dairy Husbandry 1.) Present status of livestock development; judging, market classification and practical problems; lectures, and laboratory exercises. Required of all agricultural students. Mr. Pope, Mr. Grummer, and Dairy Husbandry staff.

2. Breeds of Livestock. II; 2 cr. Origin and development of breeds of beef cattle, horses, sheep, and swine. Biography and methods of foundation breeders, pedigrees, breed character study, distribution, and utility. Prerequisite: Animal or Dairy Husbandry 1 or consent of instructor. Mr. Hauser.

3. Livestock Selection. I, II; 2 cr. Standards of excellence for market, and breeding animals. Prerequisites: Sophomore standing and Animal or Dairy Husbandry 1. Mr. Hauser.

5. Meat Production and Carcass Value. I, II; 3 cr. A study of meat characteristics; the effect of type, feed and condition on the quality, yield, and value of carcasses of beef, mutton, and pork. Prerequisite: Animal or Dairy Husbandry 1. Mr. Bray.

30. Advanced Livestock Selection. I; 3 cr. An advanced course in meat animal standards of perfection, conformation and breed type as related to breeding, feeding and processing. Type trends as influenced by feed supplies and consumer demands. Students will have an opportunity of visiting outstanding purebred breeders' establishments, commercial livestock feeders, and leading markets. Prerequisite: Animal Husbandry 3. Mr. Hauser.

50. Meat Selection and Use. I, II; 1 cr. Meat nutrition; meat identification, grading, and inspection; prices and uses of retail cuts. Use of freezer lockers for meat storage. Available to women only. Mr. Bray.

102. Genetic Improvement of Livestock. (Same as Genetics 102.) II; 2 cr. Genetic fundamentals particularly applicable in livestock improvement. Prerequisite: Genetics 6 or 106. Mr. Chapman.

103. Reproduction of Farm Animals. (Same as Genetics 103.) II; 3 cr. The reproductive process in farm mammals and poultry; factors affecting the process; fertility; artificial insemination. Lecture, demonstration laboratory. Prerequisite: Genetics 6 or 106 or Physiology 3 or Veterinary Science 1. Mr. Casida and co-operating members of animal, dairy and poultry husbandry departments.

105. Meat Selection and Utilization. II; 2 cr. The evaluation of livestock in terms of grade and yield; the composition and characteristics of meat from different animals; identification, preservation, comparative values and utilization of various grades and cuts. Prerequisite: Animal Husbandry 5 or consent of instructor. Mr. Bray.

126. Livestock Feeding. (Same as Dairy Husbandry 126.) 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. May not be elected by those having elected Dairy Husbandry 126. Mr. Bohstedt.

130. Swine and Sheep Production. II; 3 cr. A study of systems of production, management practices and methods of marketing. Prerequisite: Animal or Dairy Husbandry 1. Mr. Grummer, Mr. Pope.

131. Beef Cattle and Horse Production. I; 3 cr. Development and status of the beef cattle and horse industries; production and marketing of purebred and commercial animals. Prerequisite: Animal or Dairy Husbandry 1. Mr. Hauser.

134. Livestock Breeding. (Same as Dairy Husbandry 134.) I; 3 cr. Scientific methods of breeding farm livestock; survey of known inheritance in farm animals; control of characters of economic importance; progeny tests and herd analysis. May not be elected for credit by those having elected Dairy Husbandry 134. Prerequisite: Animal or Dairy Husbandry 1, Genetics 6, or consent of instructor. Mr. Heizer, Mr. Corley.

135. Seminar. II; 1 cr. Review of literature and discussion of research and educational work in animal husbandry. Prerequisite: Senior standing. Staff.

235. Seminar. Yr; 1 cr. Study and discussion of research and problems in animal production. Staff.

BACTERIOLOGY

Professors Allen, Baldwin, Foster, Frazier, Fred, McCoy, Raper, Sarles, *chairman*, P. W. Wilson; Associate Professors Knight, J. B. Wilson.

Courses in Bacteriology may be elected for credit by students in the College of Letters and Science. Students majoring in Bacteriology may take 15–25 credits of advanced courses in Bacteriology and may take not to exceed six credits from the following courses as a portion of this major: Medical Microbiology 2, 102, 106; Botany 103, 104; Plant Pathology

7 or 101; Zoology 108, 119; Civil Engineering 197. Electives recommended are: Botany 1; Zoology 1 and Genetics 6; Chemistry 10 or 11, 120 and 121; Biochemistry 3, 10, or 105; Physics 1a and 1b or 61; and Mathematics 1, 2 or 51.

1. General Survey of Bacteriology. I, II; 4 cr. Required of all agricultural students. Prerequisite: Chemistry 1a. Staff.

103. General Survey. II; 4 cr. For chemistry course and graduate students. Prerequisite: Chemistry 120a. Mr. P. W. Wilson, Mr. Knight.

107. Heredity in Microorganisms. (Same as Genetics 107.) I; 2 cr. Genetic problems in bacteria, fungi and protozoa. Mutation and variation; adaptation and natural selection. Prerequisites: A course in microbiology or equivalent and consent of instructor. Will be offered in 1955–56 and in alternate years. Mr. Lederberg.

120. Advanced General Microbiology. I, II; 3 cr. Study of morphological, cultural and physiological characteristics of important groups of microorganisms. Prerequisites: Bacteriology 1, 103, or Medical Microbiology 102, and consent of instructor. Mr. Sarles, Mr. Allen.

121. Dairy Bacteriology. II; 4 cr. The bacteriology of milk and its products. Prerequisites: Bacteriology 1, 103, or Medical Microbiology 102, and consent of instructor. Mr. Frazier, Mr. Foster.

123. Soil Bacteriology. (Same as Soils 123.) I; 4 cr. Study of soil microorganisms. Prerequisites: Bacteriology 1, 103, or Medical Microbiology 102, and consent of instructor. Mr. Allen.

125. Food Bacteriology. I; 4 cr. The microbiology of foods and of food fermentations. Prerequisites: Bacteriology 1, 103, or Medical Microbiology 102, and consent of instructor. Mr. Frazier, Mr. Foster.

127. Industrial Microbiology. (Complementary with Biochemistry 227.) I; 4 cr. Principal bacteria, yeasts, and molds of industrial importance. Methods of isolating, identifying, and handling stocks and starter cultures, conditions affecting their efficiency in industrial application. Prerequisites: Bacteriology 1, 103, or Medical Microbiology 102 and consent of instructor. Miss McCoy.

128. Infection and Immunity in Animal Diseases. (Same as Veterinary Science 128.) II; 4 cr. An experimental study of the principles and applications of infection and immunity. Prerequisites: An advanced course in bacteriology and Veterinary Science 1, Zoology 1 or equivalent. Mr. Brandly, Mr. J. B. Wilson and staff.

129. Presentation of Bacteriological Reports. I; 2 cr. Composition and presentation of research reports. Prerequisite: Senior major or graduate standing. Mr. P. W. Wilson.

131. Proseminar. II; 1 cr. For senior majors and students in early part of graduate study. History of bacteriology. Staff.

134. Molds, Yeasts and Actinomycetes. II; 3 cr. Methods of isolation, cultivation, and identification of molds, yeasts and actinomycetes, and the application of these microorganisms to industrial processes. Prerequisite: Bacteriology 1 or 103, or Medical Microbiology 102. Mr. Raper.

226. Physiology of Bacteria. II; 4 cr. The chemistry and physics of bacterial processes. Prerequisites: Bacteriology 1, 103, or Medical Microbiology 102, and consent of instructor. Mr. P. W. Wilson, Mr. Knight.

228. Epizootiology. (Same as Veterinary Science 228.) I; 3 cr.

230. Taxonomy and Nomenclature of Bacteria. II; 4 cr. Lectures on taxonomy, nomenclature, problems of classification. Laboratory work on selected groups of micro-

organisms and on ecological relationships. Two lectures, 2 cr.; laboratory, 2 cr. Prerequisites: Bacteriology 120 and consent of instructor. Miss McCoy.

231. SEMINAR. Yr; 1 cr. Reviews of bacteriological subjects and reports on research work in the department. Staff.

BIOCHEMISTRY

PROFESSORS BAUMANN, BURRIS, ELVEHJEM, *chairman*, JOHNSON, LARDY, LINK, PHILLIPS, STEENBOCK, STRONG; ASSOCIATE PROFESSORS STAHMANN, WILLIAMS; ASSISTANT PROFESSORS ANDERSON, BOCK, KAESBERG.

The elementary courses offered in this department are intended to give a broad view of biochemistry useful to the general agricultural or home economics student. Courses 105 and 106 are planned for undergraduate majors in biochemistry and other science departments of the University and for graduate students who are interested in a single fundamental course in biochemistry. All other advanced courses leading to greater specialization are open to undergraduates and graduates who have the necessary preliminary training. Courses in biochemistry should be preceded or accompanied by work in organic chemistry, biology, bacteriology and physiology.

3. SURVEY OF BIOCHEMISTRY. II; 4 cr. Lectures and laboratory work on the chemical nature and properties of those materials of biological origin which find greatest application in everyday life, with special reference to foods and their utilization by the body. Based on one semester of general college chemistry. Prerequisite: Chemistry 1a. Mr. Strong.

10. ELEMENTARY BIOCHEMISTRY. I; 2 or 4 cr. Introduction to the chemistry of living matter. Laboratory work includes chemical analysis of biological materials. Prerequisites: Chemistry 1a and 120. Mr. Williams.

105. PRINCIPLES OF BIOCHEMISTRY. Lectures. I; 3 cr. The chemistry and metabolic significance of the important constituents of living matter. Prerequisites: 3 cr. of Chemistry 11a or equivalent, Chemistry 120 and 121. Mr. Anderson.

106. PRINCIPLES OF BIOCHEMISTRY. Laboratory. I; 2 cr. Prerequisite: Biochemistry 105 or concurrent registration. Mr. Bock.

119. PLANT BIOCHEMISTRY. Lectures. II; 3 cr. Chemical processes in the growth of plants, including the effect of environmental factors. Prerequisites: Biochemistry 105 and 106 or equivalent. Mr. Burris.

120. PLANT BIOCHEMISTRY. LABORATORY. II; 3 cr. Prerequisite: Biochemistry 119 or concurrent registration. Mr. Burris.

121. DAIRY CHEMISTRY. (Same as DAIRY INDUSTRY 121.) Lectures. II; 3 cr. Chemistry of milk secretion, composition of milk products, chemical changes in manufacturing and storage, and analytical methods to determine composition, deterioration and adulteration. Prerequisites: Chemistry 12, 120a, 121a, and Biochemistry 1 (or 105 and 106). Mr. Calbert.

122. DAIRY CHEMISTRY. (Same as DAIRY INDUSTRY 122.) Laboratory. II; 2 cr. Prerequisite: Biochemistry 121 or concurrent registration. Mr. Calbert.

124. ANIMAL METABOLISM AND VITAMINS. Lectures. II; 2 cr. Caloric relations, metabolism of carbohydrates, fats and proteins, chemistry and physiology of the vitamins. Prerequisite: Biochemistry 105 or equivalent. Mr. Baumann.

125. ANIMAL METABOLISM AND VITAMINS. Laboratory. II; 1 or 2 cr. Blood and urine analysis, feeding experiments with animals. Prerequisites: Biochemistry 106 and 124 or concurrent registration; consent of instructor. Mr. Baumann.

126. Modern Views of Animal Nutrition and Their Application. II; 2 cr. Prerequisites: Biochemistry 105, 106 and 124, or concurrent registration in 124. Mr. Phillips, Mr. Elvehjem.

133. Seminar (Junior). Yr; 1 cr. First semester: Mr. Link, Mr. Baumann. Second semester: Mr. Burris, Mr. Williams.

209. Proteins and Nucleic Acids. I; 2 cr. Lectures on the occurrence, nature and properties of proteins and nucleic acids. Prerequisites: Chemistry 130, 131, and Biochemistry 105. Mr. Stahmann.

211. Advanced Biochemical Techniques. I; 3 cr. Use of special techniques and equipment in isolation, identification, and analysis of biological compounds. One lecture and two laboratory periods. Prerequisites: Chemistry 120, 121, 130a, 131a and Biochemistry 105 and 106 or equivalent. Mr. Strong.

224. Carbohydrates. (Same as Chemistry 224.) I; 1 cr. Lectures on the occurrence, nature, and properties of carbohydrates. Prerequisites: Chemistry 120, 121, and Biochemistry 105. Mr. Link.

227. Fermentation Biochemistry. Lectures. II; 2 cr. Lectures on the chemical composition of microorganisms and the mechanism of fermentation processes. Prerequisites: Chemistry 120, 121 and Biochemistry 105. Mr. Johnson.

228. Fermentation Biochemistry. Laboratory. II; 2 cr. Work on products of fermentation. Prerequisites: Biochemistry 106 and 227 or concurrent registration, and Bacteriology 1. Mr. Johnson.

233. Seminar in Nutrition. Yr; 0–1 cr. Original articles of importance are studied in detail to broaden the understanding of biochemical problems and to stimulate further research. Staff.

234. Seminar in Microbial Biochemistry. Yr; 0–1 cr. Research reports, special topics, and reports from the recent literature in the field of chemistry of microorganisms. Prerequisite: Consent of instructor. Mr. Johnson.

235. Seminar in Natural Products. Yr; 0–1 cr. Presentations from the original literature on recent developments in the chemistry and metabolism of compounds of biochemical importance. Mr. Stahmann.

DAIRY AND FOOD INDUSTRIES

Professors Jackson, *chairman*, Price, Swanson, Thomsen, Wallenfeldt, Weckel; Associate Professors Calbert, Winder.

The department offers instruction in the science and art of manufacturing dairy and food products suited to the needs of (a) investigators and teachers; (b) managers operators, and inspectors of dairy and food plants; and (c) engineers.

Positions available to graduates include such activities as products production, technical control, plant inspection, field work, the design and manufacture of equipment, the selling of supplies and machinery, and the sales promotion of dairy and food products.

1. Introduction to Dairying. II; 3 cr. General survey of the different branches of the dairy industry. Emphasis on organization, quality control, grading, and elementary analysis of dairy products. Mr. Jackson.

2. A Survey of Food Industries. II; 1 cr. A review of the magnitude, the organization and technical problems of the various food-processing and food-handling industries. Mr. Calbert.

3. Food Product Ingredients. I; 3 cr. A study of the physical and chemical properties of various ingredients used in the manufacture of foodstuffs, and their effects upon foods. Prerequisite: Sophomore standing. Mr. Calbert.

42. Dairy and Food Sanitation and Regulations. II; 3 cr. Dairy and food plant sanitation principles and procedures; sanitary standards and regulations for milk and food products. Prerequisite: Sophomore standing. Mr. Thomsen, Mr. Calbert.

101. Commercial Processing of Foodstuffs. I; 4 cr. A study of basic processing procedures for typical food products, including canning, freezing, dehydration, fermentation, and evaporation; application of unit operations, problems, instrumentation. Mr. Weckel.

102. Commercial Processing of Foodstuffs. II; 4 cr. A study of processes and line flow procedures in production of special commercial food products, including fats and oils, beverages, jams and jellies, bakery and confectionery products. Mr. Weckel.

103. Creamery Operation and Management. I; 3 cr. The manufacture of creamery butter and other products often made in connection with creamery operation. Emphasis is placed on quality and management. Prerequisite: Dairy Industry 1. Mr. Thomsen.

104. Cheese. II; 4 cr. Principles and commercial practices of curd-making and cheese-ripening. Prerequisite: Dairy Industry 1. Mr. Price.

105. Market Milk. I; 3 cr. Procurement, processing, and distribution of market milk and related products. Quality, public health regulations, equipment operation, laboratory procedures, problems. Prerequisite: Dairy Industry 1. Mr. Calbert.

107. Food Product Grading Standards and Techniques. II; 2 cr. A study of regulatory, advisory and commercial grading standards, procedures, and techniques for processed food products. Prerequisite: Dairy and Food Industry 3. Mr. Weckel.

108. Dairy and Food Mechanics. II; 3 cr. Dairy plant construction, heating, ventilation, power plant operation, sewage disposal, refrigeration; installation, testing, and operation of dairy machinery. Includes an optional two-day field trip. Mr. Thomsen.

109. Ice Cream. II; 3 cr. The theory and practice of manufacturing ice cream, ice milk, sherbets and ices. Quality factors, defects and laboratory procedures. Includes a field trip. Prerequisite: Dairy Industry 1. Mr. Winder.

110. Concentrated Milk Products. II; 3 cr. The theory and practice of manufacturing concentrated milk products such as: condensed milk, evaporated milk, dried whole milk, nonfat dry milk solids, and various special products. Includes field trips to nearby concentrated milk plants. Prerequisite: Dairy Industry 1. Mr. Swanson.

121. Dairy Chemistry. (Same as Biochemistry 121.) Lectures. II; 3 cr. Chemistry of milk secretion, composition of milk products, chemical changes in manufacture and storage, and analytical methods to determine composition, deterioration and adulteration. Prerequisites: Chemistry 12, 120a, 121a, and Biochemistry 1 (or 105 and 106). Mr. Calbert.

122. Dairy Chemistry. (Same as Biochemistry 122.) Laboratory. II; 2 cr. Prerequisite: Biochemistry 121 or concurrent registration. Mr. Calbert.

123. Seminar (Junior). Yr; 1 cr. For seniors and first-semester graduate students. Preparation and presentation of articles pertinent to the dairy industry. Staff.

124. Physical Chemistry of Dairy Products. I; 3 cr. Lectures and laboratory exercises on hydrogen-ion concentration, oxidation-reduction potentials, surface tension, adsorption, viscosity, plasticity, isoelectric point of proteins, colloidal properties of milk constituents. Mr. Winder.

127. Seminar. Yr; 1 cr. Review of research in food technology, and of problems pertinent to the food industry. For senior or graduate students in food industries, or consent of instructor. Mr. Weckel.

223. SEMINAR (Senior). Yr; 1 cr. Reviews of original articles of importance to the field of dairy science and reports on research work in the department. Prerequisite: Dairy Industry 123 or equivalent. Staff.

DAIRY HUSBANDRY

PROFESSORS ALLEN, HEIZER, *chairman*, SMITH, WERNER; ASSOCIATE PROFESSORS NIEDERMEIER, TYLER; ASSISTANT PROFESSORS COLLENTINE, CRAMER, CROWLEY, STALLARD, VERGERONT, ZEHNER; INSTRUCTORS BENSON, CORLEY.

Instruction in dairy husbandry is designed to serve the needs of students looking forward to a given field of activity, such as (1) dairy farm operation and herd management; (2) investigation, teaching or extension; or (3) work in industries allied to agriculture.

The dairy farm operator or herdsman will be especially interested in training in all phases of breeding, feeding, management, and selection of dairy cattle. Students planning a career in research, teaching, or extension may wish to specialize in some one phase of work after acquiring a fundamental background in dairy husbandry. Those interested in commercial work may include such courses in dairy husbandry as will serve them best in the field they have in view.

1. LIVESTOCK PRODUCTION. (Same as ANIMAL HUSBANDRY 1.) I, II; 3 cr. Present status and history of livestock development, judging, market classifications; practical problems, lectures and laboratory exercises. Required of all agricultural students. Mr. Niedermeier, Mr. Zehner, and Animal Husbandry staff.

4. ELEMENTS OF DAIRY HUSBANDRY. I; 2 cr. Dairy cattle production problems and management practices. Designed primarily for students not majoring in dairy husbandry. Prerequisite: Animal or Dairy Husbandry 1. Mr. Corley.

5. DAIRY CATTLE SELECTION. I; 2 cr. Evaluation of dairy type and its application to selection. Prerequisite: Animal or Dairy Husbandry 1. Mr. Niedermeier, Mr. Zehner.

6. DEVELOPMENT OF DAIRY BREEDS AND FAMILIES. II; 3 cr. Dairy breeds in their native lands and America. Factors which have contributed to the success or failure of leading breeding establishments. Pedigree studies of important families. Prerequisite: Animal or Dairy Husbandry 1. Mr. Heizer.

50. ADVANCED DAIRY CATTLE SELECTION. II; 2 cr. An advanced course in selection of dairy cattle for breeding and commercial purposes. Students will have an opportunity of visiting outstanding purebred and commercial herds. Prerequisite: Dairy Husbandry 5. Mr. Zehner, Mr. Niedermeier.

60. ARTIFICIAL BREEDING OF CATTLE. II; 3 cr. A specialized course in artificial breeding of cattle. Emphasis is placed on collection, dilution, storage, and shipping of semen, inseminating techniques, sire management, and application of artificial breeding to herd improvement. Prerequisites: Dairy Husbandry 1 and Genetics 6, or consent of instructor. Mr. Smith.

126. LIVESTOCK FEEDING. (Same as ANIMAL HUSBANDRY 126.) 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. Mr. Bohstedt.

128. DAIRY CATTLE NUTRITION. II; 3 cr. The application of the latest knowledge of digestion and metabolism in ruminants, and their nutritional requirements, to the specific problems of feeding the dairy herd. Prerequisite: Animal or Dairy Husbandry 126. Mr. Allen.

130. MILK SECRETION. I; 3 cr. Anatomy and evolution of the mammary gland. Hormonal control of mammary development. Theories of milk secretion. Factors affecting the amount

and composition of milk. Modern methods of milking. Prerequisites: Physiology 3 and Biochemistry 1. Mr. Smith.

133. Dairy Herd Management. I; 3 cr. Dairy herd management, care, and replacement. One or more field trips will be included at a small cost to the student. Prerequisites: Animal or Dairy Husbandry 1 and preferably Dairy Husbandry 126. Mr. Allen.

134. Livestock Breeding. (Same as Animal Husbandry 134.) I; 3 cr. Scientific methods of breeding farm livestock; survey of known inheritance in farm animals, control of characters of economic importance. Prerequisite: Animal or Dairy Husbandry 1, Genetics 6, or consent of instructor. Mr. Corley, Mr. Heizer.

136. Dairy Cattle Breeding. II; 3 cr. A specialized course in breeding dairy cattle. Emphasis is placed on progeny tests, pedigree evaluation, herd analysis, systems of breeding, and the development of breeding programs. One or more field trips will be included at a small cost to the student. Prerequisites: Dairy Husbandry 6 and Dairy Husbandry 134. Mr. Heizer, Mr. Tyler.

138. Proseminar. Yr; 1 cr. Review and critical discussion of current articles in technical journals and their application to practical problems of dairy husbandry. One semester required for dairy husbandry major. Prerequisite: Senior standing. Staff.

237. Research Methods in Dairy Husbandry. I; 2 cr. Adaptation of research principles and methods to dairy husbandry problems; also methods for search of literature, presentation of data, and preparation of results for publication. Prerequisite: Graduate standing or consent of instructor. Mr. Allen.

238. Seminar. Yr; 1 cr. Preparation and presentation of comprehensive reviews of fundamental research in the field of dairy husbandry. Aimed at broadening the understanding of the current status of knowledge in various phases of dairy husbandry, and at stimulating interest in sound, fundamental research. Prerequisite: Dairy Husbandry 138 or its equivalent. Staff.

ENTOMOLOGY

Professors Allen, *chairman*, Apple, Dicke, Farrar, Fluke; Associate Professors Chapman, Fisher, Medler, Shenefelt; Assistant Professors Beck, Benjamin, Casida, Dever.

Students majoring in entomology have the opportunity to study in a variety of fundamental and applied fields. Graduates find employment in university teaching, research, extension work, government service, industry, insecticide sales, apiculture and research institutes.

Students interested in graduate work should consult the bulletin of the Graduate School.

1. and 101. Introduction to Entomology. (Same as Zoology 101.) II; 3 cr. Principles of entomology including morphology and classification. A general collection of insects is required of each student. Prerequisite: An elementary course in Zoology. For 101 students, an additional laboratory period and other extra work will be required. Mr. Fluke.

3. Farm and Home Insects. I; 2 cr. A survey of insect forms with major emphasis on biology and control of the economically important insects encountered in Wisconsin. Open to all students, but without credit to majors in entomology. Mr. Dever.

50. Insecticides and Their Uses. II; 2 cr. The principles of insect control and the methods and materials most commonly employed in controlling the more important insects. Designed for Pharmacy and Agricultural students. Prerequisite: Chemistry 1a. Offered 1954–55 and alternate years. Mr. Allen.

102. Insect Morphology and Taxonomy. I; 3 cr. A detailed study of the external

structure of insects and their classification. Prerequisite: Entomology 1 or 101, or consent of instructor. Mr. Fluke.

104. Principles of Economic Entomology. I; 4 cr. Consideration of major economic insects with emphasis on identification, life histories, bionomics, distribution and control. Procedures in fundamental and practical inquiry. Prerequisite: A course in entomology or consent of instructor. Mr. Apple.

107. Toxicology of Insecticides. II; 3 cr. The chemical and physical properties of insecticides and a study of their toxicological action on insects. Prerequisites: Entomology 50, and a course in organic chemistry or biochemistry or consent of instructor. Offered 1954–55 and alternate years. Mr. Casida.

108. Beekeeping. II; 3 cr. Bee behavior, fundamentals of colony development and productive management, and utilization of bees in the pollination of agricultural crops. Prerequisite: Entomology 1 or a course in zoology. Offered 1955–56 and alternate years. Mr. Farrar.

110. Anatomy and Physiology of Insects. (Same as Zoology 110.) I; 3 cr. A study of the anatomy, histology and basic physiology of organ systems in insects. Prerequisite: A course in entomology. Offered 1955–56 and alternate years. Mr. Beck, Mr. Noland.

112. Medical Entomology. (Same as Zoology 112 and Veterinary Science 112.) I; 3 cr. A study of arthropods of medical and veterinary importance, and how they affect their hosts and transmit diseases. Prerequisite: An introductory course in zoology or Veterinary Science 1. Offered 1954–55 and alternate years. Mr. Herrick, Mr. Dicke.

121. Advanced Physiology of Insects. (Same as Zoology 121.) II; 3 cr. A detailed study of the dynamic aspects of insect physiology. Prerequisites: Entomology 110, and a course in organic chemistry or biochemistry. Offered 1955–56 and alternate years. Mr. Beck.

122. Determinative Entomology. I; 1 cr. History of insect classification including taxonomic categories, rules of nomenclature, and procedures used in systematic studies. Prerequisite: Entomology 102 or equivalent. Mr. Medler.

123. Taxonomy of Immature Insects. I; 3 cr. The identification and morphology of immature insects. Prerequisite: Entomology 102 or consent of instructor. Offered 1955–56 and alternate years. Mr. Dicke.

125. Insects in Relation to Plant Diseases. II; 2 cr. The principal insect vectors and their habits; modes of insect transmission and dissemination of plant diseases. Prerequisites: A course in entomology and plant pathology or consent of instructor. Offered 1954–55 and alternate years. Mr. Chapman.

129. Forest Entomology. I; 3 cr. The relationship of insects to forest trees and methods of control of injurious forms. Prerequisites: A course in entomology and consent of instructor. Offered 1955–56 and alternate years. Mr. Shenefelt.

130. Seminar. I, II; 1 cr. Prerequisite: Senior standing. Staff.

140. Insect Ecology. (Same as Zoology 140.) II; 3 cr. Insects in their relation to their environment. Prerequisite: Entomology 1 or 102, or a course in zoology. Offered 1955–56 and alternate years. Mr. Medler.

210. Hymenoptera. I; 3 cr. Classification and interrelationships of Hymenoptera with discussion of their general biology. Prerequisite: Entomology 122 or consent of instructor. Offered 1955–56 and each third year following. Mr. Shenefelt.

211. Diptera. II; 3 cr. Classification and interrelationships of flies with discussion of their general biology. Prerequisite: Entomology 122 or consent of instructor. Offered 1955–56 and each third year following.

212. LEPIDOPTERA. I; 3 cr. Classification and interrelationships of moths and butterflies with discussion of their general biology. Prerequisite: Entomology 122 or consent of instructor. Offered 1956–57 and each third year following. Mr. Dicke.

213. HOMOPTERA-HEMIPTERA. II; 3 cr. Classification and interrelationships of Homoptera and Hemiptera with discussion of their general biologies. Prerequisite: Entomology 122 or consent of instructor. Offered 1956–57 and each third year following. Mr. Medler.

214. COLEOPTERA. I; 3 cr. Classification and interrelationships of beetles with discussion of their general biology. Prerequisite: Entomology 122 or consent of instructor. Offered 1954–55 and each third year following. Mr. Shenefelt.

215. MALLOPHAGA, ANOPLURA AND SIPHONAPTERA. II; 3 cr. Classification and interrelationships of Mallophaga, Anoplura and Siphonaptera with discussion of their general biologies. Prerequisite: Entomology 122 or consent of instructor. Offered 1954–55 and each third year following. Mr. Dicke.

FOREST PRODUCTS

Students who want to obtain a degree in forestry may take the pre-forestry course explained on pages 262–3 and then complete the work at another institution where a degree in forestry is offered.

The courses described below are offered by the United States Forest Products Laboratory in co-operation with the University of Wisconsin. The courses, which are offered in logical sequence, consist of subject matter with which anyone, who intends to go on into the fields of wood utilization or its related branches, should be thoroughly familiar.

101. PROPERTIES OF WOOD. I; 5 cr. Structure and properties of wood with special reference to its use in light building construction.

103. CHEMISTRY APPLIED TO FOREST PRODUCTS. II; 2 cr. Industrial chemical processes that use wood and wood waste such as paper and pulp; wood distillation, and wood preservation; the chemistry of various forest products. Prerequisites: Chemistry 120, 121. Offered 1955–56 and in alternate years. Staff.

119. FUNGUS DETERIORATION OF FOREST PRODUCTS. (Same as PLANT PATHOLOGY 119.) I; 2 cr. A survey of the cause and prevention of stains and decay in forest products, and control measures. Prerequisites: Plant Pathology 101 and 104. Offered 1954–55 and alternate years. Staff.

FORESTRY AND WILDLIFE MANAGEMENT

PROFESSORS SCHORGER, TRENK; ASSOCIATE PROFESSORS HICKEY, MCCABE, *chairman;* INSTRUCTORS ELLARSON, PETERSON.

The University of Wisconsin does not confer a degree in Forestry. It does, however, offer courses in Forestry which are of general interest to agricultural students. You will find them listed not only in this department, but also in Entomology, Plant Pathology and Soils.

The courses in wildlife management are of two kinds: Those intended to give the general student an understanding of wildlife and those intended to train specialized students for professional practice.

Course 118 is for the general student. Familiarity with common wild plants and animals and with farming practices is desirable as a background for this course. Courses 120, 161, 179, 200 and 231 are intended for the advanced students. Course 161 is open to others who show special qualifications and need. A bi-weekly, noncredit seminar, sponsored by this department and the State Conservation Department, is held for all interested students. This seminar deals largely with current research findings.

Work in this department is closely co-ordinated with activities in the Wisconsin Conservation Department and the United States Fish and Wildlife Service.

40. Farm Forestry. II; 3 cr. Principles of improving existing farm woodlands, determining volume and growth, trees as a factor in erosion control, establishing new forests, management for special products, timber marketing, management plans and records. One week-end field trip of two days duration to a university woodland area required as part of the laboratory exercises. Mr. Trenk, Mr. Peterson.

118. Wildlife Ecology. I; 3 cr. Structure and properties of the animal community; its relation to plants, soils and land use. Review of regional problems; history and economics of wildlife. Prerequisite: Junior standing or consent of instructor. Mr. Hickey, Mr. Ellarson.

120. Furbearing Mammals. II; 3 cr. North American species, placing special emphasis on the Wisconsin mammals. Life history, distribution, ecology, taxonomy, and economic importance of the various species are taken up. Prerequisite: Junior standing. Mr. Schorger.

161. Wildlife Management Techniques. I; 3 cr. This course deals with the field and laboratory techniques covering such subjects as trapping, marking, sex and age determinations, censusing, collecting and preparing of field material, etc. Prerequisites: Wildlife Management 118 and consent of instructor. Mr. McCabe.

179. Principles of Game Management. I; 3 cr. Animal population mechanisms and their control. Prerequisites: Wildlife Management 118, Wildlife Management 161, and consent of instructor. Mr. Hickey.

231. Biometric Techniques in Ecological Research. (Same as Zoology 231.) Yr; 1 cr. Discussion of contemporary problems and advanced methods in statistical analysis of ecological research data. Oral reports are made on statistical problems handled in current literature or individual graduate research projects. Prerequisite: Agronomy 136 or its equivalent. Mr. Hickey, Mr. Neess.

FRESHMAN LECTURES

Freshman Lectures. I, II; 1 cr. Required of all freshmen in Agriculture. Mr. Kivlin.

GENETICS

Professors Brink, Casida, Chapman, Cooper, Crow, Irwin, *chairman*, Lederberg, Neal, Rieman; Associate Professor Smith; Assistant Professors Hougas, Shackelford, Stone; Instructors Hawk, Hitt, Kidder, Wiltbank, Worner.

The following courses are designed for those seeking a broad knowledge of heredity in relation to animal and plant breeding, and for students desiring to prepare themselves for instructional work and research in genetics.

6. Heredity. (Same as Zoology 6.) I; 3 cr. Principles of heredity and their application to plants, animals, and man. This course is designed for students who desire a general course in Genetics. (Those who desire a laboratory course and who can satisfy the prerequisites should elect Genetics 106.) Lectures and discussion. Mr. Crow, Mr. Shackelford.

102. Genetic Improvement of Livestock. (Same as Animal Husbandry 102.) II; 2 cr. Genetic fundamentals particularly applicable in livestock improvement. Prerequisite: Genetics 6 or 106. Mr. Chapman.

103. Reproduction of Farm Animals. (Same as Animal Husbandry 103.) II; 3 cr. The reproductive process in farm mammals and poultry; factors affecting the process; fertility; artificial insemination. Lecture, demonstration laboratory. Prerequisite: Genetics 6 or 106 or Physiology 3 or Veterinary Science 1. Mr. Casida and co-operating members of animal, dairy and poultry husbandry departments.

104. Plant Genetics. I; 3 cr. Mechanism of Mendelian heredity; genic and chromosomal variation; principles of plant improvement. Prerequisite: Genetics 6 or 106. Mr. Brink.

105. Advanced Animal Breeding. II; 3 cr. Principles underlying selection, inbreeding, pedigree evaluation, progeny testing; measuring inbreeding, relationship. Prerequisites: Genetics 6 or 106 and Agronomy 136. Mr. Chapman.

106. Genetics. (Same as Zoology 106.) I; 3 cr. Principles of genetics and their application to plants, animals, and man. Lectures, discussion, and laboratory. Prerequisites: College algebra and a year each of college biology and chemistry or consent of instructor. (For a non-laboratory course without prerequisites, see Genetics 6.) Mr. Crow, Mr. Shackelford.

107. Heredity in Microorganisms. (Same as Bacteriology 107.) I; 2 cr. Genetic problems in bacteria, fungi and protozoa. Mutation and variation; adaptation and natural selection. Prerequisites: A course in microbiology or equivalent and consent of instructor. Offered in 1955–56 and alternate years. Mr. Lederberg.

108. Genetics of Microorganisms. I; 3 cr. Review of genetic studies on fungi, bacteria, viruses, protozoa and algae. Prerequisites: Consent of instructor and Genetics 106 or equivalent. Offered in 1954–55 and alternate years. Mr. Lederberg.

136. Human Genetics. (Same as Zoology 136.) II; 2 cr. Principles of heredity and variation in man. Prerequisite: Genetics 6 or 106. Mr. Crow.

210. Recent Advances in Genetics. II; 2 cr. Offered 1955–56 and alternate years. Prerequisite: Consent of instructor. Mr. Irwin and staff.

211. Recent Advances in Genetics. II; 2 cr. Offered 1954–55 and alternate years. Prerequisite: Consent of instructor. Mr. Irwin and staff.

220. Seminar. Yr; 1 cr. Prerequisite: Consent of instructor. Staff.

(For courses in probability and statistics see Mathematics 118, 134, 137 and Agronomy 136, 190.)

HORTICULTURE

(Floriculture, Fruit Production, Landscape Architecture, Vegetable Crops)

Professors Combs, *chairman*, Longenecker, Roberts, Rieman; Associate Professors Holm, Ogden, Struckmeyer; Assistant Professors Dana, Elfner, Fulton, Gabelman, Gilbert, Klingbeil, Schoeneman, Wedin, Ziegler; Instructors Beck, Langford.

Students majoring in Horticulture may obtain specialized training in floriculture, fruit production, landscape architecture, and vegetable crops. The choice of electives from other departments and colleges will depend somewhat upon the particular area of specialization, but a good background in botany is essential. A maximum of five credits toward the major may be elected from Agronomy 120, Agronomy 136, Entomology 104, Genetics 6, Plant Pathology 7, Botany 117, and Botany 146.

Students majoring in other departments but desiring some training in horticulture will find course 20, in particular, and also courses 26, 27, 30, 40, 50, 51, and 60 of special interest.

Students specializing in floriculture will substitute Entomology 1 for Animal Husbandry 1 and those specializing in Landscape Architecture will substitute Art Education 50a for Animal Husbandry 1.

Students in Landscape Architecture are not required to count as credit in their major Horticulture 20, 30, 40, or 60 and these students, with the consent of the major adviser, may substitute Agricultural Economics 117 for Agricultural Economics 4. Attention of Landscape Architecture students is called to courses in city planning offered by the College of Engineering.

20. SURVEY OF HORTICULTURE. I; 3 cr. A survey course designed to acquaint the student with the scope and importance of horticulture. Emphasis is placed on floriculture, fruit production, landscape architecture, and vegetable crops. Mr. Combs and staff.

26. MARKETING FRUITS AND VEGETABLES. (Same as AGRICULTURAL ECONOMICS 26.) I; 3 cr. Economic development of the produce industry, marketing channels, functions, and agencies; economic factors involved in grading, inspection, standardization and merchandising; pricing problems; terminal and country markets; governmental programs. There will be opportunity for one or more field trips. Prerequisite: Agricultural Economics 4. Offered 1955–56 and alternate years. Mr. Kross.

27. PLANT PROPAGATION AND NURSERY PRACTICE. II; 3 cr. Principles and practices of plant propagation with special emphasis on horticultural plants and nursery management. Mr. Longenecker.

30. PRINCIPLES OF FLORICULTURE. I; 3 cr. A study of ornamental plants and the effect and control of environmental factors involved in their culture and handling. There will be opportunity for one or more field trips. Mr. Beck.

40. PRINCIPLES OF FRUIT PRODUCTION. I; 3 cr. Principles involved in the selection, production, and handling of fruits. There will be opportunity for one or more field trips. Mr. Dana.

50. PRINCIPLES OF LANDSCAPE DESIGN. I, II; 3 cr. General principles of landscape design in relation to home grounds development and an introduction to landscape plant materials. Mr. Elfner.

51. HOME GROUNDS DESIGN. II; 3 cr. A continuation of Horticulture 50. There will be opportunity for one or more inspection trips in connection with this or other landscape courses. Prerequisite: Horticulture 50 or consent of instructor. Mr. Elfner.

53. LAWNS AND GRADING. I; 3 cr. A study of ground forms, terracing, grading, seeding, estimating. Prerequisite: Consent of instructor. Offered 1954–55 and alternate years. Mr. Elfner.

54. LANDSCAPE CONSTRUCTION PROBLEMS Yr; 3 cr. Prerequisite: Horticulture 50. Offered 1955–56 and alternate years. Mr. Elfner.

60. PRINCIPLES OF VEGETABLE PRODUCTION. II; 3 cr. The principles and practices involved in the production and handling of vegetable crops. There will be opportunity for one or more field trips. Mr. Combs.

110. SEMINAR. Yr; 1 cr. Prerequisite: Senior standing. Staff.

127. TECHNIQUES AND METHODS OF BREEDING HORTICULTURAL CROPS. II; 3 cr. Methods and special techniques employed in breeding horticultural crops. Prerequisite: Genetics 6 or equivalent. Offered 1954–55 and alternate years. Mr. Gabelman.

129. THE APPLICATION OF GROWTH-REGULATING CHEMICALS TO HORTICULTURAL CROPS. II; 3 cr. Principles and techniques involved in the use of growth regulators in the production and handling of horticultural crops. Prerequisite: Botany 146 or equivalent. Offered 1955–56 and alternate years. Mr. Holm.

134. Production of Ornamental Plants Under Glass. II; 3 cr. Principles involved in the selection, production, handling, and use of flowers and foliage plants grown indoors. There will be opportunity for one or more field trips. Offered 1954–55 and alternate years. Mr. Beck.

140. Small Fruits. II; 3 cr. A detailed study of the classification production areas and cultural methods for the common small fruits. There will be opportunity for one or more field trips. Offered 1955–56 and alternate years. Mr. Dana.

141. Tree Fruits. II; 3 cr. Advanced study of the principles involved in the selection, production, and handling of tree fruits. Emphasis is placed on the temperate zone fruits with brief treatment of tropical zone fruits. There will be opportunity for one or more field trips. Offered 1954–55 and alternate years. Mr. Dana.

150. Advanced Home Grounds Design. I; 3 cr. Design of estate, country home grounds and related problems. Prerequisites: Horticulture 50 and 51. Offered 1955–56 and alternate years. Mr. Longenecker.

151. Public Grounds. II; 3 cr. Landscape problems in connection with public buildings, parks and cemetery design; roadside planting. Prerequisites: Horticulture 50 and 51. Offered 1955–56 and alternate years. Mr. Longenecker.

154. Woody Landscape Plants. I; 3 cr. Advanced study of form, mass, color and texture of woody plants and their relation to planting design. Prerequisites: Horticulture 50 and consent of instructor. Offered 1954–55 and alternate years. Mr. Longenecker.

155. Herbaceous Landscape Plants. II; 3 cr. Advanced study of plant forms, color and texture of herbaceous plants in landscape design. Prerequisites: Horticulture 50 and consent of instructor. Offered 1954–55 and alternate years. Mr. Longenecker.

163. Structure and Physiology of Vegetable Crops. I; 3 cr. A study of vegetable crops and production problems with particular emphasis on plant structure and function. Prerequisites: Horticulture 60, Botany 108 or 117, and Botany 146 or consent of instructor. Offered 1954–55 and alternate years. Mr. Gabelman, Mr. Holm.

210. Seminar. Yr; 1 cr. Mr. Combs and staff.

PLANT PATHOLOGY

Professors Backus, Darling, Dickson, Keitt, *chairman,* Moore, Pound, Rieman, Riker, Walker; Associate Professors Arny, Hanson; Assistant Professors Hagedorn, Hildebrandt, Kuntz, Larson, Leben, Patton, Wade; Lecturer Lindgren.

Courses 104, 177, and 220 (*) are offered in the Department of Botany, College of Letters and Science, and do not count toward the credits required in the College of Agriculture.

7. Elementary Plant Pathology. I; 4 cr. The economic importance, appearance, cause, and means for controlling representative diseases of plants. Prerequisites: Botany 1 and Bacteriology 1. Mr. Arny, Mr. Hagedorn.

101. Diseases of Plants. I; 3 cr. The nature and the prevention of diseases of plants including studies of a typical series of examples. Prerequisites: Plant Pathology 7 (or Bacteriology 1 and Plant Pathology 104.) Mr. Walker, Mr. Pound.

102. Methods in Plant Pathology. I; 3 cr. Research procedures including: use of literature, isolation and inoculation practices, special technique according to individual needs, and preparation of manuscripts. Prerequisite: Plant Pathology 101. Mr. Riker, Mr. Hildebrandt.

*104. Fungi. (Same as Botany 104.) I; 3 cr. Prerequisite: Botany 1 or 17. Mr. Backus.

116. Diseases of Field Crops. II; 2 cr. Arranged to meet the needs of students in plant pathology and agronomy. Prerequisite: Plant Pathology 101 (or 7 and 104). Mr. Dickson.

117. Diseases of Orchard Fruits. II; 2 cr. The more important diseases of deciduous orchard fruits. Prerequisite: Plant Pathology 101 (or 7 and 104). Offered 1955–56 and alternate years. Mr. Keitt.

119. Fungus Deterioration of Forest Products. (Same as Forest Products 119.) I; 2 cr. A survey of the cause and prevention of stains and decay in forest products, and control measures. Prerequisites: Plant Pathology 101 and 104. Offered 1954–55 and alternate years. Mr. Lindgren.

120. Diseases of Vegetable Crops. II; 2 cr. The more important field and storage diseases of vegetable crops. Prerequisite: Plant Pathology 101 (or 7 and 104). Offered 1954–55 and alternate years. Mr. Walker.

*177. Physiology of the Fungi. (Same as Botany 177.) I; 4 cr. Lectures, reports; laboratory optional. Prerequisites: Plant Pathology 104, and Botany 146, or equivalent, and consent of instructor. Mr. Allen.

*220. Advanced Mycology. (Same as Botany 220.) Yr; 2 or 3 cr. Lectures, laboratory, and field work. Prerequisite: Plant Pathology 104 or equivalent. Mr. Backus.

223. Seminar. Yr; 1 cr. Staff.

POULTRY HUSBANDRY

Professors Bird, *chairman*, Hayes, McGibbon; Associate Professor Annin; Assistant Professors Adams, Sunde.

Students majoring in Poultry Husbandry may prepare for commercial poultry farming, for one of the various lines of commercial work with which poultry husbandry is related, or for educational work in extension, instruction or research.

Students preparing for educational work along the more scientific lines may elect 5 credits from the following as a portion of the major requirements in poultry husbandry: Veterinary Science 120, Animal Husbandry 126, Biochemistry 105, Agricultural Economics 127, Agricultural Economics 128, Genetics 105, Zoology 105, Chemistry 120.

1. Poultry Raising. I; 3 cr. A general survey course designed to give the student an understanding of the problems in poultry raising. Mr. Sunde.

8. Marketing Poultry Products. I; 3 cr. A study of the facts that tend to produce quality in market poultry and eggs. Methods of preparing and marketing poultry and eggs. Mr. Adams.

10. Poultry Judging and Culling. I; 2 cr. A study of breed and variety characters as described in the "American Standard of Perfection." Selecting birds for the production of eggs or meat. One lecture and one laboratory period. Prerequisite: Poultry Husbandry 1 or consent of instructor. Mr. Adams.

102. Poultry Feeds and Feeding. I; 3 cr. Principles of poultry nutrition; composition of poultry feedstuffs and formulation of poultry rations. Prerequisites: Poultry Husbandry 1 and Biochemistry 1, or consent of instructor. Mr. Bird.

105. Hatchery Management. II; 3 cr. Principles and practices of incubation. Practical chick embryology. Brooding requirements of chicks. Prerequisite: Poultry Husbandry 1. Mr. Adams.

107. Advanced Poultry Management. II; 3 cr. Influence of recent investigation in poultry husbandry as they affect methods of feeding, housing, breeding, care and management of poultry. Prerequisite: Poultry Husbandry 1. Staff.

109. Poultry Breeding. II; 3 cr. Survey and application of breeding principles to the improvement of poultry; development of practical breeding programs for flock improvement. Prerequisite: Poultry Husbandry 1, Genetics 6, or consent of instructor. Mr. McGibbon.

121. Seminar. Yr; 1 cr. Reports and discussion of current research and literature in the field. Prerequisites: Senior standing and consent of instructor. Staff.

RURAL SOCIOLOGY

Professors Clark, Kolb, Marshall, *chairman*, Sewell, Wileden; Associate Professors Barton, Wilkening.

There are two ways in which students may work in this field. First, a program leading to a full major and preparing for teaching, research or extension work may be arranged. In such a plan 10 credits should be taken in the department and 5 credits selected in any one of the following departments: Agricultural Economics, Agricultural Education, Agricultural Journalism, Home Economics, or Sociology in the College of Letters and Science. Second, courses may be taken as electives by students majoring in other departments, who wish to gain a knowledge of the social arrangements of present-day rural society.

1a. Man, Culture and Society. I, II; 3 cr. (Same as Sociology-Anthropology 1a.) A basic course in the fields of cultural anthropology, sociology and rural sociology. Comparative study of social organization, groups, institutions, and their interrelations; the role and development of personality in culture. Staff.

25. Rural Society. I; 3 cr. Study of changing group relations in rural families, neighborhoods, communities, interest groups, and social institutional arrangements. Prerequisite: Sophomore standing or consent of instructor. Mr. Kolb.

27. Rural Organizations and Leadership. II; 2 cr. History, scope and function of rural organizations in social life. Characteristics and activities of social, educational, recreational, and occupational groups. History, description and analysis of selected types in Wisconsin. Problems of organization and leadership. Prerequisite: Sophomore standing or consent of instructor. Mr. Barton.

125. Structure and Functioning of American Rural Society. I; 3 cr. A functional analysis of the group, institutional and status structure of contemporary American rural society with implications for action programs. Prerequisites: Junior standing and an introductory course in sociology. Mr. Wilkening.

126. Rural Standards of Living. II; 2 cr. Consumption behavior in the main commodity groups: food, housing, clothing, education, recreation, etc.; growth of consumer consciousness and governmental and co-operative agencies which give it expression. Prerequisites: Junior standing and an introductory course in rural or general sociology or consent of instructor. Mr. Barton.

127. Rural Community Organization. II; 2 cr. History of the rural community and its social organization; principles including leadership and processes of conflict and cooperation; agencies serving the rural community; studies of selected cases. Prerequisites: Junior standing and an introductory course in rural or general sociology or consent of instructor. Mr. Wileden.

128. Methods of Research in Rural Sociology. I; 2 cr. A review of the methods currently employed by rural social research agencies, with special emphasis on the more recent developments in interviewing techniques, schedule and scale construction, attitude and opinion measurement and experimental design. Prerequisites: Junior standing, introductory course in sociology and consent of instructor. Mr. Sewell.

129. Technological Change in American Rural Society. I; 2 cr. The nature of technological change in farming and in family living and how it is influenced by situational, psychological and social factors, with particular attention to the role of the professional worker in effecting such changes. Prerequisite: An introductory course in sociology or consent of instructor. Mr. Wilkening.

130. Population Trends and Problems in Rural Society. II; 2 cr. Changes in number, vitality differentials, population characteristics, migration, the relationship of the dynamics of population changes and problems in agriculture; rural areas in the United States; selected countries of the world. Prerequisites: Junior standing and an introductory course in sociology or consent of instructor. Mr. Marshall.

131. Rural Community and Welfare Agencies. I; 3 cr. The organization of rural communities in the United States, rural problem areas, and the institutions and agencies through which a rural welfare program must function. Prerequisites: Junior standing and an introductory course in rural sociology or sociology or Social Work 145. Mr. Barton.

185. Modern American Communities. II; 3 cr. Rural backgrounds of American culture. Development of American social institutions, social structure and values as seen in selected rural and urban communities. European images of America and evaluation of America's social strengths. Prerequisites: Junior standing and an introductory course in sociology or major in American Institutions. Mr. Barton.

194. Introduction to Public Opinion Research. I; 3 cr. (See Agricultural Economics 194.)

225. Seminar in Rural Social Research. Yr; 2 cr. An examination of current research problems, theories and methods. Prerequisites: Graduate standing and consent of instructor. Staff.

SOILS

Professors Attoe, *chairman*, Berger, Chapman, Jackson, Muckenhirn, Wilde, Zeasman; Associate Professors Albert, Hole, Miller, Suomi; Assistant Professors Ekern, Engelbert, Hull, Peterson, Tanner, Voight, Wojta; Instructor Lee.

The various courses in Soils are designed to give training for either the more practical field such as farming and farm advisory and managerial work, or the professional field such as teaching, research, extension, soil survey, and soil conservation. Students preparing for the practical field should elect the less technical courses in soils and related agricultural departments; those preparing for professional work should elect considerable course work in the basic natural sciences along with the advanced courses in Soils.

Students in Soils may specialize in the Fertilizer Industry by electing courses in Agronomy, Bacteriology, Biochemistry, and Plant Pathology.

Not to exceed 5 credits from the following courses may be counted as a portion of the undergraduate major requirement in soils: Bacteriology 123, Geology 1, Agronomy 102, Agronomy 106, and Meteorology 145.

1. Soils and Soil Fertility. I; 4 cr. An introductory, general survey of the field. Prerequisite: Chemistry 1a. Mr. Ekern, Mr. Engelbert.

26. Fertilizer and Soil Management. II; 2 cr. Nature, composition, and manufacture of fertilizers, and use under various soil management programs. Prerequisite: Soils 1. Mr. Engelbert.

106. Soil and Water Conservation. (Same as Agricultural Engineering 106.) I; 3 cr. Causes and control of soil erosion and their relationship to land use practices and patterns, future food production, supplies of water for crops, streams, lakes and underground

reserves. Field trips. Full credit will be allowed toward a soils major. Prerequisite: Soils 1 or consent of instructor. Mr. Ekern, Mr. Zeasman.

121. Soil Analysis. II; 4 cr. Methods and use of special equipment for determining soil reaction and available and total nutrients and other constituents. Prerequisite: Soils 1, Chemistry 12, or consent of instructor. Mr. Attoe, Mr. Engelbert.

122. Soil Physics. I; 3 cr. Physical properties, moisture relations, and methods of physical analysis of soils. Prerequisites: Soils 1 and a course in physics or consent of instructor. Mr. Tanner.

123. Soil Bacteriology. (Same as Bacteriology 123.) I; 4 cr. Study of soil microorganisms. Prerequisites: Bacteriology 1, 103, or Medical Microbiology 102, and consent of instructor. Mr. Allen.

124. Forest Soils. II; 3 cr. Properties and management in relation to silviculture, land use and nursery practice. Prerequisites: Soils 1 and Botany 1, or consent of instructor. Mr. Wilde.

125. Soil Genesis, Classification and Mapping. II; 3 cr. The formation, classification, and mapping of soils; the major soil types and their uses. Field trips. Prerequisite: Soils 1 or consent of instructor. Mr. Muckenhirn.

127. Soil Science and Plant Nutrition. I; 2 cr. The constitution and dynamic nature of the soil and how it functions as a medium for plant growth. Prerequisite: Soils 1 or consent of instructor. Staff.

128. Proseminar. I; 1 cr. History of soil science and review of current literature. Prerequisite: Senior standing or beginning graduate student. Staff.

135. Soil Survey Methods. II; 2 cr. Lectures on purposes and methods of soil survey. Field practice in recognizing and describing soil properties and mapping soil areas. Prerequisite: Soils 125 or equivalent, or consent of instructor. Mr. Hole.

221. Physical Chemistry of Soils. II; 2 to 4 cr. Application of physiochemical principles to soil studies, including surface forces, ionic equilibria, electrode potentials, and crystal structure. Two lectures, 2 cr.; laboratory, 1 or 2 cr. Prerequisites: Soils 121 and 127, and physical chemistry, or consent of instructor. Mr. Jackson.

228. Seminar. I, II; 1 cr. Literature reviews and research reports. Prerequisite: Soils 128 or consent of instructor. Staff.

VETERINARY SCIENCE

Professors Brandly, *chairman,* Herrick, McNutt, Nichols; Associate Professors Berman, Hanson, Todd, Wilson; Assistant Professors Burch, Morse, Simon; Instructors Cohen, Kowalczyk, Sorensen, Wipf.

Courses are offered by the department to meet the needs and interests of undergraduate students in the field of animal production and of advanced students in veterinary science and closely related fields.

The several courses numbered below 100 are designed to provide a knowledge of the fundamental and practical aspects of animal hygiene and disease prevention. The subjects of the 100 series are offered for both advanced undergraduate students desiring to qualify for majors in the animal science field and for the graduate students in veterinary science and immediately related sciences who are working toward advanced degrees. The courses of the 200 series are offered for credit only to qualified graduate students.

29. Animal Disease Prevention. I; 3 cr. Prevention and control of infectious diseases of livestock and poultry. Prerequisite: Sophomore standing. Mr. Brandly and staff.

30. PARASITIC DISEASE PREVENTION. II; 3 cr. Prevention and control of parasitic dieases of livestock and poultry. Prerequisite: Sophomore standing or consent of instructor. Mr. Todd.

31. PARASITIC DISEASE PREVENTION (Laboratory). II; 1 cr. Prerequisite: Veterinary Science 30 or concurrent registration. Mr. Todd.

101. PHYSIOLOGY OF DOMESTICATED ANIMALS. I; 4 cr. Form and function of the major organs and systems of farm animals. Prerequisites: Zoology 1 and consent of instructor. Mr. Nichols.

112. MEDICAL ENTOMOLOGY. (Same as ZOOLOGY 112 and ENTOMOLOGY 112.) I; 3 cr. A study of arthropods and the diseases they cause or transmit. Arthropods of importance in animal diseases are stressed. Prerequisite: An introductory course in zoology. Offered 1954–55 and alternate years. Mr. Herrick, Mr. Dicke.

120. HELMINTHOLOGY. (Same as ZOOLOGY 120.) I; 3 cr. A study of the helminths of various animals, including man. Prerequisite: Zoology 1 or Veterinary Science 1. Offered 1955–56 and alternate years. Mr. Herrick.

125. VETERINARY PROTOZOOLOGY. I; 4 cr. Prerequisites: Veterinary Science 1, Zoology 1 or equivalent, a course in parasitology and consent of instructor. Mr. Todd.

128. INFECTION AND IMMUNITY IN ANIMAL DISEASES. (Same as BACTERIOLOGY 128.) II; 4 cr. An experimental study of the principles and applications of infection and immunity. Prerequisites: An advanced course in bacteriology and Veterinary Science 1, Zoology 1 or equivalent. Mr. Brandly, Mr. Hanson, Mr. Berman, Mr. Morse, Mr. Wilson.

130. VETERINARY PATHOLOGY. I; 3 cr. Prerequisites: Courses in vertebrate anatomy, histology, animal physiology, and consent of instructor. Mr. McNutt, Mr. Simon.

131. VETERINARY PHYSIOLOGY. II; 3 cr. Prerequisites: Courses in vertebrate anatomy, histology, physiological chemistry, and consent of instructor. Mr. Nichols.

201. PROSEMINAR. Yr; 1 cr. Staff.

220. SEMINAR. Yr; 1 cr. Graduate standing. Staff.

228. EPIZOOTIOLOGY. (Same as BACTERIOLOGY 228.) I; 3 cr. The concept of infectious diseases of animals as a host-parasite relationship, with major consideration of host resistance, parasitic adaptation, dissemination and the problem of interference, carriers, reservoirs, and control. Emphasis on the enlarging problems of veterinary public health. Prerequisite: Bacteriology-Veterinary Science 128, or Medical Microbiology 102, or equivalent. Mr. Brandly, Mr. J. B. Wilson and staff.

230. SEMINAR. ADVANCED. Yr; 1 cr. Surveys of the literature and reports on current research problems. Prerequisite: Graduate standing. Staff.

231. VETERINARY PATHOLOGIC PHYSIOLOGY. I, II; 5 cr. The pathologic aspects of veterinary physiology. Prerequisites: Veterinary anatomy, physiology and pathology, and Biochemistry 105, or their equivalents. Mr. Nichols.

APPENDIX

MAJORS IN AGRICULTURAL SCIENCE

In past years many of the students in the College of Agriculture have entered some phase of agricultural science and it seems probable that this field will continue to provide many opportunities. In this field high scholarship is a necessity; only those students whose work in the first two years is of high quality should plan to enter the field. The Graduate School at Wisconsin requires for entrance an average undergraduate record of 2.75 grade-points per credit.

Students wishing to prepare themselves in Agricultural Science find it necessary to follow their undergraduate work with further training along some particular line leading to the master's or doctor of philosophy degree. For such students it is usually desirable to carry a broad general course as an undergraduate. The three general fields of particular importance are Animal Science, Plant Science, and Social Science.

All of the general college requirements, including the required courses of the freshman and sophomore years, must be met by students majoring in any of these fields.

These majors have been approved by the Executive Committee and no special action is necessary by the student or adviser other than a statement by the student of his intention to follow one of these majors.

1—ANIMAL SCIENCE MAJOR

Students carrying this undergraduate major may later wish to carry graduate work in some of the following departments: Bacteriology, Animal Husbandry, Biochemistry, Dairy Husbandry, Dairy Industry, Entomology, Genetics, Poultry Husbandry, and Veterinary Science. The major requirements will be absolved by carrying not less than 25 credits selected from the following list of courses:

	Credits
Bacteriology 121—Dairy bacteriology	4
Bacteriology 125—Food bacteriology	4
Bacteriology 120—Advanced general microbiology	3
Animal or Dairy Husb. 126—Live stock feeding	4
Biochem.-Dairy Industry 121—Dairy chemistry (Lecture)	3
Biochem.-Dairy Industry 122—Dairy chemistry (Laboratory)	2
Biochem. 124—Animal metabolism and vitamins (Lecture)	2
Biochem. 125—Animal metabolism and vitamins (Laboratory)	1 or 2
Dairy Industry 124—Physical chemistry of dairy products	3
Entomology 102—Insect morphology and taxonomy	3
Entomology 140—Insect ecology	3
Genetics 6—Heredity	3
Genetics 105—Animal genetics	3
Poultry Husbandry 107—Advanced poultry management	3
Vet. Science 120—Parasites of domestic animals	3
Vet. Science 128—Infection and immunity in animal diseases	4
Thesis	4
	52–53

Students in this major must also carry at least 20 elective credits outside of the College of Agriculture. Botany 1 and Zoology 1 should be included in freshman and sophomore electives. It will also be desirable for students in this major to carry two years of at least one foreign language.

2—PLANT SCIENCE MAJOR

Students carrying this undergraduate major may later wish to carry graduate work in some of the following departments: Bacteriology, Agronomy, Biochemistry, Entomology, Genetics, Horticulture, Plant Pathology, or Soils. The major requirements will be absolved by carrying not less than 25 credits selected from the following list:

	Credits
Bacteriology 123—Soil bacteriology	4
Agronomy 102—Pastures and pasture problems	2
Agronomy 130—Improvement of agronomic plants	2–3
Biochem. 119—Plant biochemistry (Lecture)	3
Biochem. 120—Plant biochemistry (Laboratory)	2
Entomology 102—Insect morphology and taxonomy	3
Entomology 140—Insect ecology	3
Genetics 6—Heredity	3
Genetics 104—Plant genetics	3
Horticulture 20—Survey of horticulture	3
Horticulture 27—Plant propagation and nursery practice	3
Horticulture 127—Techniques and methods of breeding hort. crops	3
Horticulture 129—Growth regulators on horticultural crops	3
Plant Pathology 7—Elementary plant pathology	4
Plant Pathology 101—Diseases of plants	3
Soils 26—Fertilizers and soil management	2
Soils 125—Soil genesis, classification and mapping	3
Soils 127—Soil science and plant nutrition	2
Thesis	4
	52–53

Students in this major must also carry at least 20 elective credits outside the College of Agriculture. Botany 1 and Zoology 1 should be included in the freshman or sophomore electives. It will also be desirable for students in this major to carry two years of at least one foreign language.

3—SOCIAL SCIENCE MAJOR

Students carrying this undergraduate major may later wish to carry graduate work in some one of the following departments: Agricultural Economics, Agricultural Education, Agricultural Journalism, or Rural Sociology. The major requirements will be absolved by carrying not less than 25 credits selected from the following list:

	Credits
Agr. Econ. 10—Farm organization and management	3
Agr. Econ. 114—Farm law	3
Agr. Econ. 117—Outlines of land economics	3
Agr. Econ. 125—Marketing of agricultural products	3
Agr. Econ. 126—Economics of agricultural processing industries	3
Agr. Econ. 127—Co-operation	3
Agr. Econ. 152—Farmer movements	3
Agr. Econ. 155—Prices of agricultural products	3
Agr. Educ. 101—Ext. work in agriculture and home economics	3
Agr. Educ. 103—Seminar	1–3
Agr. Journ. 1—Agricultural news writing	3
Agr. Journ. 3—Agricultural advertising	3
Agr. Journ. 103—Publicity media and methods	2
Rural Soc. 25—Rural life	3
Rural Soc. 125—Structures and functioning of rural American society	3
Rural Soc. 126—Rural standards of living	2
Rural Soc. 127—Rural community organization	2
Thesis	4
	50–52

Students in this major must also choose at least 20 elective credits outside of the College of Agriculture. It is suggested that these credits be selected from the courses in the following group. Two full years of at least one foreign language are also desirable.

MAJORS IN AGRICULTURAL SCIENCE

Economics 134—Economic history of the U. S.	3–4
Economics 105—Money and banking	3
Economics 124a—Taxation	3–4
Economics 130—Statistical methods[1]	3
Economics 142—Public utilities	3
Economics 173—Economics of consumption	3
Geography 123—Agricultural geography	3
Journalism 2a—News writing	3
Journalism 3—Newspaper editing	3
Journalism 107—The community newspaper	2
Pol. Science 7—American government (national)	3
Sociology 1a—Man, culture and society	3
Rural Anthropology 3—Introduction to anthropology	3
Sociology 132—Introductory social statistics[1]	3
Sociology 139—Social psychology	3
Sociology 151—General aspects of human relations	3
Sociology 197—Personality and social structure	3
Speech 7—Extempore speaking	2
	52–54

CURRICULUM IN AGRICULTURAL EXTENSION

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman composition	3	English 1b—Freshman composition	3
Chemistry 1a or 5—General chemistry	3–5	Chemistry 1b—Qualitative analysis	5
Agronomy 1 or Animal-Dairy Husbandry 1	3	Agronomy 1 or Animal-Dairy Husbandry 1	3
Botany 1—General botany	5	Zoology 1—Animal biology	5
Freshman Lectures	1	Military Science	0
Military Science	0	Physical Education	0
Physical Education	0		16
	15–17		

SOPHOMORE YEAR

Bacteriology 1—General survey	4	Agricultural Economics 4—Principles of agricultural economics	3
Economics 1a—General economics	4	Entomology 1	3
Soils 1—Soils and soil fertility	4	Soils 26—Fertilizer and soil management	2
Sophomore Elective (Poultry 1)	3	Sophomore Elective (Agr. Engr. 1)	4
Military Science	0	Political Science 7	3
		Military Science	0
	15		15

JUNIOR YEAR

Agricultural Education 155 (Principles of adult education)	3	Psychology 1	4
Agricultural Education 101	3	Agricultural Economics 10—Farm mgt.	3
Agronomy 102	2	Agricultural Journalism 1—Ext. comm.	3
Animal Husbandry 126	4	Agricultural Engineering 105 (Farm machinery)	4
History 4a or b—American history	3	Electives	2
Electives	2		16
	17		

SENIOR YEAR

Agricultural and Extension Education 151 (4-H Club Organization)	3	Agricultural Economics 125—Marketing	3
Agricultural Engineering 103 (Tractors)	3	Agricultural Engineering 9	3
Plant Pathology 7	4	Agricultural and Extension Education 150 (Practice in extension)	4
Agricultural and Extension Education 133 (Seminar)	1	Electives	5
Genetics 6	3	Speech 7	2
Electives	3		17
	17		

[1] The two statistical courses are to be considered as parallel; only one is to be chosen.

PRE-THEOLOGICAL MAJOR

The University of Wisconsin, in co-operation with various theological seminaries, offers an opportunity for young men and women who are preparing for the rural ministry, to carry their pre-theological work in the College of Agriculture. Any person choosing this major should acquaint himself with the specific requirements of the theological seminary of his choice. Special note should be taken of any language requirements.

It is recommended that the student choosing this major shall follow the general plan of the Social Science major suggested above, but shall make his choices in such a way as to secure at least one basic course in each of the following fields: Agricultural Economics, Economics (general), English Literature, History and Government, Philosophy, Psychology, Public Speaking, Sociology (general), and Rural Sociology.

CURRICULUM FOR THE MAJOR IN FOOD INDUSTRY

FOUR-YEAR CURRICULUM

Non-Technical Course

FIRST YEAR

First Semester	Credits	Second Semester	Credits
English 1a	3	English 1b	3
Chemistry 1a	5	Chemistry 1b	5
Agronomy 1	3	Animal Husbandry 1	3
Mathematics 1, 2 or 51	4–5	Mathematics 1, 2 or 52	4–5
Freshman Lectures	1	Food Industry 2	1
Physical Education and Military Science	0	Physical Education and Military Science	0
	16–17		16–17

SECOND YEAR

Economics 1a	4	Physics 61	5
Botany 1 or Zoology 1	5	Agricultural Economics 4	3
Quantitative Chemistry 11a or 12	3	Entomology 1	3
Soils 1	4	Horticulture 60	3
		Commerce 8	3
	16		17

THIRD YEAR

Food Industry 3	3	Bacteriology 103	4
Biochemistry 10	4	Organic Chemistry 121	2
Organic Chemistry 120	3	Chemical Engineering 42	3
Chemical Engineering 41	3	Animal Husbandry 105	2
Plant Pathology 7	3	Civil Engineering 197	2
Animal Husbandry 5	2	Elective Courses	4
	18		17

FOURTH YEAR

	Credits		Credits
Food Industry 101	4	Food Industry 102	4
Bacteriology 125	4	Food Equipment Mechanics 108	3
Entomology 50	2	Dairy and Food Sanitation & Regulations 42	3
Elective Courses	6–7	Elective Courses	6–7
	16–17		16–17

Suggested Electives: Drawing 10; Geography 123; Botany 24; Chemical Engineering 18; Agricultural Economics 125; Commerce 109; Meteorology 145; Agricultural Engineering 9.

CURRICULUM FOR THE MAJOR IN FOOD INDUSTRY

FIVE-YEAR CURRICULUM
Technical Course

FIRST YEAR

English 1a	3	English 1b	3
Agronomy 1	3	Chemistry 1b	5
Chemistry 1a	5	Animal Husbandry 1	3
Mathematics 51	5	Mathematics 52	5
Freshman Lectures	1	Food Industry 2	1
Military Science and Physical Education	0	Military Science and Physical Education	0
	17		17

SECOND YEAR

Mathematics 102a	4	Mathematics 102b	4
Quantitative Chemistry 11a	4	Physics 61	5
Economics 1a	4	Bacteriology 1	4
Botany 1	5	Agricultural Economics 4	3
	17		16

THIRD YEAR

Food Industry 3	3	Organic Chemistry 120, 121	4
Organic Chemistry 120, 121	4	Chemical Engineering 111	3
Chemical Engineering 111	3	Chemical Engineering 116	3
Chemical Engineering 117	3	Elective Courses	4–5
Elective Courses	2–3	Food Industry 107	2
Food Industry 127	1		
	16–17		16–17

FOURTH YEAR*

Food Industry 101	4	Food Industry 102	4
Food Bacteriology 125	4	Dairy and Food Sanitation & Regulations 42	3
Physical Chemistry 130, 131	4	Physical Chemistry 130, 131	4
Biochemistry 105	5	Food Chemistry 146	2
		Food Chemistry 147	2
		Civil Engineering 197	2
	17		17

FIFTH YEAR**

Microbiology 127	3	Dairy Chemistry 121	2–5
Thesis	4	Fermentation Chemistry 227	2–4
Elective Courses	8	Food Equipment Mechanics 108	3
		Thesis	4
		Elective Courses	0–6
	15		17

* Upon completion of the fourth year the student will be awarded the degree of Bachelor of Science in Agriculture with a major in Food Industry.

** Upon completion of the fifth year, the student will be awarded the degree of Master of Science in Dairy Industry, Specialization in Food Industries, providing he has completed one summer of employment in the food and fermentation industries (certified) and presents an acceptable thesis on an assigned subject.

CONSERVATION MAJORS IN AGRONOMY OR SOILS

Students preparing for professional positions in soil conservation work involving erosion control, farm management, or reclamation activities have two general options:

(a) Farm planning or farm management. A major in either Agronomy or Soils is advisable. Advanced courses in both these departments and at least one course in each of the following fields should be selected: livestock feeding, farm management, land economics, agricultural engineering, and wildlife management. The Soils major should include Geology 1, a college course in physics, Soils 122, and an ecology course in agronomy, botany, or zoology.

(b) Soil survey or land classification. For this option a major in Soils including Soils 122, 125, and 135 and advanced courses in agronomy, agricultural economics, geology, botany, and geography are recommended.

Students who prefer a less specialized, general training in conservation and who may find employment in semi-technical capacities such as scientific aides, wardens, or farm-planning aides should major in Agronomy or Soils and should follow the curriculum outlined below:

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a	3	English 1b	3
Chemistry 1a	5	Chemistry 1b	5
Agronomy 1	3	Animal Husbandry 1	3
Freshman Lectures	1	Botany 1	5
Agricultural Engineering 1 or Forestry 40	4 or 3	Physical Education and Military Science	0
Physical Education and Military Science	0		
	16 or 15		16

SOPHOMORE YEAR

Bacteriology 1	4	Agricultural Economics 4	3
Economics 1a	4	Entomology 1	3
Soils 1	4	Geology 1	5
Zoology 1	5	Soils 26	2
Military Science	0	Electives	3
		Military Science	0
	17		16

JUNIOR YEAR

Soils 106	4	Agronomy 101	3
Agricultural Economics 117	3	Geography 128	3
Agronomy 102	2	Wildlife Management 118	3
Electives	6	Agricultural Economics 10	3
		Electives	4
	15		16

SENIOR YEAR

Zoology 124 or 126	2–3	Soils 125	3
Electives or credits in major	12–13	Botany 160	3
		Electives or credits in major	10
	14–16		16

Sample curriculum outlined above plus completion of a major in Soils or Agronomy meets minimum requirements, with the exception of 7 elective credits outside the College, for B.S. degree in Agriculture.

RECREATION MAJOR

This major is designed for students who are interested in professional leadership in (a) recreation and/or (b) volunteer leadership in the development of a satisfying and healthy community life. Students who choose this major must take their agricultural college major in Agricultural Economics or Rural Sociology. It is desirable that the student's adviser be chosen from the Recreation Curriculum advisory committee.

FIRST YEAR

English 1a	3	English 1b	3
Chemistry 1a	5	Chemistry 1b	5
Agronomy 1, Animal or Dairy Husbandry 1	3	Agronomy 1, Animal or Dairy Husbandry 1	3
Freshman Lectures	1	Freshman Elective (b)	4–5
Freshman Elective (a)	3–5	Physical Education and Military Science	0
Physical Education and Military Science	0		
	15–17		15–16

SECOND YEAR

First Semester	Credits		Second Semester	Credits
Bacteriology 1	4		Agricultural Economics 4	3
Economics 1a	4		Rural Sociology 27	2
Soils 1	4	or	Biochemistry 10	4
Sophomore Elective (c)	3–5		Physical Education 16	1
Military Science	0		Sophomore Elective (d)	4–5
			Agricultural Electives	2
			Military Science	0
	15–17			16–17

THIRD YEAR

Psychology 1	4	Health Education	3
Education 14	2	Agricultural Electives	4
Education 73	3	Psychology 105	3
Rural Sociology 25	3	Recreational Resource	6
Recreational Resource	4		
	16		16

FOURTH YEAR

Agricultural Electives	2	Agricultural Electives	3
Rural Education 155	3	Rural Sociology 127	2
Rural Sociology 125	3	Education 113	3
Education 113	3	Education 114	3
Recreational Resource	5	Recreational Resource	5
	16		16

Grand Total: 125–131 credits—124 required for graduation.

Freshman and sophomore electives (a) (b) (c) and (d) must include Mathematics, Physics, Botany, Zoology, or a maximum of two agricultural courses from two different departments. This includes:

45 credits in College of Agriculture plus Freshman Lectures and possible freshman or sophomore electives from Agricultural Departments.

25 elective credits outside of College of Agriculture plus possible recreation resource areas. A major in Rural Sociology with 10 credits in Rural Sociology, 3 credits in Rural Education, and 3 credits in Agricultural Economics.

22 credits in social sciences including 3 courses in Rural Sociology, 2 courses in Economics and Agricultural Economics, and 2 courses in Psychology.

20 credits in recreation resource areas with a possibility of more if resource areas (Landscape Architecture or Nature Study) in the College of Agriculture are chosen.

23 credits in the recreation professional field substituting Agricultural Education 155 and Rural Sociology 127 for Education 74 and Education 75.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (AGRICULTURE AND NAVAL SCIENCE)

Those students who wish to qualify for the Bachelor of Science degree in Agriculture and at the same time complete the 24 credits required in the Naval Science program may do so by following the suggested curriculum listed.

FRESHMAN YEAR

English 1a	3	English 1b	3
Chemistry 1a	5	Chemistry 1b	5
Agronomy 1 or Animal-Dairy Husbandry 1	3	Agronomy 1 or Animal-Dairy Husbandry 1	3
Naval Science 11	3	Naval Science 12	3
Freshman Lectures	1	Freshman Elective	3
Physical Education	0	Physical Education	0
	15		17

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
Economics 1a	4	Agricultural Economics 4	3
Bacteriology 1	4	Freshman Elective	3
Soils 1 or Biochemistry 3 or 10	4	Agricultural Courses (Major 3 cr.) (Elective 3 cr.)	6
Naval Science 21	3	Naval Science 22	3
	15		15

JUNIOR YEAR

Sophomore Elective	5	Sophomore Elective	5
Naval Science 31	3	Naval Science 32	3
Agricultural Courses (Major 3 cr.) (Elective 3 cr.)	6	Agricultural Courses (Major 3 cr.) (Elective 3 cr.)	6
Elective	3	Elective	2
	17		16

SENIOR YEAR

Agricultural Courses (Major 3 cr.) (Elective 3 cr.)	6	Agricultural Courses (Major 3 cr.) (Elective 4 cr.)	7
Naval Science 41	3	Naval Science 42	3
Electives	8	Electives	6
	17		16

Students enrolled in this curriculum shall present 128 credits for the Bachelor of Science degree (Agriculture and Naval Science), four credits beyond the present requirement of 124 credits.

A student transferring from the curriculum leading to the Bachelor of Science degree (Agriculture and Naval Science) to the curriculum for the Bachelor of Science degree (Agriculture) shall receive credit for the work in Naval Science on the same basis as credit is allowed for work in courses in Military Science. (No credit for the first four semesters of the basic course and no more than a total of eight credits for the completion of advanced courses; and no credit shall be granted unless a total of eight semesters has been completed.)

SCHOOL OF COMMERCE

FAYETTE H. ELWELL, DEAN
ERWIN A. GAUMNITZ, ASSOCIATE DEAN
ETHEL O. BRUMM, ASSISTANT TO DEAN
MILDRED A. RATHBUN, ADMINISTRATIVE ASSISTANT

FACULTY

(Department of Commerce only)

ABRAMOWITZ, ISRAEL, *Ph.D.*, Assistant Professor of Commerce
ANDREWS, RICHARD BRUCE, *Ph.D.*, Assistant Professor of Commerce
BELCHER, DAVID W., *Ph.D.*, Associate Professor of Commerce
BLAKELY, EDWARD JAMES, *M.B.A., C.P.A.*, Assistant Professor of Commerce (On leave 1954-55)
BOWER, JAMES BEARDSLEY, *M.S., C.P.A.*, Assistant Professor of Commerce
BROMAN, KEITH LEROY, *Ph.D.*, Assistant Professor of Commerce
CENTER, CHARLES CONVERSE, *Ph.D., C.L.U.*, Professor of Commerce
COLBY, CLYDE WILLARD, *B.S.*, Lecturer in Commerce; Director Industrial Development, Extension Division
DODGE, WILLIAM HUBBARD, *M.A.*, Research Associate, Bureau of Business Research and Service
DUNN, S. WATSON, *Ph.D.*, Assistant Professor of Journalism and Commerce
ELWELL, FAYETTE HERBERT, *B.A., C.P.A.*, Dean of the School of Commerce; Professor of Accounting
FINE, ISADORE VICTOR, *Ph.D.*, Assistant Professor of Commerce
FOX, PHILIP GORDER, *M.A.*, Professor of Business Administration
FRAINE, HAROLD GEORGE, *Ph.D.*, Professor of Commerce
GAUMNITZ, ERWIN ALFRED, *Ph.D.*, Professor of Commerce; Associate Dean, School of Commerce
GIBSON, JOHN CURRIE, *B.A., C.P.A.*, Professor of Accounting
GLAESER, MARTIN GUSTAV, *Ph.D.*, Professor of Economics and Commerce
GRANER, FRANK MAXWELL, *Ph.D.*, Associate Professor of Commerce
HOSLER, RUSSEL JOHN, *Ed.D.*, Professor of Commerce and Education
HUNT, M. JOE, *M.B.A.*, Instructor in Commerce
KESSEL, ROBERT MANLEY, *M.S.*, Instructor in Commerce
KNIGHT, WILLIAM DONALD, *Ph.D.*, Associate Professor of Commerce; Director, Bureau of Business Research and Service
KUBLY, HAROLD EDWARD, *Ph.D.*, Associate Professor of Business Administration. (On leave 1st sem. 1954–55)
LICHTY, JAMES JOHNSTON, *M.A.*, Assistant Professor of Commerce; Coordinator of Business Institutes
LINS, ANGELINE GENEVIEVE, *B.A.*, Associate Professor of Accounting
PETERSEN, EDWIN BENDIX, *M.A.*, Assistant Professor of Commerce; Assistant Director of Placement
RATCLIFF, RICHARD UPDEGRAFF, *Ph.D.*, Professor of Land Economics
SCHUCK, HARRY MICHAEL, *M.A., LL.B.*, Associate Professor of Commerce
SOLBERG, HARRY JULIUS, *M.B.A.*, Instructor in Commerce
SULLIVAN, RICHARD ELMORE, *M.B.A.*, Assistant Professor of Commerce; Chairman, Dept. of Commerce, Extension Division
THATCHER, LIONEL W., *Ph.D.*, Professor of Commerce and Economics
TRUMBOWER, HENRY ROSCOE, *Ph.D.*, Emeritus Professor of Commerce and Economics; Director of Placement
WALGENBACH, PAUL HENRY, *M.B.A., C.P.A.*, Assistant Professor of Commerce
WERNER, EDWARD EMIL, *M.B.A.*, Instructor in Commerce
WESTING, J. HOWARD, *Ph.D.*, Professor of Marketing

SCHOOL OF COMMERCE

In 1900, during the administration of Charles K. Adams, a new department, the School of Commerce, was founded in the College of Letters and Science. This School was one of the first five such schools in the United States.

The School of Commerce was established as a separate administrative unit in July, 1944. Since then the School has grown not only in the number of students but also in breadth and depth of its program. All of its offerings are based on a foundation of broad fundamental education with specialization coming in the latter part of the undergraduate career.

A new Commerce Building is being constructed. It will be ready for occupancy the academic year 1955–56.

The best test of the quality of contributions the School has made to the University, the state, and the nation is the record of its graduates. In every field of business endeavor—banking and finance, industrial management, marketing, advertising, merchandising, public utility management, real estate, insurance and actuarial science, statistics and accounting—the success of hundreds of Wisconsin commerce men and women attests the soundness of a school of business administration organized as it is at Wisconsin.

The public service program of the School of Commerce has been greatly expanded during the past few years. A great many institutes, short courses, conferences and seminars are held on and off the campus in cooperation with various business groups. The great majority of the speakers at these meetings are men of demonstrated ability in their particular line of endeavor. These meetings generally are open to students of the School of Commerce, providing them the opportunity of hearing many well-known authorities discuss the current problems of their trade or profession. For information regarding these adult educational programs address the office of the School of Commerce, Madison 6, Wisconsin.

STUDENT EXPENSE

For a full statement regarding living costs, fees and tuition, housing, student employment, and loans and scholarships, consult the General Information bulletin.

In brief, a semester fee of $90 for residents and $250 for nonresidents is required of all students in the School of Commerce. Self-supporting students may secure assistance in obtaining employment by applying to the Student Employment Bureau, 435 North Park Street. Initial requests for student housing information should be directed to the University Housing Bureau, 434 Sterling Ct., Madison 6, Wisconsin, where all types of student housing accommodations are listed.

PLACEMENT BUREAU

The placement bureau is under the direction of Professor Henry R. Trumbower, assisted by Professor E. B. Petersen. From the very beginning the faculty recognized its responsibility to the graduates in aiding them to obtain employment with business and industrial concerns. At the same time it also recognized the responsibility of aiding and assisting business and industry to obtain a trained body of men.

At the present time the competence and the training of the graduates of the School are so well recognized by the business world that representatives of business firms make a practice of coming to Wisconsin to interview first- and second-semester graduates. A large proportion of the commerce graduates, as well as the economics majors, obtain their positions in this manner. The placement office of the School also offers its services to the

alumni who are seeking job transfers after they have been out a number of years, and frequent requests come from industrial and business concerns for men who are available for employment and who have had experience.

BUREAU OF BUSINESS RESEARCH AND SERVICE

The Bureau of Business Research and Service, organized in 1945, has as its purpose the facilitation of faculty research and the provision of useful information to business and industry. The Bureau is concerned with the study of problems relating to the economic development of Wisconsin and the nation and to the management and operation of business enterprises. The research program is carried out chiefly by members of the School of Commerce faculty or under their direction.

The results of the Bureau's research are published in several series of monographs known as Wisconsin Commerce Studies, Wisconsin Commerce Papers and Wisconsin Commerce Reports. Individual monographs are available to the public at nominal cost.

Each year the Bureau has available a limited number of research assistantships awarded to students, usually at the graduate level, who are qualified by experience and ability to carry on research work under the supervision and guidance of the faculty. The assistantships correspond approximately to half-time employment and carry the same stipend as similar assistantships throughout the University. At present this stipend amounts to $1,250 for an academic year, or $1,500 on the twelve-months' basis. Research associate appointments, with correspondingly higher stipends, are also available to people with exceptional backgrounds.

STUDENT ACTIVITIES

Students enrolled in the School of Commerce will find several active student organizations open for possible membership. These organizations are as follows: *Alpha Delta Sigma*—professional advertising fraternity; *Alpha Kappa Psi*—national professional commerce fraternity; *Beta Alpha Psi*—professional accounting fraternity; *Beta Gamma Sigma*—national honorary commerce fraternity; *Delta Sigma Pi*—commerce social fraternity; *Finance Society*—an organization for finance majors; *Insurance Society*—an organization for insurance majors: *Marketing Club*—an organization for students interested in the field of marketing; *Phi Chi Theta*—professional commerce sorority; *Real Estate and Homebuilding Association* and *Sigma Lambda Chi*—for students interested in real estate and light building; *Society for Advancement of Management*—an organization for students interested in management.

The presidents of the above organizations make up the Commerce Student Council which holds meetings with the dean at various times throughout the academic year formulating plans for the events fostered by the School, particularly the Commerce Turnout in the fall and the Senior Send-off Banquet in the spring.

FELLOWSHIPS AND SCHOLARSHIPS IN COMMERCE

For a list of available general scholarship and loan funds, students should consult the bulletin Student Financial Aids, which may be obtained from the Student Personnel Office. Many of these are open to all students in the University while others are limited.

The School of Commerce is fortunate in having a large number of undergraduate scholarships, as well as fellowships and scholarships for graduate students. The recipients of such scholarships are chosen by appropriate committees and the awards are announced at the Senior Banquet in the spring.

FELLOWSHIPS

Robert E. Cotterman Fellowship—One of $1500. Contributed by the Credit Union National Association in memory of Robert Cotterman. Awarded to Commerce graduate student in any field.

Northwestern Mutual Life Insurance Company Actuarial Science Grant—One graduate fellowship of $1500.

Paul E. Stark Fellowships—One for $250, awarded to a senior majoring in real estate. One of $500, awarded to a graduate student in real estate or urban land economics.

SCHOLARSHIPS

Except where noted, the following scholarships are awarded to second-semester juniors, subject to their returning as seniors:

Harry W. Adams Scholarships—Two of $250 each. Awards available only to students, either undergraduate or graduate not receiving scholarship grants from other sources.

Automotive Industry of Wisconsin Scholarships—Two of $250 each. Awards available only to students not receiving scholarship grants from other sources—one to undergraduate and one to graduate.

General Electric Scholarship—One of $500. Awarded to junior student interested in fields of accounting and finance, marketing, employee relations and manufacturing.

Robert P. Gerholz Scholarships—Two of $150. Awards available only to students not receiving scholarship grants from other sources.

Alexander Grant Scholarships—One of $250. Awarded to major in accounting.

William S. Kies Scholarship—One of $250. Awarded to major in banking and finance.

Milwaukee Association of Purchasing Agents Scholarships—One of $250. Awarded to a student majoring in marketing and interested in purchasing.

Don S. Montgomery Scholarships—Two of $250. Awarded to students in the Light-Building Industry curriculum.

A. C. Nielsen Scholarships—Two of $300. Awarded either to juniors or seniors for graduate study. Primary consideration is given to students not receiving scholarship grants from other sources. Awarded to students for purpose of continuing their work in the field of marketing, merchandising and marketing research.

Northwestern Mutual Life Insurance Company Actuarial Science Scholarship—One of $500. Awarded to undergraduate major in actuarial science.

Milton I. Shakow Scholarship Fund—Two of $250 each. Established by Mr. and Mrs. Joseph D. Shakow in memory of their son, Milton (Com. '38) killed in World War II. Awarded to students majoring in marketing.

Albert Trathen Scholarship Fund—One of $150. Awarded to student majoring in banking and finance.

Wisconsin Society of Certified Public Accountants Scholarship—One of $250. Awarded to a student majoring in accounting.

Annual scholarships of $250 each to students majoring in insurance, second-semester juniors or seniors for graduate study, have been established by the following:

CUNA Mutual Insurance Society
Farmers Mutual Automobile Insurance Company
General Casualty Company of Wisconsin
National Guardian Life Insurance Company
Northwestern Mutual, Wisconsin General Agents (Three scholarships)

Old Line Life Insurance Company of America
Wisconsin Association of Insurance Agents
Wisconsin Life Insurance Company

SYSTEM OF ADVISERS

Upon the admission to the University, each student is assigned to a member of the Commerce 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 broad education as well as to aid him in interpreting the requirements for degrees 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 sign the student's study list. The student should study the time table, carefully watching prerequisites so he may avoid electing a course for which he will be unable to receive credit.

During the freshman and sophomore years the student is classified as pre-Commerce, under the jurisdiction of the Dean of the College of Letters and Science, and has the same adviser. When the student is transferred to the School of Commerce, he may change to an adviser in his particular field of interest. (See page 318 for information concerning Light-Building Curriculum students.)

CREDITS, GRADES, AND POINTS

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. Students are expected to earn an average of 16 credits per semester in class and laboratory work, making 32 credits per year, or 128 for the four-year course.

GRADE-POINT SYSTEM. Semester grades are reported by letter only; the characterization of 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 9 points. The scale of grades and points follows:

Grade	Points per Credit
A (Excellent)	4
B (Good)	3
C (Fair)	2
D (Poor)	1
F (Failure)	0

GRADE-POINT AVERAGE. The general quality of a student's work is expressed in terms of a grade-point average which is defined as the total number of grade-points earned divided by the total number of credits carried, whether passed or not, exclusive of credits reported as incomplete or progress. The highest possible quotient is 4.0 which represents a grade of *A* in every subject; the lowest possible quotient is 0.0.

Each student is required to take class and laboratory work in the amount of 12 to 17 credits per semester. A student who desires to elect fewer than 12 credits must obtain permission in advance from the dean. A student in his first semester at Wisconsin is not permitted to elect more than 17 credits. A student who has received a *B* average (3.0 grade-point average) or better in the preceding semester (on a basis of at least 14 credits) may

carry a semester program rising to 19 credits, provided such program does not entail taking more than six courses at a given time. No student will be permitted to count toward graduation more than 19 credits in one semester.

Candidates for the bachelor's degree who desire to graduate in three years may usually do so by obtaining 17 to 19 credits per semester after the first semester of the freshman year, and by attending two or three summer sessions or by taking correspondence courses from the Extension Division or a combination of these two.

Such 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. Correspondence credits together with other extension credits may not exceed one half the number of credits required for graduation. Students taking correspondence courses, however, are reminded of the regulation (see bulletin of the Extension Division) requiring them to return to and deposit with the Recorder of the Extension Division all unfinished assignments or lessons as soon as they enter upon or resume residence work at the University. The penalty for retaining such assignments during residence is forfeiture of the credit for the correspondence course.

EXAMINATIONS. Each study terminates in a two-hour written final examination at the close of the semester. During the semester two or three one-hour written tests are ordinarily held in all but the most advanced courses.

HONORS IN SCHOLARSHIP

Sophomore honors are awarded to students who earn a grade-point average of at least 3.25 including at least 20 credits of *A* on the first 58 residence credits. Sophomore high honors are awarded those eligible for honors who earn at least 45 credits of *A* on the first 58 residence credits. (In the computation of credits for these awards, credits carried at the Milwaukee Extension Center—not to exceed 32—may be substituted for residence credits, but credits in physical education, basic military science, band, or correspondence courses will not be included. Credits transferred from other institutions will not be included in the honors computation, but a student may be eligible for sophomore honors if he presents not more than 15 transfer or other ineligible credits. Grades of failure will not exclude a candidate but credits in failed courses will be included in the computation, with zero grade-points.)

Senior honors and high honors are awarded on the basis of the last 60 credits carried before graduation, all of which have been completed in residence at the University. A student earning in residence at Madison on the last 60 credits carried before graduation a 3.25 grade-point average including at least 20 credits of *A* will be awarded senior honors; a student earning in residence at Madison on the last 60 credits carried before graduation a 3.25 grade-point average including at least 45 credits of *A* will be awarded senior high honors.

REQUIREMENTS FOR ADMISSION

Students who wish to become candidates for the degree of Bachelor of Business Administration will enter the School of Commerce at the beginning of the junior year after completing two years of work in the College of Letters and Science, the College of Agriculture, or the College of Engineering. Juniors must make application to the Dean of the School of Commerce for official transfer as soon as the requirements of the freshman and sophomore years have been fulfilled.

Any combination of studies taken in the freshman and sophomore years which includes the specific requirements listed below is acceptable for entrance to the School of Commerce. Suggested programs for the first two years in the Colleges of Letters and Science, Agriculture, and Engineering may be found in the bulletins of those colleges.

The specific requirements for admission to the School of Commerce which should be met by the end of the sophomore year are:

1. A minimum of twelve (12) credits in English composition, English literature, American literature, or comparative literature, of which at least six (6) credits must be in English composition.
2. Mathematics 7 (or a semester course in calculus for Engineering transfers).
3. A minimum of eight (8) credits in laboratory science.
4. Economics 1a.
5. Commerce 8 and 9.
6. A minimum grade-point average of 2.3 (based on all work carried in first two years).
7. A sufficient number of credits to warrant classification as a junior (58 credits).

Foreign language is optional. Juniors who do not present Economics 1a, and Commerce 8 and 9 may be admitted *conditionally* to the School of Commerce, *at the discretion of the dean,* pending completion of these requirements.

Laboratory courses in the following fields carry credits as laboratory science: astronomy, botany, chemistry, geography (Geography 1, 2 and 17), geology, physics, and zoology. Courses recommended for general electives in the sophomore year are Commerce 43, Business ethics, at least one course in Speech, and Geography 6 and 7, World survey of cultural geography.

STUDENTS TRANSFERRING TO THE UNIVERSITY OF WISCONSIN

Students whose freshman and sophomore years are spent in some college outside the University of Wisconsin should follow a sequence similar to that outlined above if graduation from the School of Commerce is contemplated. 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, marketing, and the like 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, since courses in Commerce at the University of Wisconsin are taught primarily in the junior and senior years and presuppose considerable college background. Placement examinations will be given in cases in which doubt exists as to the level of proficiency the student has attained in a given field.

Applicants for admission to the School of Commerce from other colleges or universities should send a transcript of their credits, for evaluation, to the Office of Admissions, 166 Bascom Hall, University of Wisconsin, Madison 6, Wisconsin.

IRREGULAR PROGRAMS

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 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.

RESIDENCE REQUIREMENTS

The minimum residence requirement is 30 credits and 60 grade-points to be earned in at least two semesters at Madison. All candidates for degrees should plan to take their senior year in residence since the advanced work of the major study normally culminates in the last year of the undergraduate course. Furthermore, the last 21 credits earned toward the degree must normally be secured in residence; but in special cases the Executive Committee of the School, on application to the dean, may permit a senior, who has finished all the

specific requirements and the work of his major, to take not to exceed 6 credits by correspondence to complete the requirements for his degree.

Since 128 credits are required for graduation it is advisable that the student maintain an average of 16 credits per semester to make normal progress.

REQUIREMENT IN UNITED STATES HISTORY AND INSTITUTIONS

The requirement in United States history and institutions may be met in one of the following ways:

1. By passing, by the beginning of the junior year, an attainment examination in United States History based on college-level work or its equivalent.

2. By completing satisfactorily, in college, a continuous year course in United States History. A year course is here understood to be one so listed in the Announcement of Courses (i.e., History 4, 12–112, 113, 117, 120, 121, 122); or two semester courses which, as to content, are in chronological sequence (i.e., any two *consecutively numbered* semester courses chosen from the following: History 101, 102, 103, 104, 105, 106, 107, 108, 109).

3. By combining a semester of United States History with any one of the following courses: Economics 1a; English 140; Philosophy 139; or Political Science 7, 110, 112a, 112b, 165, 166, or 171. The student may choose the semester of History from one of the following semester courses: History 101, 102, 103, 104, 105, 106, 107, 108, 109, or 111; or he may complete either semester of one of the following year courses: History 112, 113, 117, 120, 121, or 122.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF BUSINESS ADMINISTRATION

GENERAL REQUIREMENTS

1. A total of not less than 128 credits and 256 grade-points is required for the degree of Bachelor of Business Administration and a total of not less than 130 credits and 260 grade-points for the University Teachers' Certificate (see page 311 and School of Education bulletin). These credits must include the specific requirements for admission listed on page 306 as well as the basic courses and the major requirements listed below. See page 306 for information regarding the number of credits permitted in a semester.

2. The requirements for admission to the School of Commerce should be met as far as possible during the freshman and sophomore years.

3. A. Basic Courses Required. The following courses in commerce, economics, and mathematics are required. These courses should be completed by the close of the junior year.

	Credits
Economics 1a—General economics (sophomore year)	4
Mathematics 7—Theory of investment (freshman or sophomore year) (or a semester course in calculus for Engineering transfers)	4
Commerce 6—Business communication	3
Commerce 8–9—Accounting (sophomore year)	8
Commerce 31—Business statistics	3
Commerce 109a—Commercial law	3

B. Basic Courses to Be Selected. In addition to the above required basic courses, a selection of *five* from the following eight courses must be made. *None of the five courses selected may count as part of the major, but the basic course prerequisite to each major may be one of the five.*

	Credits
Com. 105—Money and banking	3
Com. 111—Industrial management	3
Com. 112—Marketing methods	3

Com. 137—Corporation finance	3
Com. 139—Principles of insurance	3
Com. 142—Public utilities	3
Com. 171—Personnel management	3
Com. 179—Urban land economics (real estate)	3

4. In total the student must present not less than 52 nor more than 64 credits in the fields of Commerce and Economics, and at least twice as many grade-points as credits must be earned in this group. Ultimate responsibility for course selections must rest with the student. Faculty members act only in advisory capacities.

A student whose grade-point average in Commerce and Economics is less than 2.5 by the beginning of his senior year is 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.

A student whose grade-point average in Commerce and Economics is 2.5 by the beginning of the senior year is required to concentrate in a selected field. His selection must include the specific requirements of the major chosen from one of the following fields.

I. Accounting

Advanced training in accounting is designed primarily for students who expect to become commercial or industrial accountants, controllers and financial officers, or who expect to join the staffs of certified public accountants or of governmental departments. However, the courses will, to a great extent, benefit students majoring in other fields by furnishing them with a comprehensive background of business procedures and relationships.

Wisconsin C.P.A. Examination. Graduates of the School of Commerce who have majored in accounting are permitted by the Wisconsin State Board of Accountancy to take the examination, and are given one and one-half years' credit toward the three-year experience requirement imposed before a successful candidate is issued his certificate.

In addition to the basic courses an Accounting major must take Commerce 181 and 182a in the junior year; 109b, 183, 184, 186, and 187 in the senior year.

	Credits
Com. 181—Advanced accounting problems	3
Com. 182a—Cost accounting	2
Com. 182b—Cost accounting	2
Com. 183—Income tax accounting	2
Com. 184—Auditing	3
Com. 185—Analysis of financial reports and budgeting	2
Com. 186—Accounting systems	2
Com. 187—Governmental accounting and consolidations	2
Com. 188—Accounting for teachers	3
Com. 199—Public utility and institutional accounting	2
Com. 282—Advanced cost accounting	3
Com. 283—Seminar in accounting	2
Com. 284—Advanced auditing	3

Industrial Cost Accounting

The following additional courses are recommended to students preparing for industrial cost accounting:

Com. 111, *Industrial Management,* Com. 117, *Production Planning and Control,* Com. 185, *Analysis of Financial Reports and Budgeting,* Drawing 1, *Elements of Drawing,* and Mech. Engr. 116, *Time and Motion Study.*

II. Banking and Finance

Students who wish to prepare for work in banking, investment banking, brokerage, investment counselling, institutional investing, credit administration, or treasury departments of industrial concerns may include in the broad training required for the B.B.A. degree a concentration of suitable courses in the field of banking and finance.

To major in this field, a student must take Commerce 105 and 137 as basic courses as early as possible and follow up with twelve credits of advanced work from among the other courses listed below. (At least 9 of the 12 advanced credits must be chosen from among courses 107, 110, 143, 147, and 159.)

	Credits
Com. 107—Management of bank funds	3
Com. 110—Investment principles	3
Com. 124a—Public finance—taxation	3
Com. 124b—Public finance—taxes, debts and expenditures	3
Com. 133—Financial history of the United States	3
Com. 137—Corporation finance	3
Com. 143—The securities market	3
Com. 147—Investment management	3
Com. 153—International finance	3
Com. 159—Modern corporate problems	3
Com. 176—Real-estate finance	3
Com. 191—The credit system	3
Com. 192—Money, income and prices	3
Com. 193—Full employment policies	3
Com. 205—Banking and monetary theory	2
Com. 224—Seminar in public finance	2
Com. 237—Seminar in finance	2

In electing work beyond the requirements for the major, the student may well consider the following closely allied courses: Commerce 139, Principles of insurance; Commerce 158, Large-scale enterprise; Commerce 161, Problems in insurance and real-estate law; Commerce 185, Analysis of financial reports and budgeting; Economics 108, Financial institutions; and Economics 181, Industrial fluctuations.

III. Business Teacher Education

The program as given in business-teacher education at the University will qualify the student to teach business education and economics in high schools and vocational schools.

To major in the field of Business Teacher Education, a student must register concurrently in the School of Education and complete the requirements of that school for the University Teachers' Certificate. In addition to the basic courses in Commerce, the student must take 18 credits in secretarial training. Students who have had previous training in shorthand and/or typewriting may be exempted from certain courses (see below for complete statement regarding exemption) if found proficient upon examination.

Students in this major who choose to complete a teaching minor in Economics are required to take Economics 1b and may use Economics 1b as one of the five courses required in the basic Commerce courses. However, if a minor other than Economics is chosen, Economics 1b may not be used as one of the five basic Commerce courses.

The curriculum in Business Teacher Education is a four-semester sequence. It is therefore necessary for students to start this program the *first semester of the junior year.* Students interested in business teacher education should consult Professor Hosler *prior* to their junior year.

The courses in Education are:

	Credits
EDUC. 73—The child, his nature and his needs	3
EDUC. 74—The school and society	3
EDUC. 75—The nature and direction of learning	3
EDUC. 20—The teaching of secretarial subjects	2 to 5
EDUC. 77—The teaching of bookkeeping and the social business subjects	2 to 5

NOTE: Practice teaching credit is given with the methods courses, Educ. 20 and Educ. 77. The combined credit in the first methods course taken is four, and the total for the second methods course is five credits.

The courses in Commerce are:

a. The pre-Commerce and basic Commerce courses required of all students in the School of Commerce.
b. The following courses in secretarial training (enrollment in these courses for credit is limited to those students enrolled in the business education curriculum):

	Credits
COM. 63—Beginning typewriting	2
COM. 64—Advanced typewriting	2
COM. 65—Fundamentals of shorthand	4
COM. 66—Advanced shorthand	4
COM. 163—Secretarial techniques	3
COM. 164—Office procedures	3

Students who have had previous training in typewriting or in shorthand will be given attainment examinations prior to enrollment in typewriting or in shorthand. Based upon the attainment examinations, exemption may be granted from Commerce 63, 64, 65 or 66. If the student is exempted from any course (or courses) in typewriting and/or shorthand, he shall select an equivalent number of elective credits.

Commerce 63 and/or Commerce 65 shall be taken without credit by those students who have had more than one year in high school in typewriting and/or shorthand, and who do not meet proficiency standards as determined by the attainment examinations.

A total of not less than 130 credits and 260 grade-points is required to graduate from the curriculum in Business Teacher Education.

The program as outlined in Business Teacher Education will qualify the student for the University Teachers' Certificate with a major in Commerce and a minor in Economics. It is recommended also that the student secure teaching minors in other subject fields.

IV. INDUSTRIAL MANAGEMENT

The courses in Industrial Management familiarize the student with a variety of problems faced by the managers of industrial enterprises. Emphasis is placed on the use of the scientific method in the solution of problems relating to questions of organization, to the physical background of work, and to the operation of the various departments of a company.

Students who have majored in Industrial Management are ready for a wide variety of jobs in industry and are particularly well prepared to enter company training programs. Those who have taken the related courses offered in Mechanical Engineering are equipped for work in Industrial Engineering. Mech. Engr. 23, Manufacturing equipment and materials, and Mech. Engr. 127, Production processes, are strongly recommended as a preparation for the other courses in Mechanical Engineering.

To major in the field of Industrial Management, a student must have taken Commerce 111, 3 cr. In addition, he must take Commerce 117, 3 cr. and a further selection of 9 credits from the following courses:

	Credits
Com. 119—Industrial marketing	2
Com. 134—Industrial statistics	3
Com. 171—Personnel management	3
Com. 182a and b—Cost accounting	4
Com. 211—Seminar in industrial management	2
*Mech. Engr. 12—Principles of industrial organization	3
Mech. Engr. 115—Industrial plant design	3
Mech. Engr. 116—Motion and time study	3
Mech. Engr. 120—Materials handling and control	3
Mech. Engr. 122—Industrial inspection and quality control	3
Civil Engr. 103—Economic selection	2
Psych. 115—Industrial psychology	3
Psych. 129—Personnel psychology	3

V. Labor Management

Labor management graduates are in demand as management, personnel, production, or sales trainees in business and industry. Graduates with advanced degrees find opportunities both in industry and in teaching at the college and university level.

Background for majors in this field, besides general work in Business Administration, might well include courses in economics, sociology, psychology, education and engineering.

To major in the field of Labor Management, a student must have taken Commerce 171, 3 cr. In addition, he is required to take Commerce 173, 3 cr., Commerce 122, 3 cr., and a further selection of 6 credits from the following:

	Credits
Com. 111—Industrial management	3
Com. 123—Labor legislation	3
Com. 134—Industrial statistics	3
Com. 141—Group, pension and profit-sharing plans	3
Com. 145—American labor history	3
Com. 149—Government and labor	3
Com. 172—Management and labor relations	3
Com. 174—Advanced personnel management	3
Com. 271—Seminar in labor management	2

See also College of Letters and Science—Departments of Economics, Psychology and Sociology, School of Education and College of Engineering.

VI. Marketing

The transfer of goods from producer to consumer has always been an important business activity. Its importance has been growing over the past two decades as the competition for consumers' dollars has increased. Measured in terms of its cost, marketing today is more important than manufacturing, and many firms believe that their greatest unsolved problems lie in the field of marketing.

The marketing curriculum is designed to deal with marketing practices and problems from the point of view of business management. In the first course the student is given a broad perspective of the entire scope of marketing. This course is intended to provide a survey of the field for students planning to specialize in other fields of commerce as well as to provide a foundation course for students who plan to major in marketing. The objective of the beginning course is to familiarize students with the nature of marketing institutions, functions, terminology, and problems.

---

* May not be counted for credit by those Commerce students who have had Commerce 111. Engineers, transferring to School of Commerce, who have had Mech. Engr. 12 may not take Commerce 111 for credit.

Advanced marketing courses develop more thoroughly the specialized fields of Marketing such as Retailing, Advertising, Sales Administration, Purchasing, and Market Research. Through these courses the student who is majoring in marketing is enabled to make a close study of the specialized marketing institutions and functions, to appreciate their interdependence in the accomplishment of the total marketing task, and to form a rather clear idea as to his interest in employment in these several fields.

Marketing majors must have taken Commerce 112, and in addition are required to take Commerce 114, 115, and 170, as well as two additional courses from the following list of all of the marketing courses offered.

	Credits
Com. 113—Problems in market analysis	3
Com. 116—Problems in national advertising	3
Com. 118—Radio and television advertising	3
Com. 119—Industrial marketing	2
Com. 120—Price policies	3
Com. 126—Retail advertising campaigns	3
Com. 197—Sales forecasting and measurement	3
Com. 198—Public relations and problems in distribution	3
Com. 213—Seminar in marketing	2
Agr. Econ. 125—Marketing agricultural products	3

Marketing majors specializing in Advertising or Retailing may take appropriate courses in other schools and departments for non-commerce credit toward their degrees. In the field of Advertising there are pertinent courses in Journalism and Psychology, while in Retailing there are appropriate courses in Home Economics and Psychology that may be taken with the consent of the student's adviser.

PURCHASING

Marketing majors who wish to specialize in the field of Purchasing for industry or government should select a substantial number of the following courses in the various schools and colleges of the University as electives, *some of which carry credit only under this curriculum:*

	Credits
*Com. 109b—Commercial law	3
*Com. 117—Production planning and control	3
*Com. 134—Industrial statistics (Quality control)	3
*Com. 164—Office procedures	3
*Com. 174—Advanced personnel management	3
*Com. 182a—Cost accounting	2
*Civil Engr. 101—Contracts and specifications	2
Civil Engr. 102—Estimates	2
Civil Engr. 103—Economic selection	2
*Mech. Engr. 23—Manufacturing equipment and materials	2
Mech. Engr. 82—Industrial inspection methods	3
Mech. Engr. 115—Industrial plant design	3
Mech. Engr. 116—Motion and time study	3
Agr. Econ. 155—Prices of agricultural products	3

VII. Public Utilities and Transportation

This field covers courses dealing with public utilities—electric, gas, water, telephone and urban transportation. Courses dealing with the various types of transportation—railway, pipelines, air and highway—are also included under this heading. Government regulation

* These courses are particularly recommended.

and control as well as the problems of management and operation are stressed in all of the courses listed.

To major in the field of Public Utilities and Transportation, a student must have taken Commerce 142, 3 cr. In addition, he must take 12 credits from the following:

	Credits
Com. 135—Economics of transportation I	3
Com. 136—Economics of transportation II	3
Com. 168—Highway transportation	3
Com. 169—Air transportation	3
Com. 189—Industrial and commercial traffic principles	3
Com. 195—Public utility management	3
Com. 266—Seminar in public utilities	2

VIII. Real Estate

The real estate industry embraces the development, financing and marketing of the land resources of the nation. It is manned by business men who bring these resources into use as developers, who administer real estate enterprises as owners or managers, who engage in real estate financing, and who serve the market as brokers and traders in real estate. College-trained men are in demand for professional-type service in property development, brokerage, appraising, property management and mortgage lending. Governmental activities in housing, planning and home financing present other opportunities for careers. Finally, an understanding of real estate matters is essential to an executive in any type of business, since he is likely to be faced, at some time, with problems of land development, site selection, financing, leasing, and land purchase.

To major in the field of Real Estate, a student must have taken Commerce 179, 3 cr. In addition, he must take Commerce 176, 3 cr., and 9 credits from the following:

	Credits
Com. 29—Home architecture II	3
Com. 161—Problems in insurance and real estate law	2
Com. 175—Valuation of real estate	3
Com. 177—Property development and management	3
Com. 178—Housing and planning problems	3
Com. 279—Seminar in urban land economics	2
Agr. Econ. 117—Outlines of land economics	3
Agr. Econ. 221—Land income	3
Civil Engr. 141—City planning	2
Pol. Sci. 270—Seminar in public planning	2
Soc. 177—The modern city	3

IX. Risk, Insurance and Actuarial Science

Students who wish to prepare themselves for careers in the insurance industry will find a group of courses which will give adequate training in each of the basic fields of insurance—as life, fire and casualty, and home office. Students interested in preparing for the examination for Chartered Life Underwriter, for Chartered Property Casualty Underwriter, or for the Society of Actuaries, should write the School of Commerce for detailed arrangement of courses so that the major requirements may be met by the time of graduation.

To major in the field of Risk and Insurance a student must take Commerce 139, 3 cr., Commerce 121, 3 cr., Commerce 138, 3 cr., and a minimum of 6 credits from the following courses: (Requirements differ in actuarial science.)

	Credits
COM. 140—Advanced life insurance	3
COM. 141—Group, pension and profit-sharing plans	3
COM. 144—Accident, health, hospitalization, workmen's compensation and employers' liability insurance	3
COM. 160—Advanced property and casualty insurance	3
COM. 161—Problems in insurance and real estate	2
COM. 162a—Actuarial theory and practice	3
COM. 162b—Actuarial theory and practice	3
COM. 166—Property, wills, trusts, estates, and taxation	3
COM. 239—Seminar in risk and insurance	2
MATH. 24—Theory of life insurance	3
MATH. 138—Actuarial mathematics	3
ECON. 120—Social security	3
ECON. 154—Risk and profit	3

PROGRAM IN ACTUARIAL SCIENCE

The program in Actuarial Science covers the syllabus for the first four parts of the examinations of the Society of Actuaries. Although the program can be completed in four years, a number of students prefer a 5-year program leading to a master's degree.

Students interested in the program of Actuarial Science should consult with Mr. Center.

X. STATISTICS

In university courses the major educational efforts are directed towards the interpretation of data, which consist largely of making estimates. Because conclusions are reached through the application of the laws of probability students who intend to work seriously in the field of Statistics, particularly in fields involving theoretical research, should push their mathematical training as far as possible and should arrange to work through courses in calculus as early as possible. Much of the work in the collection and presentation of data is not essentially mathematical and many successful practicing statisticians have no such mathematical training.

Employment is frequently offered at various levels in the Federal and state governments, and in public utility companies, finance companies, large-scale retail enterprises, manufacturing companies, and other private enterprises of various sorts. Market research, industrial and technical research, and quality-control activities regularly absorb many students who have had sufficient statistical training. A broad knowledge of accounting will be advantageous to statisticians who operate largely in the internal statistics of business, and some engineering knowledge will be advantageous to those interested in industrial research and quality control.

To major in the field of Statistics, a student must take, in addition to the basic course (Commerce 31), Commerce 196, 3 cr.; Commerce 132, 3 cr.; and 6 additional credits from the following courses:

	Credits
COM. 134—Industrial statistics	3
COM. 197—Sales forecasting and measurement	3
COM. 230—Seminar, statistical research and methods (open to seniors by consent of instructor)	2
MATH. 22—Calculus and analytical geometry III	4
MATH. 118—Introduction to the theory of probability	3
MATH. 133—Finite differences and interpolation	3
MATH. 134—Mathematics of elementary statistics	3
MATH. 135—Introduction to statistical methods in the natural sciences	3
MATH. 137—Mathematical statistics	3
MATH. 138—Actuarial mathematics	3

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

COMBINED MAJORS

A student may combine two of the fields listed above such as real estate and finance, accounting and statistics, statistics and insurance, or other combinations that are reasonable considering the student's objective. The usual requirement is that at least 9 credits above the basic course in one field may be combined with at least 6 credits above the basic course in another to satisfy the requirements of a combined major. The combination must be approved by the student's adviser and the dean.

COMBINED COURSE IN COMMERCE AND LAW

Students in the School of Commerce, who qualify for admission to the Law School in their senior year, may elect law subjects and apply them to the extent of 30 credits toward both the business administration and the law degrees. Any student who takes 8 credits or more in the Law School in a semester must pay the Law School fee.

Students registered in the Law School are permitted to elect as a part of their law studies, and to apply toward the degree of Bachelor of Laws in lieu of accounting courses offered in the Law School (not to exceed a total of 5 credits) from among the following courses offered in the School of Commerce:

	Credits
Com. 183—Income tax accounting	2
Com. 184—Auditing	3
Com. 186—Accounting systems	2
Com. 187—Governmental accounting and consolidations	2

This privilege applies only to students who are registered as law students, which means that they must be taking 6 or more credits of work in the Law School.

COMBINED WORK IN COMMERCE AND ENGINEERING

A. Bachelor's Degrees in Commerce and Engineering

A student who desires degrees in both Commerce and Engineering should plan as early as possible in his collegiate career for such a combination. Inasmuch as the engineering curriculum contains a large proportion of required courses, outside electives must be carefully chosen. Any engineering student of junior or higher standing may take any commerce course for which he has the prerequisites. Economics 1a and Commerce 8 and 9 are prerequisites to many advanced courses in commerce, and they should, therefore, be taken as early as the student's program permits. This practice will permit the completion of requirements for the B.B.A. degree in the minimum time after the engineering degree has been conferred.

B. Pre-Commerce Work in Engineering

Since the School of Commerce now accepts conditionally students lacking one or more of Economics 1a, Commerce 8 and Commerce 9, it will admit as juniors students certified by the engineering faculty as having successfully completed the sophomore year of any one of the engineering sequences. However, such students' progress would be greatly facilitated by having taken Economics 1a, Commerce 8, and Commerce 9.

NAVAL SCIENCE CURRICULUM

There is a requirement of 24 credits in Naval Science for the bachelor's degree in Naval Science. Students in the School of Commerce who wish to receive a bachelor's degree with a major in Naval Science may fulfill the requirements of this minimum in Naval Science by electing 3 credits per semester for each of eight semesters in the University. This election may be taken concurrently with pre-Commerce and commerce work so that all basic courses, and a major in Commerce as well, may be completed in four years. However, in Naval Science only 18 credits will count toward the B.B.A. degree, and, therefore, students taking this double major must present a total of 134 credits for graduation.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE (LIGHT BUILDING INDUSTRY)

The objective of the curriculum in the Light Building Industry is to train students for careers in the home- and farm-building field, either in the actual construction operations or in the distribution of building materials and equipment.

The building industry is complex both in its technical aspects and in its business organization. For this reason, the training of young men who wish to share in its opportunities must embrace both engineering and business subjects. The curriculum has been developed through the co-operation of the College of Engineering, the College of Agriculture, and the School of Commerce.

The curriculum covers four years. The first two years are devoted to basic work in engineering with some courses in English and economics. The last two years contain the advanced work in materials, methods, and design, and a coverage of those business subjects, including accounting, which are essential training for positions of responsibility in production and distribution.

Students enrolled in the Light Building curriculum keep the same adviser throughout their four-year college course. Advisers in this curriculum are those faculty members directly concerned with the course. As a freshman or sophomore in this curriculum a student is classified as LB 1 or LB 2 respectively. The student in the Light Building curriculum is admitted to the School of Commerce in his junior year as a candidate for the degree of Bachelor of Science, Light Building Industry, provided he has satisfactorily completed the following courses:

1. Six (6) credits in English composition
2. Agricultural Engr. 18 (Architectural Drawing)
3. Mathematics through Math. 102a or Math 21
4. Physics 1b
5. Economics 1a
6. A minimum grade-point average of 2.3 (based on *all* work carried in first two years)
7. A sufficient number of credits to warrant classification as a junior (58 credits)

As a junior, the classification becomes CLB 3.

To meet the requirements, candidates must have completed all the required courses involving a total of 96 credits plus 32 credits of electives, or a total of 128 credits.

	Credits
Mathematics (or such courses as may be prerequisite for the courses in Mechanics and Accounting which are included in these requirements)	12
English	6
Physics	10

Drawing	6
Economics	4
Accounting	8
Mechanics	11
Real Estate (Land economics)	6
Agricultural Engineering	4
Marketing	6
Architecture	9
Forest Products (Properties of wood)	5
Commercial Law	6
Labor (Personnel management)	3
Total	96
Electives	32
Grand Total	128

SUGGESTED COURSE OF STUDIES

FRESHMAN YEAR

FIRST SEMESTER	Credits	SECOND SEMESTER	Credits
Math. 1, 2, 20, or 51	4	Math. 2, 20, 21, or 52	4
English 1a	3	English 1b	3
Drawing 10 (for non-engineering students)	3	Agr. Engr. 18—Architectural drawing	3
Military Training	0	Agricultural Engr. 1	4
Physical Education	0	Military Training	0
Electives	5	Physical Education	0
		Electives	1
	15		15

SOPHOMORE YEAR

Math. 20, 21, or 102a	4	Math. 21 or elective	4
Econ. 1a—General economics	4	Mech. 1	3
Physics 1a	5	Physics 1b	5
Military Training	0	Military Training	0
Physical Education (Women only)	0	Physical Education (Women only)	0
Electives	3	Electives	5
	16		17

JUNIOR YEAR

Mech. 3—Mechanics of materials	4	Mech. 52—Materials of construction	2
Mech. 51—Materials of construction	2	Com. 29—Home architecture II	3
Com. 8—Elements of accounting	4	Com. 112—Marketing methods	3
Com. 28—Home architecture I	3	Com. 9—Intermediate accounting	4
Com. 179—Urban land economics	3	Electives	4
	16		16

SENIOR YEAR

Com. 30—Home architecture III	3	Com. 115—Advertising principles	
Com. 109a—Commercial law	3	or	
Com. 122—Labor problems		Com. 6—Business communications	3
or		Com. 109b—Commercial law	3
Com. 171—Personnel management	3	Com. 176—Real estate finance	3
Forest Products 101—Properties of wood	5	Electives	7
Electives	3		
	17		16

MASTERS' DEGREE

(For general regulations and regulations of the Division of Social Sciences see the Graduate School bulletin.)

The Master of Business Administration Degree

Work for the degree Master of Business Administration is centered in research seminars in the following fields: accounting, finance, industrial management, labor management,

marketing, public utilities and transportation, real estate and urban land economics, risk and insurance, and statistics. A candidate for this degree must choose one of the foregoing as his field of specialization.

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 (1) at least one of the research seminars conducted in the field selected; (2) other courses of graduate grade or seminars offered in the field, or assigned readings and papers to be done under the guidance of the major professor 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; (3) the two-semester general seminar required of all candidates; (4) a minimum of three advanced problem courses in the 200-group selected from the other fields mentioned above; and (5) other courses of graduate grade in the School of Commerce or the Department of Economics sufficient together with the credits granted for the work done under the heads (1), (2), (3), and (4) to aggregate not less than 20 credits for the year.

Candidates must pass comprehensive written examinations, to which they are admitted on the recommendation of their major professor and vote of the department. These examinations are conducted near the close of each semester and of the Summer Session. The examinations for the master's degree cover the following:

1. Detailed knowledge in major field.
2. General knowledge in Commerce, Economics or related fields.
3. Elementary statistics. If the candidate has satisfactorily completed both an elementary and advanced course in statistics, this examination is omitted.

One-Year Program for Degree of Master of Business Administration. Graduates from schools of business which are members of the American Association of Collegiate Schools of Business and who have a grade-point average of 2.75 will be admitted to candidacy for the degree of Master of Business Administration.

Graduates from other recognized undergraduate schools of business will be admitted to candidacy for the M.B.A. degree provided they have a 2.75 grade-point average and have fulfilled substantially the undergraduate requirements for the B.B.A. degree at the University of Wisconsin.

Candidates who in their undergraduate courses have not substantially completed the major requirements referred to above should complete them either before entering upon the course of study outlined above or in connection with it. Such students will need more than the two semesters of residence regularly required for the completion of the course. The amount of additional time depends upon the number of credits earned toward the undergraduate major during the undergraduate years.

Two-Year Program for the Degree of Master of Business Administration. The School of Commerce offers a special program leading to an M.B.A. degree for graduates of a regular four-year college course in liberal arts, engineering or agriculture. For the first year, students under this program are admitted as special students in the School of Commerce. During this time they must remove undergraduate deficiencies in order to qualify for admission to the Graduate School. Students in this special classification may take up to 17 credits per semester without administrative approval. This will enable them to remove deficiencies more rapidly than if registered in the Graduate School, where the maximum load allowed is 12 credits per semester. The programs of special students must be approved by the Dean of the School of Commerce. At the time of admission to the Graduate School a grade-point average of 2.75 is required.

Master's Degree in Business Education

The work for the Master of Science degree in Business Education is given jointly by the School of Education and the School of Commerce.

Those people who have graduated with a major in Business Education from the Univer-

sity of Wisconsin, or from a college recognized by the University of Wisconsin, may become candidates for this degree, provided they meet the grade-point requirement of the Graduate School.

A minimum of 22 credits of graduate work is required, to be distributed as follows:

(a) *Eleven* credits in the Department of Education, 6 of which will be in Business Education. The following courses in Business Education are available:

	Credits
EDUC. 121—The improvement of instruction in shorthand and typewriting...	3
EDUC. 159—Teaching distributive education subjects	3
EDUC. 162—The improvement of instruction in the basic business education subjects	3
EDUC. 173—Basic principles in business education	3
EDUC. 238—Seminar in business education	2

(b) *Eleven* credits in the School of Commerce. The student may select courses from one or two of the major fields in Commerce but should concentrate at least 8 credits in one of them. Commerce 188, Accounting for teachers (3 credits), is designed especially for graduate students in business education. Commerce 163, Secretarial techniques, and Commerce 164, Office procedures, are available for those graduate students who have not had these courses (or their equivalent) in their undergraduate program.

In addition to the 22 credits, each student must submit a term paper, written without credit, under the guidance of his major professor.

DOCTOR OF PHILOSOPHY DEGREE

The major fields for the doctorate in Commerce are as follows: 1. accounting, 2. finance, 3. industrial management, 4. labor (including labor management), 5. marketing, 6. public utilities and transportation, 7. real estate, 8. risk and insurance, 9. statistics.

As a part of the preliminary examination, the candidate must pass an intensive examination in economic theory and its development, given by the Department of Economics. He must also pass an intensive examination in his major field of concentration (which may be any one of the foregoing), and an examination in a secondary field within the department. Fields 2, 4, 6, and 9 are administered by the Department of Economics in conjunction with the members of the Commerce faculty who teach in them.

The candidate must have had a year's work in statistics, including one semester in an advanced statistics course. Candidates presenting advanced statistics credits from other institutions will be examined.

A candidate for the Ph.D. degree in Commerce shall *not* minor in Economics, nor shall a candidate for the Ph.D. degree in Economics minor in Commerce. Either the School of Commerce or the Department of Economics may on its own motion permit a secondary field in the other department.

A reading knowledge of two foreign languages in which there is substantial scholarly literature in the student's major is required of all candidates. One of these languages must be French or German.

An applicant will be admitted to candidacy for the degree when he has (a) passed the comprehensive preliminary examination in the major field, (b) obtained approval of the scope of the proposed minor, and (c) obtained approval of the title of his proposed doctoral thesis. A doctoral thesis must be submitted as a result of the candidate's own effort in research enterprise. The candidate is subject to a final oral examination on the thesis and the general field of the major and the minor studies. The candidate may not take the final examination until all requirements for the degree have been satisfied and there has been a lapse of one academic year from the time of the preliminary examination.

For additional information regarding the Master of Business Administration degree, the Master of Science degree in Business Education and the Doctor of Philosophy degree in Commerce, see the bulletin of the Graduate School.

DEPARTMENTS OF INSTRUCTION

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

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

★—In the College of Letters and Science starred (★) courses may not be counted as part of the credits required for graduation. However, Commerce 112 is open to students in the School of Journalism.

ACCOUNTING

★8. Elements of Accounting. I, II; 4 cr. Fundamental principles of accounting; books, accounts and statements for retail, wholesale, and manufacturing concerns; the treatment and presentation of sole proprietorship, partnership, and corporation accounts. Prerequisite: Sophomore standing. Mr. Gibson and staff.

9. Intermediate Accounting. I, II; 4 cr. Theories of general financial accounting with problems illustrating their application. Prerequisites: Commerce 8 and Mathematics 7. Mr. Elwell and staff.

108a. Accounting Principles. I; 3 cr. An introductory course in accounting. Prerequisite: Graduate standing, enrollment in the Law School, or consent of instructor. Mr. Schuck.

108b. Federal and State Income Tax Laws. II; 2 cr. Prerequisite: Commerce 108a or consent of instructor. Mr. Gibson.

181. Advanced Accounting Problems. I; 3 cr. Advanced financial accounting applied to specialized fields. Should be taken in the junior year by accounting majors. Prerequisite: Grade of *B* in Commerce 9. Mr. Gibson, Miss Lins.

182a. Cost Accounting. II; 2 cr. Accounting for costs in manufacturing enterprises. Emphasis on fundamental principles of cost accounting, basic records and procedures, cost reports and their interpretation. Should be taken in the junior year by accounting majors. Prerequisite: Grade of *C* in Commerce 9. Mr. Gibson.

182b. Cost Accounting. I; 2 cr. Problems of overhead costs, use of variable budgets, graphic presentation, by-product costs, standard cost procedures, and distribution cost principles and procedures. Prerequisite: Commerce 182a.

183. Income Tax Accounting. I; 2 cr. Federal and Wisconsin Income Tax Laws and their application to individuals, partnerships, fiduciaries and corporations. Attention is given to F.I.C.A. taxes. Practical problems are assigned which include the preparation of tax returns. Prerequisites: Grade of *C* in Commerce 9 and senior standing. Mr. Gibson.

184. Auditing. II; 3 cr. General principles of auditing, including the preparation of working papers and various kinds of reports. Prerequisites: Upper-group status and a grade of *B* in Commerce 9. Mr. Elwell, Miss Lins.

185. Analysis of Financial Reports and Budgeting. I; 2 cr. Accounting statements with particular reference to structure, meaning of accounts, and ratios. General principles of budgeting. Prerequisite: Commerce 9. Miss Lins.

186. ACCOUNTING SYSTEMS. II; 2 cr. Accounting system design and structure. Accounting control, internal control, and internal reporting. Prerequisites: Upper-group status, senior standing, and grade of *B* in Commerce 9. Mr. Elwell, Mr. Bower.

187. GOVERNMENTAL ACCOUNTING AND CONSOLIDATIONS. I; 2 cr. Fund accounting, budgetary accounts and control, accounting systems for governmental units. Amalgamations, mergers, and consolidations. Prerequisites: Upper-group status, senior standing and grade of *B* in Commerce 9. Mr. Elwell, Mr. Bower.

188. ACCOUNTING FOR TEACHERS. I or II; 3 cr. Includes a discussion of the advanced principles and concepts of current accounting problems confronting the teacher of business subjects. Bookkeeping forms, accounting systems, procedures used in different lines of business, problems of taxation affecting businesses and individuals. Prerequisite: At least a one-year course in accounting or its equivalent. Mr. Elwell, Mr. Gibson.

190. INTERMEDIATE ACCOUNTING. Offered only in Summer Session; 3 cr. Theories of general financial accounting with problems illustrating their application. Prerequisite: A course in elementary accounting. Course restricted to graduate students. Grade obtained in this course determines eligibility for advanced accounting courses.

199. PUBLIC UTILITY AND INSTITUTIONAL ACCOUNTING. 2 cr. Application of the general principles of accounting to public utilities and to public and private institutions, such as clubs, colleges, foundations, and hospitals. Prerequisite: Commerce 9.

241. ADVANCED PROBLEMS IN ACCOUNTING. 2 cr. Designed for non-accounting major graduate students in the School of Commerce. Advanced work in the various fields of accounting is covered through extensive reading, class discussion, and problem material. Prerequisite: Commerce 9. Staff.

282. ADVANCED COST ACCOUNTING. II; 3 cr. Recent development in cost procedures with special emphasis on cost analysis, standard and distribution costs, uniform cost systems and trade association accounting. Prerequisites: Commerce 182a and graduate standing. Mr. Gibson.

283. SEMINAR IN ACCOUNTING. Yr; 2 or 4 cr. Prerequisites: Graduate standing and consent of instructor. Staff.

284. ADVANCED AUDITING. II; 3 cr. Audits of certain specialized businesses, special investigations, reorganization and refinancing problems. Securities and Exchange Commission and State Securities Commission requirements. Prerequisites: Commerce 184 and graduate standing. Staff.

BANKING AND FINANCE

105. MONEY AND BANKING. I, II; 3 cr. Monetary and banking principles and practice; price theories; banking systems and their operation. Prerequisite: Economics 1a. Mr. Morton and staff.

107. MANAGEMENT OF BANK FUNDS. I; 3 cr. Principles involved in securing a workable compromise between the conflicting needs for liquidity and income; thus concerned with internal management policies relating to primary and secondary reserves, loans, investments, deposits, capital, and meeting needs of community. Prerequisite: Commerce 105. Mr. Fraine.

110. INVESTMENT PRINCIPLES. I; 3 cr. The investor with relation to problems of financing business and government. Investment policy principles for both individual and institutional investors. Prerequisite: Commerce 137. Mr. Fraine, Mr. Graner.

124a. PUBLIC FINANCE—TAXATION. I, II; 3 cr. Specific taxes which make up the national, state and local systems. Special emphasis on the practical social problems involved. Prerequisites: Economics 1a and junior standing. Mr. Groves.

124b. PUBLIC FINANCE—TAXES, DEBTS, EXPENDITURES. I, II; 3 cr. Social security taxes; revenue other than taxes; Federal-state-local fiscal relationships; public expenditures; public debts; fiscal policy. Prerequisite: Commerce 124a or consent of instructor. Mr. Groves.

133. Financial History of the United States. 3 cr. Monetary and financial institutions and practices from colonial times to the present. Federal, state and municipal finance. Tariff legislation and its financial implications. Prerequisites: Economics 1a and junior standing. Mr. Morton.

137. Corporation Finance. I, II; 3 cr. Corporate organization and control; corporation securities; management of fixed capital, working capital and income; reserve, surplus, and dividend policies; investment banking and securities market; failure and reorganization. Prerequisite: Commerce 9. Mr. Graner and staff.

143. The Securities Market. I; 3 cr. Problems of investment bankers, dealers, brokers. Functions of organized markets and over-the-counter markets. Mechanics of trading. Margin trading and short selling. Regulation of stock issues and manipulation. Prerequisite: Commerce 137. Mr. Graner.

147. Evaluation of Investment and Credit Risks. II; 3 cr. Financial analysis useful for selection of securities to fit variety of investment requirements and for credit and capital commitments by banks and industrial concerns. Prerequisite: Commerce 137. Mr. Fraine.

153. International Finance. I; 3 cr. Theory and recent experience in currency standards, international banking, exchange fluctuations, and exchange controls. International monetary co-operation, and special topics. Prerequisite: Commerce 156, Commerce 105 recommended. Mr. Morgan.

159. Modern Corporate Problems. II; 3 cr. Dispersion of stock ownership; separation of ownership and control; changing managerial motivation; legal vs. actual position of stockholders, directors, management; changing theory of profits and property; changing methods of financing expansion; the new entrepreneur-corporate reorganization—emphasis on particular firms and industries. Prerequisite: Commerce 137. Mr. Graner.

176. Real Estate Finance. II; 3 cr. Mr. Ratcliff, Mr. Andrews. See Real Estate, p. 329.

191. The Credit System. II; 3 cr. Operations and policies of commercial and central banks. Domestic and international credit relationships. Prerequisite: Commerce 105. Mr. Morton or Mr. Earley.

192. Money, Income and Prices. I; 3 cr. Monetary standards, the value of money, monetary equilibrium, employment, output and prices, international equilibrium, rates of exchange, monetary policy and public finance. Prerequisite: Commerce 105. Mr. Morton or Mr. Earley.

193. Full Employment Policies. II; 3 cr. Monetary, banking, credit and fiscal policies. Monopoly, competition and the national debt. Price rigidities, flexibilities, and policies affecting output and employment. Prerequisite: Economics 1b or Commerce 105. Mr. Morton.

205. Banking and Monetary Theory. Yr; 2 cr. Monetary policy, prices, capital formation, and economic activity. Liquidity, solvency, the gold standard, managed currency, stability, inflation and deflation. Prerequisites: A course in economic theory and the equivalent of Commerce 191 or 192. Mr. Morton.

224. Seminar in Public Finance. Yr; 2 cr. Advanced study of public finance problems and literature, research subject matter changes from year to year; seminar may be repeated. Prerequisites: Graduate standing and Commerce 124 or consent of instructor. Mr. Groves.

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. Prerequisite: Open to graduate students with a major or minor in finance. Mr. Fraine, Mr. Graner.

242. Advanced Problems in Finance. For graduate students who have had basic work but not a major in finance. Present developments and controversial theories in the field of finance. Financial problems related to the other fields. Prerequisites: Commerce 105 and 137 or consent of instructor. Mr. Fraine.

BUSINESS LAW

109a. COMMERCIAL LAW. I, II; 3 cr. History of legal development, contracts, agency, negotiable instruments and insurance. Prerequisite: Second-semester junior standing (at least 72 cr.). Mr. Schuck.

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

161. PROBLEMS IN INSURANCE AND REAL ESTATE. II; 2 cr. Advanced course in problems of organization and management of estates and trusts, the conveyance of property, and related topics. Prerequisite: Commerce 109a. Mr. Schuck.

166. PROPERTY, WILLS, TRUSTS, ESTATES AND TAXATION. II; 3 cr. Law of property as related to bailments, carriers, negligence, surety, guaranty and insurance; wills and trusts and estates and the taxation thereof by state and Federal governments; estate planning and business insurance. Prerequisite: Commerce 109a. Mr. Schuck.

BUSINESS TEACHER EDUCATION

*63. BEGINNING TYPEWRITING. I; 2 cr. Basic typewriting skills; simple business-letter forms, introduction to centering and tabulation. Prerequisite: Junior standing. Mr. Hosler, Mr. Kessel.

*64. ADVANCED TYPEWRITING. II; 2 cr. Vocational competency in typewriting; business-letter forms, manuscript writing; rough drafts; financial reports; legal documents; composition on the typewriter. Prerequisite: Commerce 63 or its equivalent. Mr. Hosler, Mr. Kessel.

*65. FUNDAMENTALS OF SHORTHAND. I; 4 cr. Principles of Gregg shorthand; speed-building program based on simple business letters. Prerequisite: Junior standing. Mr. Hosler, Mr. Kessel.

*66. ADVANCED SHORTHAND. II; 4 cr. An intensive course in taking dictation at high speeds; introduction to transcription. Prerequisite: Commerce 65 or its equivalent. Mr. Hosler.

*163. SECRETARIAL TECHNIQUES. I; 3 cr. Shorthand, typewriting, and English in the transcription of letters; duties and responsibilities, and personal qualities of the secretary; human relations in the business office. Prerequisites: Commerce 64 and 66 or equivalent. Mr. Hosler, Mr. Kessel.

*164. OFFICE PROCEDURES. II; 3 cr. Filing systems; business machines; operation of computing, duplicating, and transcribing machines; office management. Prerequisites: Commerce 64 and 66. Mr. Hosler, Mr. Kessel.

EDUC. 20. THE TEACHING OF SECRETARIAL SUBJECTS. I; 2–5 cr.

EDUC. 77. THE TEACHING OF BOOKKEEPING AND THE SOCIAL BUSINESS SUBJECTS. II; 2–5 cr.

FOREIGN TRADE

151. ECONOMIC PROBLEMS OF LATIN AMERICA. I or II; 2 cr. Economic characteristics of the principal Latin-American countries, and economic problems which confront them. Prerequisite: Economics 1a. Mr. Morgan.

155. FOREIGN TRADE PRACTICES. 3 cr. Practical problems and procedures encountered in forgein trade: (1) company trading policies and practices, (2) commercial facilities available to foreign traders, and (3) general policy and administrative framework within which foreign traders do business. Prerequisites: Economics 1a and junior standing. Mr. Westing, Mr. Werner.

156. INTERNATIONAL TRADE. I, II; 3 cr. Development of international trade and finance,

* Enrollment for credit in these courses is limited to those students enrolled in Business Teacher Education major.

and theory applied to them, since mercantilist times; major current problems in international economic relations. Prerequisite: Economics 1a. Mr. Ellsworth, Mr. Morgan.

157. INTERNATIONAL ECONOMIC POLICY. II; 3 cr. Policies relating to trade, balance of payments, employment, with special emphasis on recent developments and on the role played by the U.S. Prerequisite: Commerce 156. Mr. Ellsworth.

253. SEMINAR IN INTERNATIONAL ECONOMICS. Yr; 2 cr. Individual or group research on chosen topics; discussion of procedures and results. Prerequisites: Graduate standing and consent of instructor. Mr. Ellsworth.

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.

280. READING AND RESEARCH IN BUSINESS SUBJECTS. Yr; *cr. Both during regular session and in the inter-session periods individual work suited to the needs of graduate students may be arranged. Prerequisite: Graduate standing. Staff.

INDUSTRIAL MANAGEMENT

111. INDUSTRIAL MANAGEMENT. I, II; 3 cr. The scientific-management movement, principles of organization, plant location, plant design, the physical background as to work, plant layout, materials handling, procurement, plant maintenance, stores-keeping, inventory control, classification and identification, industrial safety and hygiene. Prerequisites: Economics 1a and junior standing. Mr. Kubly.

117. PRODUCTION PLANNING AND CONTROL. I, II; 3 cr. Product design; research; standardization, simplification and diversification of the line; inspection problems; operation analysis; wage-payment plans; economic lot sizes; budgetary control; sales forecasting; routing, scheduling, and dispatching. Prerequisite: Commerce 111. Mr. Kubly.

119. INDUSTRIAL MARKETING. I; 2 cr. (See Group VI, MARKETING.)

134. INDUSTRIAL STATISTICS. II; 3 cr. (See Group XI, STATISTICS.)

171. PERSONNEL MANAGEMENT. I, II; 3 cr. (See Group V, LABOR MANAGEMENT.)

182a and b. COST ACCOUNTING. I, II; 4 cr. (See Group I, ACCOUNTING.)

211. SEMINAR IN INDUSTRIAL MANAGEMENT. Yr; 2 cr. For graduates in Commerce. Students are assigned special problems in the field of advanced management. Prerequisite: Consent of instructor. Mr. Kubly.

243. ADVANCED PROBLEMS IN INDUSTRIAL MANAGEMENT. II; 2 cr. For graduate students in the School of Commerce other than majors in industrial management. Emphasis is on selected readings and case studies. Prerequisites: Basic course and consent of instructor. Mr. Sullivan.

See also related courses in bulletins of the College of Engineering and College of Letters and Science.

LABOR MANAGEMENT

122. LABOR PROBLEMS. I, II; 3 cr. The problems of labor in the American "market economy" with special regard to the group organizations of labor and management, their inter-relations and relations to the government. Prerequisites: Economics 1a and junior standing. Mr. Young.

123. LABOR LEGISLATION. II; 3 or 4 cr. Government regulation of labor conditions: child labor, wage and hour laws; accident and unemployment compensation; old age insurance; the law of collective bargaining. Prerequisites: Economics 1a and junior standing. Miss Brandeis.

145. American Labor History. I, II; 3 cr. American labor movement's historical experiment with the temper of the American community, political and legal institutions and with the psychology of labor. Labor's contributions to collective democracy. Prerequisites: Economics 1a and junior standing. Mr. Perlman.

171. Personnel Management. I, II; 3 cr. Policies and practices in personnel management. Provides a point of view together with principles and techniques applicable to personnel problems. Problems arising in employment relationships and workable solutions. Prerequisite: Economics 1a. Mr. Belcher.

172. Management and Labor Relations. II; 3 cr. Principles and methods of collective bargaining and contract administration. Illustrative topics: Legal setting, preparing for negotiation, techniques of bargaining, preparing contract clauses, etc. Prerequisite: Commerce 171. Mr. Belcher.

173. Wage and Salary Administration. I; 3 cr. Policies and procedures effective in administration of wages and salaries. Wage levels, wage structures, individual wage determination, methods of wage payment, fringe benefits, control of wages and salaries are some of topics covered. Prerequisite: Commerce 171. Mr. Belcher.

174. Advanced Personnel Management. II; 3 cr. Evaluation of procedures and techniques in the major functions of personnel management. Administrative aspects and review and appraisal emphasized. Prerequisite: Commerce 171. Mr. Belcher.

244. Advanced Problems in Labor Management. 2 cr. For graduate students in the School of Commerce other than majors in Labor Management. Covers advanced work in the field of labor management. Emphasis on problems. Prerequisite: Consent of instructor. Mr. Belcher.

271. Seminar in Management-Labor Relations. Yr; 2 cr. Designed to present an advanced analysis into the implications and consequences of policies and techniques in industrial relations and personnel management. Research and current literature emphasized. Prerequisite: Consent of instructor. Mr. Belcher.

MARKETING

★6. Business Communication. I, II; 3 cr. Practical application of good letter-form and effective communication principles to current business situations; special attention to organization and presentation of business reports; trends and techniques in modern business communication. Prerequisite: Junior standing. Mr. Petersen.

★112. Marketing Methods. I, II; 3 cr. Introduction to the fundamentals of marketing. Functions, institutions, and problems examined from the point of view of their impact on the distribution of goods. Prerequisites: Junior standing or second-semester pre-Journalism sophomores. Mr. Westing and staff.

113. Problems in Market Analysis. I; 3 cr. Methods of marketing research and analysis which may be used by manufacturers, wholesalers, retailers, and advertising media. Prerequisites: Commerce 114 and upper-group status. Mr. Westing, Mr. Werner.

114. Marketing Management. II; 3 cr. Marketing organizations, planning and execution of sales programs and campaigns, control and supervision of the sales force, product research and development. Prerequisite: Commerce 112. Mr. Westing, Mr. Fine.

★115. Principles of Advertising. II; 3 cr. Advertising presented from the businessman's point of view; consideration of the social and economic aspects of advertising; advertising media; practical advertising problems; co-ordination of advertising and other marketing activities. Prerequisite: Commerce 112. Mr. Petersen.

116. Problems in National Advertising. I; 3 cr. Advanced course in techniques of advertising; advertising agencies; copy and layout; budgeting and scheduling; development and presentation of campaigns; measuring the effectiveness of advertising. Prerequisites: Commerce 112 and 115, or Commerce 112 and Journalism 115. Mr. Petersen.

118. Radio and Television Advertising. II; 3 cr. Radio and television as advertising media; selection of time and talent, preparation of copy, building an audience, selling of time, merchandising, audience measurement, and government regulation. Prerequisite: Commerce 115 or Journalism 115. Mr. Dunn.

119. Industrial Marketing. I; 2 cr. Principles and practices in distributing goods to the industrial market. Industrial procurement techniques, agencies and middlemen in the sale of industrial goods, technique of analyzing the industrial market, service policies employed by industrial marketers and promotional, credit and inventory policies. Prerequisites: Commerce 112 and 114 (or consent of instructor in lieu of 114). Mr. Fine.

120. Price Policies. II; 3 cr. Practices and principles in establishing prices; pricing practices including quantity discounts, geographical price discrimination, joint cost problems, administered pricing, competitive pricing, and promotion as affected by pricing. Practical application of economic theories of pricing. Prerequisites: Upper-group status and consent of instructor. Mr. Werner.

126. Retail Advertising Campaigns. I; 3 cr. Planning and executing retail advertising campaigns. Objectives, research, and media selection. Preparation of copy. Relations with other departments and manufacturers. Prerequisite: Commerce 115 or Jouralism 115. Mr. Dunn.

170. Retail Merchandising. I; 3 cr. Principles and problems emphasizing the management position; organization; and general policies. Buying, planning, stock control, sales promotion; personnel administration; store operation; budgeting and expense control. Prerequisite: Commerce 112. Mr. Fine.

197. Sales Forecasting and Measurement. I, II; 3 cr. Making and using the sales forecast and the sales budget. External and internal data for sales measurement and forecasting. Techniques of sampling applied to marketing problems. Analytical tools used in sales control. Emphasis is on application of techniques. Prerequisite: A course in statistics. Mr. Werner.

198. Public Relations and Problems in Distribution. II; 3 cr. Public relations as a tool in marketing. Current problems in the field of distribution. Prerequisites: Commerce 170 or 114 and upper-group status. Mr. Fine.

213. Seminar in Marketing. Yr; 2 cr. Marketing institutions and practices. Special attention given to the increasing role played by legislation and administrative agencies in marketing affairs. Issues are studied in the setting of business problems described in business and trade periodicals. Prerequisites: Graduate standing and consent of instructor. Mr. Westing.

245. Problems in Marketing. II; 3 cr. For non-marketing major graduate students in the School of Commerce. The course covers the major areas of advanced work in the field of marketing. Extensive reading is required. Discussion relates to problems rather than descriptive material. Prerequisite: Commerce 112 or consent of instructor. Mr. Westing, Mr. Fine.

PUBLIC UTILITIES AND TRANSPORTATION

135. Economics of Transportation. I; 3 cr. History and growth of all forms of transportation: their organization and operation, economic characteristics and present position in the economic system. General principles of pricing and rate and service regulation. Prerequisite: Economics 1a. Mr. Thatcher.

136. Economics of Transportation. II; 3 cr. Continuation of Commerce 135 with emphasis on the basic considerations underlying current problems of regulation and operation. Prerequisite: Commerce 135, or consent of instructor. Mr. Thatcher.

142. Public Utilities. I, II; 3 cr. Development of public utilities in the United States. Institutional basis of public utility regulation. Regulatory agencies, their instrumentalities and policies. Public and private initiative in the planning and execution of policies for conservation and utilization of natural resources. Prerequisite: Economics 1a. Mr. Glaeser.

168. HIGHWAY TRANSPORTATION. I; 3 cr. Economic aspects of highway development, financing of highway construction, supervision of motor-vehicle traffic, and regulation of highway common carriers. Prerequisite: Economics 1a. Mr. Thatcher.

169. AIR TRANSPORTATION. II; 3 cr. Commercial or business side of the industry, domestic and foreign; Federal regulation; control and management of airports; problems relating to passenger, mail, express and freight service; place of the industry in national transportation program. Prerequisite: Economics 1a. Mr. Thatcher.

189. INDUSTRIAL AND COMMERCIAL TRAFFIC PRINCIPLES. I; 3 cr. Principles and practices applicable to all carriers and problems peculiar to each type—railroad, highway, water and air. Among topics considered are: carrier's liability; insurance; freight classification; freight rates, etc. Transit privileges and government regulation. Prerequisite: Commerce 135 or consent of instructor. Mr. Thatcher.

195. PUBLIC UTILITY MANAGEMENT. I; 3 cr. Survey of management problems. Accounting and statistical controls. Economics of regulated monopoly price, cost analyses and differential rates. Financial policies. Labor problems. Prerequisite: Commerce 142. Mr. Glaeser.

246. PROBLEMS IN PUBLIC UTILITIES AND TRANSPORTATION. 3 cr. Designed for graduate students in the School of Commerce other than majors in public utilities and transportation. Emphasis will be on selected readings and case studies. Prerequisite: Commerce 142 or Commerce 135. Mr. Thatcher.

266. SEMINAR IN PUBLIC UTILITIES. Yr; 2 cr. Research in the field of public utilities and transportation. Emphasis will be upon changing and emerging problems. Prerequisite: Graduate standing or consent of instructors. Mr. Glaeser, Mr. Thatcher.

REAL ESTATE AND URBAN LAND ECONOMICS

28. HOME ARCHITECTURE I. I; 3 cr. Principles of space arrangement in the home from the standpoint of family needs and functions. The use of color, lighting, fenestration, and furniture as design features. Prerequisite: Sophomore standing.

29. HOME ARCHITECTURE II. II; 3 cr. Structural systems, use of materials, mechanical equipment; the relating of structure and plan, and the problems of cost estimating. Prerequisite: Home Architecture I or consent of instructor.

30. HOME ARCHITECTURE III. I; 3 cr. A problems course in which each student is required to design a house, draw the plans, write the specifications, and prepare a detailed cost estimate. Open only to students who have had some work in mechanical or architectural drawing. Prerequisite: Home Architecture II or consent of instructor.

175. VALUATION OF REAL ESTATE. I; 3 cr. Economic theories of value applied to real estate; valuation as a guide to business decisions; real estate market which affects value; valuation methods, analysis of evidences of value; appraising residential and income properties. Prerequisite: Commerce 179. Mr. Ratcliff, Mr. Andrews.

176. REAL ESTATE FINANCE. II; 3 cr. Mechanisms of real estate finance, sources of funds, loan contracts, principles of mortgage risk analysis, and the role of governmental agencies. Prerequisite: Commerce 179. Mr. Ratcliff, Mr. Andrews.

177. PROPERTY DEVELOPMENT AND MANAGEMENT. I; 3 cr. Real estate development—selection of sites, financing, provision of utilities and services, design and construction in connection with subdividing, residential community developments, apartment projects, retail centers, and industrial districts. Property management policies and practices, including rent schedules, maintenance, tenant relationships, modernization and problems of unprofitable properties. Prerequisite: Commerce 179. Mr. Ratcliff, Mr. Andrews.

178. HOUSING AND PLANNING PROBLEMS. II; 3 cr. Urban land utilization with special emphasis on public policy and governmental activity in housing and planning—zoning, housing codes, city planning, slum clearance, urban redevelopment, problems of decentralization, housing for families of low income, veterans' housing, and governmental interven-

tion in house financing. The economics of home ownership. Prerequisites: Economics 1a and junior standing. Mr. Ratcliff, Mr. Andrews.

179. Urban Land Economics. I, II; 3 cr. Institutional background of real property, economics of urbanization, forces of demand for urban land, factors of supply, building industry, real estate credit, real estate market, cyclical fluctuation, rents and prices, real estate market analysis, city growth and structure, value and valuation, urban land problems of housing, city planning, land-use control and urban redevelopment. Prerequisites: Economics 1a and junior standing. Mr. Andrews, Mr. Ratcliff.

247. Advanced Problems in Real Estate Management. 3 cr. Advanced real estate problems for MBA candidates only. Basic phases of real estate management are covered—land development, construction industry, real estate finance, mortgage risk analysis, marketing and market analysis, property management, and appraisal. Prerequisite: Commerce 179. Mr. Ratcliff.

279. Seminar in Urban Land Problems. Yr; 2 cr. Special management problems and public policy issues relating to land development and land utilization in urban areas. Application of land theory to specific business, social, and economic problems. Prerequisite: Commerce 179. Mr. Ratcliff.

RISK, INSURANCE, AND ACTUARIAL SCIENCE

121. Property and Casualty Insurance. I, II; 3 cr. Economic services, contracts, benefits, and premiums in the field of fire, marine and casualty insurance. Prerequisite: Commerce 139. Mr. Solberg.

138. Life Insurance. I, II; 3 cr. Public services, mortality tables, premium rates, reserves, policy forms, investments, legal principles, and state supervision in the field of life underwriting. Prerequisite: Commerce 139. Mr. Center.

139. Principles of Insurance. I, II; 3 cr. Designed (1) to precede advanced work in insurance and prerequisite thereto, and (2) to acquaint the non-specialist with the economic and social services of the institution of insurance. Prerequisite: Economics 1a. Mr. Center and staff.

140. Advanced Life Insurance. II; 3 cr. For the student who has had fundamental training in the economic, mathematical, and legal principles of life insurance. Prerequisite: Commerce 138 or consent of instructor. Mr. Center.

141. Group, Pension and Profit-Sharing Plans. II; 3 cr. Economic nature, plans, policy terms, rates and benefits of group insurance. Development, plans, costs, administration, taxation and legal provisions and tables underlying pensions. Examination of deferred and contingent compensation plans with evaluation of organization, costs and benefits. Prerequisite: Commerce 139. Mr. Center.

144. Accident, Health, Hospitalization, Workmens Compensation and Employers Liability Insurance. I; 3 cr. Considers individual and group plans for accident, health, and hospitalization insurance. Analysis of benefits, contract terms and premiums. Social, economic and legal roles of Workmens Compensation and Employers Liability insurance systems. Prerequisite: Commerce 139. Mr. Gaumnitz, Mr. Solberg.

154. Risk and Profit. 3 cr. Nature of economic risk; relation to profit. Functions and operations of the price system. Capital theory. A functional explanation of variations in business profits. Prerequisite: Economics 1b or Commerce 105. Mr. Morton.

160. Advanced Property and Casualty Insurance. II; 3 cr. Problems in fire, casualty and marine insurance and bonding; rates and rating theory, concepts and procedures; rate regulation and supervision of insurance, both state and Federal. Prerequisite: Commerce 121. Mr. Gaumnitz, Mr. Solberg.

162a. Actuarial Theory and Practice. I; 3 cr. Problems in interest and life contingencies. Sinking funds, bond tables, annuity and insurance premiums, valuation of assets and

liabilities. Prerequisites: Commerce 138 and Mathematics 138 recommended. Consent of instructor. Mr. Hunt.

162b. Actuarial Theory and Practice. II; 3 cr. Continuation of Commerce 162a. Prerequisite: Commerce 162a. Hr. Hunt.

239. Seminar in Risk and Insurance. Yr; 2 cr. Research investigations in risk and insurance. Prerequisite: Graduate standing or senior standing with consent of instructor. Mr. Center.

248. Advanced Problems in Risk and Insurance. I; 2 cr. A course for non-specialists. Consideration of current problems of the insurance industry in internal management, financing, relations with other major industries, the public and government. Prerequisite: Commerce-Economics 139 or consent of instructor. Mr. Center.

See Business Law for description—Com. 166—Property, wills, trusts, estates and taxation.

See Economics Department for Econ. 121—Social security.

See Department of Mathematics for Math. 24—Theory of life insurance, and Math. 138—Actuarial mathematics.

STATISTICS

31. Business Statistics. I, II; 3 cr. Elementary theory and techniques of statistical methods in application to typical production, distribution, accounting and general administrative problems of business organization. Prerequisites: Economics 1a and registration in the School of Commerce, or consent of instructor. Mr. Fox.

132. Statistical Economics. I; 3 cr. Applications of methods to problems of the students' interest. Reports and forecasts of business firms, bureaus, and agencies. Prerequisite: A course in statistics. Mr. Gaumnitz.

134. Industrial Statistics. II; 3 cr. Elementary probability, statistical quality control, sampling methods. Emphasis on applications in manufacturing. Prerequisite: A course in statistics or junior standing in the College of Engineering.

196. Advanced Statistical Technique. I; 3 cr. Intermediate and advanced methods of analyzing data; statistical inference; analysis of variance; correlation procedures. Prerequisite: A course in statistics. Mr. Fox.

197. Sales Forecasting and Measurement. I, II; 3 cr. Sales forecast and the sales budget. External and internal data for sales measurement and forecasting. Techniques of sampling applied to various marketing problems. Analytical tools used in sales control. Emphasis on application of techniques to actual situations. Prerequisite: A course in statistics.

230. Seminar in Statistical Research. Yr; 2 cr. Co-operative research in one or more economic problems; each member of the class concentrates on a selected phase of the common subject. Mr. Gaumnitz.

See also the following courses in the Mathematics department:

Math. 20, 21, 22—Calculus and analytic geometry

Math. 118—Introduction to the theory of probability

Math. 133—Finite differences and interpolation

Math. 134—Mathematics of elementary statistics

Math. 135—Introduction to statistical methods in the natural sciences

Math. 137a—Mathematical statistics

Math. 138—Actuarial mathematics.

OTHER BUSINESS COURSES

43. Business Ethics. I, II; 2 cr. The rules of fair competition; standards of fair service; fair price, fair wage and the justice of the present system of distributing wealth. Prerequisite: Sophomore standing. Mr. Fox.

148. Business Policy. II; 3 cr. Integration of background acquired by the student from such varied fields of instruction as accounting, finance, industrial management, insurance, labor management, law, and marketing. Top management problems emphasized. Discussion of actual business cases. Prerequisites: Senior or graduate standing and consent of instructor. Mr. Fraine and staff.

158. Large-Scale Enterprise. II; 3 cr. The modern industrial structure; competition and concentration; combinations and cartels; economic and legal restrictions on size. Prerequisites: Economics 1a and consent of instructor. Mr. Wilmot.

240. General Seminar. I, II; 1 cr. Examination of current literature in all fields of management. Required of all Master of Business Administration candidates. Staff.

SCHOOL OF EDUCATION

LINDLEY J. STILES, *Dean*

FACULTY

ANDERSON, CHARLES JOSEPH, *Ph.D., LL.D.*, Emeritus Dean of the School of Education; Emeritus Professor of Education

ANDERSON, DONALD MEYERS, *M.A.*, Associate Professor of Art Education

ANDERSON, JOHN EUGENE, *M.S.*, Associate Professor of Physical Education

ANNEN, MRS. HELEN WANN, *M.S.*, Professor of Art Education

ARNOLD, MRS. GWEN FREUND, *Ph.D.*, Associate Professor of Education

BACH, E. FRANK, *M.A.*, Assistant Professor of Education; also Wisconsin High School

BAKER, RACHEL, *Ph.D.*, Assistant Professor of Education

BARR, ARVIL SYLVESTER, *Ph.D.*, Professor of Education

BASSETT, GLADYS BARTON, *M.A.*, Associate Professor of Physical Education

BAUER, GEORGE VICTOR, *M.S.*, Assistant Professor of Physical Education

BENSON, CAROLYN R., *B.S.*, Instructor in Physical Education

BEST, JAY RILEY, *M.S.*, Assistant Professor of Physical Education; also Intercollegiate Athletics (Track and Cross-Country Coach)

BJORAKER, WALTER THOMAS, *Ph.D.*, Associate Professor of Agricultural and Extension Education and of Education

BORCHERS, GLADYS LOUISE, *Ph.D.*, Professor of Education and of Speech; also Wisconsin High School

BORROWMAN, MERLE L., *Ed.D.*, Assistant Professor of Education

BOUMAN, HARRY DAN, *M.D.*, Professor of Physical Medicine; Director, Course in Occupational Therapy

BROWN, JOHN ARTHUR, *M.S.*, Teacher of Mathematics, Wisconsin High School

BURNS, SAMUEL THOMPSON, *Ph.D.*, Professor of Education and of Music

CARNS, MARIE LOUISE, *M.D.*, Professor of Physical Education; Director, Course in Physical Education for Women

CAVANAGH, GLADYS LOUISE, *M.S.*, Assistant Professor of Library Science

COLESCOTT, WARRINGTON WICKHAM, *M.A.*, Assistant Professor of Art Education

CRONIN, KATHERINE LUCILE, *M.A.*, Associate Professor of Physical Education

CUMBEE, FRANCES Z., *Ph.D.*, Specialist (Counselor) School of Education

DALRYMPLE, JULIA I., *Ph.D.*, Professor of Education and of Home Economics Education

DAVIS, IRA CLEVELAND, *M.A.*, Professor of Education; also Wisconsin High School (on leave 1955–56)

DAWE, HELEN CLEVELAND, *Ph.D.*, Professor of Home Economics (Nursery School)

DIEKROEGER, EMMA M., *M.A.*, Teacher-Librarian, Wisconsin High School

DVORAK, RAYMOND FRANCIS, *D.M.*, Professor of Music

EASTHAM, LORA JANE, *M.S.*, Instructor in Physical Education

EBERMAN, PAUL WILMOT, *Ph.D.*, Associate Professor of Education

EDGERTON, ALANSON HARRISON, *Ph.D.*, Professor of Education

ESTVAN, FRANK JOHN, *Ph.D.*, Associate Professor of Education

EYE, GLEN GORDON, *Ph.D.*, Professor of Education

FEE, F. MARY, *M.S.*, Assistant Professor of Physical Education

FOWLKES, JOHN GUY, *Ph.D.*, Professor of Education (on leave 1955–56)

FRANCIS, ROBERT JAY, *Ph.D.*, Professor of Physical Education

GALE, CALVIN WILLIAM, *B.A.*, Teacher of Science, Wisconsin High School

GAUGER, PAUL WILLIAM, *Ph.D.*, Assistant Professor of Education; also Wisconsin High School

GLASSOW, RUTH BERTHA, *M.A.*, Professor of Physical Education
GOLDGRUBER, JOHN JACOB, *M.S.*, Principal, Wisconsin High School; Instructor in Education
GORDON, EDGAR BERNARD, Emeritus Professor of Music
GREGG, RUSSELL TAAFFE, *Ph.D.*, Professor of Education
GRILLEY, ROBERT LEROY, *M.S.*, Associate Professor of Art Education
GROSS, KATHERINE FRANCES, *M.A.*, Instructor in Physical Education
HALVERSON, LOLAS E., *M.S.*, Instructor in Physical Education
HARRIS, CHESTER WILLIAM, *Ph.D.*, Professor of Education
HARRIS, THEODORE LESTER, *Ph.D.*, Associate Professor of Education
HAWES, JOSEPH BYRON, *B.M.*, Instructor in Physical Education (Women)
H'DOUBLER, MARGARET NEWELL, (MRS. WAYNE CLAXTON), *M.A.*, Emeritus Professor of Physical Education
HENDERSON, RUTH ADELE, *M.A.*, Professor of Education; also Wisconsin High School
HERRICK, VIRGIL EVERETT, *Ph.D.*, Professor of Education
HICKMAN, JOHN COMAR, *Ph.D.*, Instructor in Physical Education; also Intercollegiate Athletics
HILL, HENRY BERTRAM, *Ph.D.*, Professor of History; also Extension Division
HOARD, MARJORIE JEAN, *M.A.*, Teacher of English, Wisconsin High School
HOSLER, RUSSELL JOHN, *Ed.D.*, Professor of Education and of Commerce; Chairman, Department of Education; also Wisconsin High School
HUTCHINS, HERIOT CLIFTON, *Ph.D.*, Assistant Professor of Education and Coordinator of Recreation Curriculum
HYDE, PATRICIA L., *M.S.*, Instructor in Physical Education
IVERSON, MAURICE THEOBALD, *Ph.D.*, Assistant Professor of Education; also Extension Division
JAMES, JOHN AMBROSE, *B.S.*, Emeritus Professor of Agricultural and Extension Education and of Education
JENSEN, KAI, *Ph.D.*, Professor of Education
JOACHIM, FREDERICK GEORGE, *M.D.*, Instructor in Anatomy
JOHNSON, MRS. KAREN FALK, *M.A.*, Teacher of History, Wisconsin High School
JOHNSON, LAURA BUTLER, *M.A.*, Professor of Education; also Wisconsin High School
JOHNSON, RUTH MARGARET, *Ph.M.*, Emeritus Teacher of History, Wisconsin High School
JUOLA, ARVO E., *Ph.D.*, Lecturer in Education (1955–56)
JUSTICE, ERNEST, *M.S.*, Teacher of Music, Wisconsin High School
KENNEDY, JOSEPH WILSON, *B.S.*, Teacher of Mathematics, Wisconsin High School
KESSEL, ROBERT MANLEY, *M.S.*, Instructor in Commerce; also Wisconsin High School
KLAUSMEIER, HERBERT JOHN, *Ed.D.*, Associate Professor of Education
KLOEPPER, LOUISE OLGA, *B.S.*, Associate Professor of Physical Education
KREILICK, MARJORIE ELLEN, *M.A.*, Instructor in Art Education
KREITLOW, BURTON WILLIAM, *Ph.D.*, Professor of Education and of Agricultural Extension Education
KRUG, EDWARD AUGUST, *Ed.D.*, Professor of Education
LACY, EDGAR WILSON, *Ph.D.*, Professor of English
LARSON, NAOMI LILLIAN, *M.S.*, Teacher of Home Economics, Wisconsin High School
LENGFELD, FRED EDWARD, *M.S.*, Specialist (Counselor) School of Education
LIBA, MARIE R., *M.S.*, Instructor in Physical Education
LIDDLE, CLIFFORD STANLEY, *Ph.D.*, Professor of Education (on leave 1955–56)
LITTLE, JAMES KENNETH, *Ph.D., LL.D.*, Professor of Education; Vice-President of Student Affairs
LITTLETON, HARVEY KLINE, *M.F.A.*, Assistant Professor of Art Education
LOGAN, FREDERICK MANNING, *M.A.*, Professor of Art Education; Chairman, Department of Art Education and Applied Art
LOW, CAMILLA MARCIA, *Ed.D.*, Professor of Education
MANSFIELD, ARTHUR WILLIAM, *M.S.*, Professor of Physical Education; also Intercollegiate Athletics (Baseball Coach)

MARTIN, GEORGE ALFRED, *B.S.*, Associate Professor of Physical Education; also Intercollegiate Athletics

MARX, ROBERT ERNST, *M.F.A.*, Instructor in Art Education; also Extension

MAYOR, JOHN ROBERTS, *Ph.D.*, Professor of Education and of Mathematics; also Wisconsin High School (on leave 1955–56)

MCCANSE, MRS. JESSIE H., *M.A.*, Teacher of History, Wisconsin High School

MEEKER, DEAN JACKSON, *M.F.A.*, Associate Professor of Art Education

METZEN, HAROLD ARTHUR, *M.S.*, Instructor in Physical Education; also Wisconsin High School

MEYER, ROSE MARIE, *B.S.*, Instructor in Physical Education

MILLER, GEORGE H., *M.A.*, Teacher of Speech, Wisconsin High School

MINKS, JOYCE E., *B.S.*, Instructor in Physical Education

NOHR, ROBERT, *B.S.*, Professor of Physical Education; Director, Course in Physical Education for Men

O'CONNELL, ALICE L., *M.Ed.*, Instructor in Physical Education

OLSON, CHESTER PALMER, *M.S.*, Teacher of Science, Wisconsin High School

PAXTON, J. RUSSELL, *M.M.*, Assistant Professor of Education and of Music; also Wisconsin High School

PAYNE, JAMES R., *M.S.*, Teacher of Industrial and Fine Arts, Wisconsin High School

PELLA, MILTON ORVILLE, *Ph.D.*, Associate Professor of Education; also Wisconsin High School

PETERSON, LEROY JAMES, *Ph.D.*, Professor of Education

PETZOLD, ROBERT GEORGE, *Ph.D.*, Assistant Professor of Education and of Music

PHILLIPS, BURR WENDELL, *M.A.*, Professor of Education and of History; also Wisconsin High School

PURVES, JAY L., *M.S.*, Teacher of Physical Education, Wisconsin High School

RARICK, G. LAWRENCE, *Ph.D.*, Professor of Physical Education

RHUE, SARA ANN, *Ph.D.*, Associate Professor of Education

RICHTER JOHN G., *M.S.*, Teacher of Industrial and Fine Arts, Wisconsin High School

RIPPE, RUSSELL, *M.S.*, Professor of Physical Education; also Intercollegiate Athletics and Wisconsin High School

ROSS, ANNE K., *M.S.*, Instructor in Physical Education

ROTHNEY, JOHN WATSON MURRAY, *Ed.D.*, Professor of Education

SANGER, CARL EDGAR, *M.S.*, Associate Professor of Physical Education; also Extension Division and Intercollegiate Athletics

SCHADE, MAJA LORE, *M.S.*, Associate Professor of Physical Education

SCHENK, RACHEL KATHERINE, *M.A.*, Associate Professor of Library Science; Director, Library School

SCHINNELLER, JAMES ARTHUR, *M.F.A.*, Instructor in Art Education; also Wisconsin High School

SCHLEGELMILCH, WILLIAM LEON, *M.A.*, Teacher of English, Wisconsin High School

SCHWALBACH, JAMES A., *M.S.*, Assistant Professor of Agricultural Extension Education and the Cultural Arts, and of Art Education; also Radio and TV Education

SEARLES, JOHN REXFORD, *Ph.D.*, Associate Professor of Education and of English; also Wisconsin High School

SESSLER, ALFRED, *M.S.*, Associate Professor of Art Education

SHAFER, LYDIA ZIEMANN (MRS. A. J.), *M.A.*, Instructor in Physical Education and Assistant to the Director

SHANNON, THEODORE JOSEPH, *M.A.*, Lecturer in Education; also Director of Special Classes, Extension Division

SIGGELKOW, RICHARD A., *Ph.D.*, Assistant Professor of Education; Associate Director of Teacher Placement Bureau

SKOUGE, ROBERT KENNETH, *B.S.*, Teacher of Speech, Wisconsin High School

SLEDGE, GEORGE W., *Ed.D.*, Assistant Professor of Agricultural and Extension Education and of Education

SLOAN, MURIEL ROSE, *M.S.*, Instructor in Physical Education
SOUTHWORTH, WARREN HILBOURNE, *Dr. P.H.*, Professor of Education
SPRINGHORN, RITA KATHERINE, *Ph.B.*, Teacher of English, Wisconsin High School
STANLEY, JULIAN CECIL, *Ed.D.*, Associate Professor of Education (on leave 1955–56)
STEBBINS, ROLAND STEWART, *R.M., A.A.*, Emeritus Professor of Art Education
STEFFEN, MARGARET M., *M.S.*, Assistant Professor of Education and of Home Economics
STILES, LINDLEY JOSEPH, *Ed.D.*, Dean of the School of Education; Professor of Education
THOMPSON, CAROLINE GOSS, *B.A.*, Assistant Professor of Physical Medicine; Adviser to Students in the Course in Occupational Therapy
TORGERSON, THEODORE L., *Ph.D.*, Emeritus Professor of Education
TREUENFELS, EDITH SOPHIE, *M.A.*, Teacher of Mathematics, Wisconsin High School
TRILLING, BLANCHE MATHILDE, *B.A.*, Emeritus Professor of Physical Education
TRUMP, PAUL LEROY, *Ph.D.*, Associate Professor of Education; Director of Admissions
VAN DER STOK, ANNIE ALETTA, *M.S.*, Instructor in Physical Education
VIERTHALER, ARTHUR AUGUST, *M.S.*, Assistant Professor of Art Education
WATERLAND, JOAN C., *M.S.*, Instructor in Physical Education
WEBER, LYNDA MARGUERITE, *M.A.*, Emeritus Assistant Professor of Education
WEIGHTMAN, ESTHER, *M.A.*, Instructor in Education; also Wisconsin High School
WEINBERG, LOUIS, *M.S.*, Assistant Professor of Art Education
WESSELS, DEAN HERMAN, *B.S.*, Teacher of Science, Wisconsin High School
WHITE, MRS. DORIS GNAUCK, *M.S.*, Teacher of Science, Wisconsin High School
WHITE, FREDERICK ALLISON, *Ph.D.*, Assistant Professor of Education; also Extension Division
WHITE, HARRY DONALD, *Ph.D.*, Assistant Professor of Art Education; also Chairman of Extension Division Art Education Department
WILDE, JOHN HENRY, *M.S.*, Associate Professor of Art Education
WILSON, DELLA FORD, *M.A.*, Emeritus Professor of Art Education
WITTICH, WALTER ARNO, *Ph.D.*, Professor of Education; also Director, Bureau of Audio-Visual Instruction, Extension Division
WOLF, JACOB GROVE, *Ph.D.*, Assistant Professor of Physical Education
ZAGORSKI, EDWARD JAMES, *M.S.*, Assistant Professor of Art Education
ZAWACKI, EDMUND IGNACE, *Ph.D.*, Associate Professor of Slavic Languages
ZINGALE, SANTOS, *M.S.*, Associate Professor of Art Education
ZUILL, FRANCES LOUISE, *M.A.*, Professor of Home Economics and Associate Dean of the School of Home Economics

SCHOOL OF EDUCATION

LINDLEY J. STILES, 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 faculty of the School of Education is made up of the faculties of the Departments of Education, Art Education, Physical Education for Men and Women, the Course in Occupational Therapy, and those members of the faculties of the departments in the College of Letters and Science, Agriculture, School of Home Economics, and the Medical School who offer courses of junior and senior grade in the teaching of majors and minors.

The School of Education provides professional preparation for teachers of elementary schools and for teachers of academic subjects in junior and senior high schools. It provides preparation for directors of recreation, and for teachers of such special subjects as art, agriculture, business education, home economics, music, physical education, child development, and conservation; also, school librarians, supervisors, principals and superintendents.

The professional preparation 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 and in off-campus schools. 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, and universities, as well as supervisors and administrators.

1. WISCONSIN HIGH SCHOOL

The Wisconsin High School, a six-year secondary school, is maintained by the University as an integral part of the School of Education. The primary purposes of this school are (a) the exemplification of sound educational theory and organization, with special reference to secondary education, and (b) the provision of appropriate facilities for observation and directed teaching.

2. FIELD SERVICES

The School of Education provides for field services of the following types:

1. Visits, on call, to university-trained teachers, in order to assist them with their teaching problems.

2. Participation in conferences, institutes, and professional meetings held within the state.

3. The organization and operation of field clinics, forums, demonstrations, and field conferences.

4. Consultation with school officials and school boards on problems dealing with school buildings, curricula, guidance, organization, administration, special education, etc.

3. EDUCATIONAL LABORATORIES

Laboratories are maintained for research, service, and training in the fields of child development, curriculum, educational diagnosis, learning, and statistics. These laboratories are available for use by graduate students majoring in education and in allied departments, and by superintendents, principals, and teachers in the state.

THE PSYCHO-EDUCATIONAL CLINIC

The Psycho-Educational Clinic is a service and instructional clinic in the field of child study. Children are referred to this clinic on a state-wide basis because of psychological, educational, and behavior problems. For teachers in training it provides an opportunity to study pupils with learning and behavior problems at the elementary and secondary school levels. By participation in the activities of the clinic, teachers enrolled in Education 149 (Practice in psycho-educational clinic), will receive training and experience in the use of clinical procedures involving observation, interviewing, testing and case studies.

THE READING CLINIC

The Reading Clinic provides training in diagnostic and remedial procedures in reading for teachers enrolled in Education 148 (Practice in the reading clinic), and in the related course, Education 127 (Remedial reading). During the summer session, the clinic enrolls children with reading disabilities in grades 3 through 12 two hours per day for a period of six weeks. During the academic year, opportunities for clinical practice in reading are available through arrangements with local schools.

LEARNING LABORATORY

Provisions are made in the Learning Laboratory for research on both individual and group learning processes by advanced graduate students. The laboratory is used for demonstration purposes in several courses in the area of Human Development, Behavior, and Learning, especially Education 118, 208, and 210. Education 206 (Laboratory study of school learning problems), is designed to offer systematic study of laboratory problems and techniques.

THE STATISTICAL LABORATORY

The Statistical Laboratory provides a workroom and calculating machines for the use of students who wish to summarize and analyze data. Instruction in the use of calculating machines is given.

4. BUREAU OF AUDIO-VISUAL INSTRUCTION

The widely varied and growing facilities of the Bureau of Audio-Visual Instruction are available to and are being used in co-operation with undergraduate and graduate training in the fields of education. Bureau facilities include: (1) a film library of 15,011 reels of 16 mm. educational sound and silent motion-picture films; (2) a library of transcriptions, recordings, filmstrips, slides, and related audio-visual instructional materials; (3) portable projection equipment; (4) seven preview rooms for students and faculty; (5) an auditorium completely equipped with projection material; (6) curriculum advisory service for courses in School of Education; (7) demonstration of teaching technique involving audio-visual methods.

The Bureau of Audio-Visual Instruction also teaches off-campus classes in methods of audio-visual instruction; to date held in 57 Wisconsin communities and enrolling a total of 3105 teachers and administrators.

5. THE EDUCATION LIBRARY

Students have access to excellent library and ample study hall facilities in the new Memorial Library. All important modern educational and psychological books and periodicals can be found in the extensive resources of this library. Students may obtain individual assistance with their library problems from the Education Librarian in the Social Studies and Education Reference Department, Room 320A, where the reference tools in the fields of education and psychology are located.

The Occupational Information Center is also located here. Students interested in guidance will find a well-stocked, up-to-date library of references covering vocational guidance.

6. INSTRUCTIONAL MATERIALS CENTER

The Instructional Materials Center, located in the Education Building, contains a wealth of curricular materials for the student of education. The Center contains textbooks and curriculum guides in the areas of instruction which apply to the prospective teacher and the practicing teacher. In the Center there are also free and inexpensive materials and the various audio-visual aids which can enrich the curriculum. This Center is designed as a service agency for all courses in the School of Education.

7. TEACHER PLACEMENT BUREAU

The Teacher Placement Bureau is maintained to conduct in an organized manner the placement of University of Wisconsin seniors prepared for teaching, together with graduate students who are candidates for, or have secured, the master's or doctor's degree. The primary purpose of the service is twofold—to help school officials find the best available qualified teachers and to help place candidates into professional opportunities for which they are most qualified.

This service is available to seniors and graduate students qualified for teaching as well as to experienced elementary and high-school teachers seeking new positions. Requests for elementary, high-school, and college teachers are received from every state and many foreign countries.

In addition to processing calls, the Bureau's staff does extensive individual and group counseling about placement trends in supply and demand, most desirable combinations, community information, and other related areas.

A minimum of a bachelor's degree from Wisconsin, or graduate work for one semester or two summer sessions on campus, is required for registration with the Bureau. No fees or commissions are charged either candidates or school officials for these services.

8. SCHEDERS

Scheders is a club for students in the School of Education. This club was organized in the second semester of the academic year 1947–48. The name is derived as follows: Sch (ool) (of) Ed (ucation) plus ers.

Membership is open to graduate and undergraduate students and to pre-education freshmen and sophomores. The club is both a social and a professional organization, promoting social activities among and between students and faculty members, and the advancement of professional growth and development of prospective teachers. Scheders has two faculty advisers and co-ordinates its program with other activities of the School of Education.

For the meetings the program committee usually has a speaker, a discussion, or a report on some topic of professional interest. With the assistance of the professional educational societies—Phi Lambda Theta and Phi Delta Kappa—Scheders sponsors weekly coffee-hours for all students and the faculty in the School of Education. One of the foremost activities of the club is the sponsorship of the annual School of Education Open House which takes place shortly after the opening of the school year in September. Other activities in which the group takes an active part are: homecoming activities of the School of Education and the Education Careers Conference.

Scheders is a growing organization. It has succeeded in providing an atmosphere of good fellowship and professional growth for prospective teachers on the university campus.

9. HONORARY PROFESSIONAL ORGANIZATIONS

Pi Lambda Theta is a national honor association for women in education, working to foster professional spirit and to seek and maintain the highest standards of scholarship and professional preparation, especially among women. A candidate for membership must have achieved superior scholarship, and shall possess those qualities of integrity, enthusiasm, and energy which will make it possible for her to become a leader in her chosen field. Each candidate must be recommended by members of the faculty of the School of Education.

The national office of Pi Lambda Theta offers two awards yearly of four hundred dollars each. The awards are made for significant research in education, or any aspect of the professional problems and contributions of women, either in education or in some other field. A study may be submitted by any individual, whether or not engaged at present in educational work, or by any chapter or group of members of Pi Lambda Theta.

Alpha Beta Chapter at the University of Wisconsin offers a yearly cash award to a Senior woman in the School of Education, or working for a Teacher's Certificate. The candidate is selected by the faculty of the School of Education on the basis of character, leadership, high scholastic attainment, and promise of future achievement in the field of Education. The amount of the Award is the sum of the income earned by a $1200 Pi Lambda Theta trust fund established by the Wisconsin chapter.

Phi Delta Kappa is a professional fraternity for men in education represented at the University of Wisconsin by Phi Campus Chapter. It was organized to further education at all levels through the concepts of research, service, and leadership, and is based upon two complementary principles:

First: That the lasting betterment of society, especially in a democracy, cannot be wrought without wise conservation and expansion of the capacities of the individual by means of a universal education which utilizes the fruits of research under the guidance of philosophy; and

Second: That the state itself has no higher function than to further human development and happiness by means of education designed to enable each of its members to approximate his spiritual and mental potentialities.

Membership in the fraternity is open to both graduate and undergraduate men who are majoring in the field of education or who are in related fields and who have definitely chosen teaching as their career. Candidates are elected by members of the fraternity on the basis of an outstanding scholastic record, upon the general capacities of the candidate to perform well in all phases of his educational career, and upon an unqualified recommendation by the faculty of the School of Education.

Selection to the fraternity does not provide a panacea for success in education, but is bestowed as sound recognition of accomplishment and of future potential in the field.

Graduation does not end active membership, but merely serves as a springboard for the fulfillment of the responsibilities and obligations of research, service, and leadership in the field of education.

10. FOREIGN STUDENTS

Proficiency in English adequate to the student's needs for his work at the University of Wisconsin is presupposed. Foreign students whose native language is not English must pass an English proficiency examination under the auspices of the Department of English. Students who cannot satisfy this requirement shall be given the status of auditor. However, upon demonstration of the necessary proficiency in English, they may change from auditor to credit status any time during the first eight weeks of the semester. For further information students should consult their academic adviser, the special adviser for foreign students, or the Office of Admissions.

For foreign students who are admitted with junior or senior standing, the general course requirements other than those of the major, or related to the major, may be waived. The major department may make such an arrangement for individual students. Advisers should consult University Document 808 or call the Office of Admissions.

A special office is maintained, at present in Bascom Hall, to assist in the counseling and orientation of foreign students.

11. ADMISSION AND REGISTRATION

1. Students electing a major in Art Education, in Applied Art, in Physical Education, in Occupational Therapy and in Recreation will register in the School of Education at the beginning of the freshman year. Admission requirements for those students (either enter-

ing freshmen or transfers) majoring in Occupational Therapy and in Physical Education for Women include high-school mathematics (one unit algebra, 1 unit plane geometry) which can be made up after admission.

2. Transfer students to the School of Education, except in the Applied Arts curriculum, must have a grade-point average of 2.5 on a 4-point basis.

3. Freshmen and sophomores in the College of Letters and Science who expect to transfer to the School of Education at the junior level to work for the University Teachers' Certificate and qualify to teach in the elementary or secondary school, are required to comply with the general requirements outlined in the bulletin of the College of Letters and Science, with the exception of foreign language which is not required of those students who follow the B.S. basic degree requirements. (Bulletin of the College of Letters and Science, 1954–56, p. 34.) Admission to the Program for the Preparation of Elementary School Teachers in the freshman and sophomore years is approved by the School of Education but official registration is in the College of Letters and Science.

The pre-education programs of students who enter the School of Education should include the basic requirements for the B.A. or B.S. degree (or the requirements of the course in Integrated Liberal Studies) in the College of Letters and Science. However, no student will be accepted into the School of Education unless his scholastic record is sufficiently high to indicate the probability of success in some teaching field. Students who expect to enter the School of Education, after two or more years of college work, are advised to take at least elementary courses in as many as possible of the fields that serve as foundations for the later required professional courses. Such subject-fields are Physiology or Zoology, Psychology, and a selection from the introductory courses in the several Social Studies.

4. All students who are candidates for the University Teachers' Certificate shall present evidence of their speech proficiency by meeting the requirements of either Option A or Option B, see page 342.

5. Students in special courses having a complete four-year curriculum, such as the Course in Chemistry, the Course in Humanities, and the Schools of Commerce, Journalism and Music, will retain their classifications in their respective colleges, but must also register in the School of Education at the beginning of the junior year.

6. Students electing a teaching major in Agriculture or in Home Economics must register concurrently in the College of Agriculture or the School of Home Economics and in the School of Education at the beginning of the junior year.

12. HONORS IN SCHOLARSHIP

Excellence in scholarship receives special recognition at the end of the sophomore and at the end of the senior year. Sophomore Honors, Sophomore High Honors, Senior Honors and Senior High Honors are awarded on the basis of the earned resident grade-point average. For more details concerning these honors, see the College of Letters and Science bulletin.

13. DEGREES

The School of Education grants the following degrees: Bachelor of Science (Education), Bachelor of Science (Education Recreation), Bachelor of Science (Art Education), Bachelor of Science (Applied Art), Bachelor of Science (Physical Education) and Bachelor of Science (Occupational Therapy); 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 5 and 6 above.

14. REQUIREMENTS FOR GRADUATION AND FOR THE UNIVERSITY TEACHERS' CERTIFICATE

Graduation from the School of Education and recommendation for the University Teachers' Certificate are based upon the following conditions and requirements:

A. ELEMENTARY EDUCATION:

I. A total of 128 credits and 256 grade-points, including the basic requirements for the B.A. or the B.S. degree, or the requirements of the course in Integrated Liberal Studies as outlined in the bulletin of the College of Letters and Science.

II. Requirement in United States History and Institutions. A new requirement in United States History and Institutions has been established in all of the undergraduate schools and colleges in the University. It must be met by all students who receive degrees in June 1954, or thereafter. The requirement, outlined below, is for all bachelor's degrees in the College of Letters and Science and the School of Education. The student may satisfy this requirement in one of three ways:

1. By passing, by the beginning of the junior year, an attainment examination in United States History based on college-level work.

2. By completing satisfactorily, in college, a continuous year course in United States History. A year course is here understood to be one so listed in the Announcement of Courses (i.e., History 4, 12–112, 113, 117, 120, 121, 122); or two semester courses which, as to content, are in chronological sequence (i.e., any two *consecutively numbered* semester courses chosen from the following: History 101, 102, 103, 104, 105, 106, 107, 108, 109).

3. By combining a semester in advanced United States History with any one of the following courses: Economics 1a; English 140; Geography 146; Integrated Liberal Studies 23; Philosophy 139; Political Science 7a or 107a, 110, 112a, 112b, 165, 166, or 171; or Sociology 178. The student may choose the semester of history from one of the following semester courses: History 101, 102, 103, 104, 105, 106, 107, 108, 109, or 111; or he may complete either semester of one of the following year courses: History 112, 113, 114, 117, 120, 121, or 122.

III. Preparation to teach in at least one of the following areas:

Kindergarten
Primary grades (1–3)
Intermediate grades (4–6)
Upper grades (7–8)

IV. Students in the School of Education (except majors in Occupational Therapy and in Applied Art who are not candidates for the University Teachers' Certificate) shall present evidence of their speech proficiency by meeting the requirements of Option A or Option B as follows:

OPTION A: A student may enroll in a special non-credit speech course, in which his speech for teaching will be evaluated on standards set by the Speech Examination Committee. Students who come to this course proficient in speech will be so certified as soon as the fact is ascertained. Others will receive special advice and training. If, in spite of this added help, the student fails to be certified, he must reach the required standard through special clinic or course assignments.

OPTION B: A student enrolled in a speech-skills course (Speech 1, 2, 3, 4, 6, 7, 8a, 8b, 9, 13, 16, 18, 22, 29, 105, 110, 115, 122, 123, 135, or 136) may elect to be certified by his instructor as proficient in speech for teaching, the certification to be based on standards set by the Speech Examination Committee. Notification to the instructor of the selection of this option must be made by the student at the beginning of

the semester. If the student fails to be certified, he must reach the required standard through special clinic or course assignments prescribed by the Committee.

EXCEPTION: The Speech Committee may modify the requirements for special students who cannot be certified under the above procedures, if the Committee is satisfied that the teaching situations to which the students are to go are such that the above standards are not applicable.

V. The recommendation of the responsible authorities as to fitness for teaching.

VI. The presentation of a certificate of physical health and fitness from the University Medical Examiner.

VII. Completion of the following professional requirements:

A. For Certification in grades 1–8. *Credits*

EDUCATION 11a, 11b—Introduction to elementary education (one credit per course)	2
EDUCATION 21a, 21b—Identification of teaching and learning problems	2
EDUCATION 73—The child: His nature and his needs	3
EDUCATION 75—The nature and direction of learning	4
EDUCATION 31a, 31b—Curriculum and instruction in the elementary school (4 credits per semester)	8
EDUCATION 41—Supervised teaching in the elementary school	16
EDUCATION 74—The school and society	3

B. For additional certification at the Kindergarten level.
In addition to requirements listed in "A" above:

EDUCATION 147—Curriculum problems and practices in kindergarten-primary education	3
PHYSICAL EDUCATION 40b—Rhythms for children	1
or	
HOME ECONOMICS 129—Creative play for young children	3

VIII. Other requirements:

EDUCATION 1, 2, 7, 8—Integrated arts (two credits per course)	8
MATHEMATICS 9—Mathematics for elementary teachers (May be counted toward the general degree requirements in the area of science and mathematics.)	4
EDUCATION 169—Health information for teachers	3
GEOGRAPHY 128—Conservation of natural resources	
or	
ECONOMICS 117—Outline of land economics	3
Area of concentration (see page 361)	11–20
A student should earn 10 credits in general education in the junior and senior year outside the area of concentration and beyond basic degree requirements	10

B. SECONDARY EDUCATION:

I. A total of 124 credits and 248 grade-points, including the basic requirements for the B.A. or the B.S. degree, or the requirements of the course in Integrated Liberal Studies as outlined in the bulletin of the College of Letters and Science. (See requirements in United States History and Institutions—page 342.)

II. Preparation for teaching one major subject and one minor subject. (The Wisconsin Department of Public Instruction requires two academic minors, with the exception of majors in special fields.)

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 department prescription must in all cases include at least 24 credits, and in addition, credit for the departmental teachers' course. (See Academic Teaching Majors and Minors—pages 362–379.)

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 15 credits, exclusive of the departmental teachers' course. (See Academic Teaching Majors and Minors—pages 362–379.)

III. Students in the School of Education (except majors in Occupational Therapy and in Applied Art who are not candidates for the University Teachers' Certificate) shall present evidence of their speech proficiency by meeting the requirements of Option A or Option B (see section IV, page 342).

IV. The recommendation of the department of the major subject, or the responsible authorities of the special courses, as to fitness for teaching.

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

VI. Completion of the following professional requirements (18 credits)

	Credits
EDUCATION 73—The child: His nature and his needs	3
EDUCATION 74—The school and society	3
EDUCATION 75—The nature and direction of learning	3
*A course in the teaching of the major subject (senior year)	5
*A course in the teaching of the minor subject	2–4

C. For information concerning the graduation requirements in the four-year courses in Art Education, Applied Art, Occupational Therapy, Physical Education and Athletic Coaching for Men, Physical Education for Women, and Recreation Leadership, see pages 346–360.

The requirements for graduation in Agriculture and Education and Home Economics and Education, Business Education and Music are given on pages 379–384.

15. 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 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 and second semester); or *Economics* 117, *Outline of Land Economics* (first semester).

Chapter 307—*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 co-operative marketing and consumers' co-operatives shall be required." See *Agricultural Economics* 127, *Co-operation* (first semester or second semester).

The Wisconsin Department of Public Instruction has interpreted the law on conservation and co-operatives as applying to teaching majors in the fields named and to teaching minors.

16. REGULATIONS OF THE WISCONSIN DEPARTMENT OF PUBLIC INSTRUCTION FOR GRANTING A LICENSE TO TEACHERS IN WISCONSIN

ELEMENTARY SCHOOL. Recommended graduation from an approved four-year elementary school course in an accredited college.

* If a student has both the major and the minor in the same methods area, then he may carry a two-credit elective course in the Department of Education.

HIGH SCHOOL. Graduation from an approved four-year course in an accredited college, with the following minimum requirements:

A. Academic preparation

1. One major subject—24 semester hours; and two minor subjects—15 semester hours each
   or
2. Two major subjects—24 semester hours each

B. Professional requirements for a first license—total of 18 semester hours as follows:

1. Educational psychology or psychology of learning ..... 3 hours
2. Teachers' course in major subject ..... 2 hours
3. Practice teaching ..... 5 hours
4. Elective semester hours in approved courses ..... 8 hours

SPECIAL. Licenses and certificates to teach special subjects will be issued upon graduation with satisfactory attainment, from an approved four-year course in an accredited college, with major preparation in the special fields, and with recommendations by the authorized supervisory officials. At least one academic minor must be included in the college course. The major preparation must be based upon a minimum of thirty semester hours in addition to the required eighteen semester hours of professional training.

17. SPECIAL PROGRAMS IN PREPARATION FOR TEACHING—GRADUATE LEVEL

The Department of Education offers three special programs leading to the master's degree and to the University Teachers' Certificate. Graduates of other colleges who have a 2.75 undergraduate grade-point average, have completed major and minor requirements for the University Teachers' Certificate, and who satisfy the other requirements for admission to candidacy for the University Teachers' Certificate, but who have not necessarily taken work in professional education courses, are eligible for these programs. Those who wish to enter these programs must apply to the Dean of the Graduate School for admission to graduate study in education, and to the Dean of the School of Education for admission to candidacy for the University Teachers' Certificate. Those who wish to enter a combined program in education and a school-subject must apply for admission to graduate study in education and in the school-subject department.

These special programs are planned so that students who are admitted and do satisfactory work may complete requirements for the master's degree and the University Teachers' Certificate in two semesters and one summer term. Additional information on these programs may be secured from the Chairman of the Department of Education or from the Dean of the School of Education.

FOUR-YEAR COURSES IN THE SCHOOL OF EDUCATION

COURSES IN ART EDUCATION AND APPLIED ART

LEADING TO THE DEGREES OF BACHELOR OF SCIENCE (ART EDUCATION) AND BACHELOR OF SCIENCE (APPLIED ART)

FREDERICK M. LOGAN, *M.A.*, Professor of Art Education, *Chairman*

The School of Education offers two four-year undergraduate curricula, leading to the degree of Bachelor of Science (Art Education), for those intending to teach art, and Bachelor of Science (Applied Art) for those whose interests and qualifications are in the professional art fields. For graduate students with the necessary prerequisites, the Department of Art Education and Applied Art offers a major in Art, leading to the degree of Master of Science in Art Education or leading to the degree of Master of Science in Applied Art. In both graduate and undergraduate sequences the student may specialize in painting, graphics, sculpture, creative design, commercial design, ceramics, metal work, materials workshop, serigraphy, and stage design. The right to retain one specimen of work from each student in each class is reserved by the department.

A student who has completed the ILS program, and then transfers to the Department of Art Education and Applied Art, will be considered to have completed all of the general (non-departmental) requirements.

Students registered in the College of Letters and Science may elect for credit without special permission of the dean of that college, the following courses: Freshman and others, Art Education 50; sophomores and others, Art Education 52, 54 (formerly 64), 55, 56, 70, 71, 72 (formerly 54), 140, 160, and 171 (formerly 168), if the departmental prerequisites have been met. Students registered in other colleges must secure permission from their deans.

EQUIPMENT

The Department of Art Education and Applied Art is housed in the Education Building, situated on the upper campus, with studios overlooking Lake Mendota. The building contains an exhibition gallery, studios for sculpture, ceramics, art metal, graphic arts, design, stage design, school crafts, drawing and painting. Both the Memorial Union and the Memorial Library have galleries for contemporary exhibitions, while the Union Workshop gives opportunity for remunerative art activities outside the classroom.

REQUIREMENTS FOR GRADUATION COURSE IN ART EDUCATION

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (ART EDUCATION)

The curriculum offered here is planned to prepare future teachers and supervisors of art for public and private schools, colleges, and universities. A total of 124 credits and 248 grade-points is required for graduation. From 53 to 68 credits must be taken in departmental courses or in their related options listed below and an additional 18 credits must be taken in the Department of Education. A minimum of 56 academic credits is required, not including the 6 required credits in Art History. If the student intends to teach in the state of Wisconsin, he must have a minor in an academic field. The certification regulations of the Wisconsin Department of Public Instruction provide that this minor shall consist of 15 credits of college courses in any academic subject. However, if the student desires to qualify for the University Teachers' Certificate in his minor field, he must fulfill the specific

requirements established by the department offering the minor. Information on the requirements for the certification of teachers in states other than Wisconsin may be obtained from the office of the Dean of the School of Education.

SEQUENCE A:

ENGLISH: 12 credits. Freshman composition, 6 cr. (unless exempt), and one year of sophomore literature.

HISTORY: 6 credits. United States History and Institutions. (See page 342.)

SCIENCE OR MATHEMATICS: Mathematics, 8 cr., or completion of Mathematics 1b or 3b; Science, 9–10 cr. in year or semester laboratory courses, in elementary survey courses, or a combination of these.

EDUCATION: 18 credits. Education 63, 2 cr.; Education 73, 3 cr.; Education 74, 3 cr.; Education 75, 3 cr.; Education 91, 2 cr.; Education 62, 5 cr.

ACADEMIC MINOR: 15–22 credits.

ART EDUCATION: 53–68 credits to include Art History, 6 cr. (3 credits to be selected from Art History 22 or 54); Art Education 50, 6 cr.; Art Education 53, 4 cr.; Art Education 54, 3 cr.; Art Education 55, 3 cr.; Art Education 60, 3 cr.; Art Education 62, 6 cr.; Art Education 70, 71, 72 or 177, 3 cr.; Art Education 161, 6 cr.

SPEECH: Evidence of speech proficiency by meeting the requirements of either Option A or Option B. (See page 342.)

By the close of the fourth semester and thereafter a grade-point average of 2.5 must be maintained. Students transferring from another college in the University or from another institution will be required to maintain a 2.5 average by the close of their second semester as art majors.

SEQUENCE B:

ENGLISH: 12 credits. Freshman composition, 6 cr. (unless exempt), and one year of sophomore literature.

HISTORY: 6 credits. United States History and Institutions. (See page 342.)

FOREIGN LANGUAGE: Knowledge of one foreign language evidenced by: (1) completion of 14 college credits, or passing the appropriate intermediate attainment examination (students who enter college without foreign language preparation); (2) completion of 10 college credits; or passing the appropriate intermediate attainment examination (students who enter college with one year of the language completed in high school); (3) completion of 6 college credits, or passing the appropriate intermediate attainment examination (students who enter college with two or more years of the language completed in high school).

SCIENCE OR MATHEMATICS: Mathematics, 8 cr., or completion of Mathematics 1b or 3b; Science, 9–10 crs. in year or semester laboratory courses, in elementary survey courses, or a combination of these.

EDUCATION: 18 credits. Education 63, 2 cr.; Education 73, 3 cr.; Education 74, 3 cr.; Education 75, 3 cr.; Education 91, 2 cr.; Education 62, 5 cr.

ACADEMIC MINOR: 15–22 credits.

ART EDUCATION: 53–68 credits to include Art History, 6 cr. (3 credits to be selected from Art History 22 or 54); Art Education 50, 6 cr.; Art Education 53, 4 cr.; Art Education 54, 3 cr.; Art Education 55, 3 cr.; Art Education 60, 3 cr.; Art Education 62, 6 cr.; Art Education 70, 71, 72 or 177, 3 cr.; Art Education 161, 6 cr.

SPEECH: Evidence of speech proficiency by meeting the requirements of either Option A or Option B. (See page 342.)

By the close of the fourth semester and thereafter a grade-point average of 2.5 must be maintained. Students transferring from another college in the University or from another institution will be required to maintain a 2.5 average by the close of their second semester as art majors.

COURSE IN APPLIED ART

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (APPLIED ART)

This curriculum is designed for students who are interested in art from a professional or general cultural point of view, and does not fulfill the requirements for the University Teachers' Certificate nor for a license to teach in the state of Wisconsin. A total of 124 credits and 248 grade-points is required for graduation. Of these credits, 53–68 must be taken in departmental courses or in their related options listed below. A minimum of 56 credits must be taken in academic courses, not including the 6 credits required in Art History. Majors in Applied Art must follow one of the sequences listed below:

SEQUENCE A:

ENGLISH: 12 credits. Freshman composition, 6 cr. (unless exempt), and one year of sophomore literature.

HISTORY: 12 credits to be taken in year courses unless 100-group courses are selected, including any history courses taken to satisfy the United States History and Institutions requirement. (See page 342.)

SCIENCE OR MATHEMATICS: Mathematics, 8 cr., or completion of Mathematics 1b or 3b; Science, 9–10 cr. in year or semester laboratory courses, in elementary survey courses, or a combination of these.

SOCIAL STUDIES AND PHILOSOPHY: A minimum of 9 credits to be selected from Economics 1a, 4 cr.; Sociology 1 or 2, 3 cr.; Geography 1, 3 cr.; Philosophy, 3–6 cr. (Philosophy 53 and 54 are recommended); Psychology 1, 4 cr.

ART EDUCATION: 53–68 credits to include Art History, 6 cr. (3 credits to be selected from Art History 22 or 54); Art Education 50, 6 cr.; Art Education 53, 4 cr.; Art Education 54, 3 cr.; 55, 3 cr.; 60, 3 cr.; 62, 6 cr.; 70, 71, 72 or 177, 3 cr.;

SEQUENCE B:

FOREIGN LANGUAGE: Knowledge of one foreign language evidenced by: (1) completion of 14 college credits, or passing the appropriate intermediate attainment examination (students who enter college without foreign language preparation); (2) completion of 10 college credits; or passing the appropriate intermediate attainment examination (students who enter college with one year of the language completed in high school); (3) completion of 6 college credits, or passing the appropriate intermediate attainment examination (students who enter college with two or more years of the language completed in high school).

ENGLISH: 12 credits. Freshman composition, 6 cr. (unless exempt), and one year of sophomore literature.

HISTORY: 6 credits. United States History and Institutions. (See page 342.)

SCIENCE OR MATHEMATICS: Mathematics, 8 cr., or completion of Mathematics 1b or 3b; Science, 9–10 cr. in year or semester laboratory courses, in elementary survey courses, or a combination of these.

SOCIAL STUDIES AND PHILOSOPHY: A minimum of 9 credits to be selected from Economics 1a, 4 cr.; Sociology 1 or 2, 3 cr.; Geography 1, 3 cr.; Philosophy, 3–6 cr. (Philosophy 54 is recommended); Psychology 1, 4 cr.

ART EDUCATION: 53–68 credits to include Art History, 6 cr. (3 credits to be selected from Art History 22 or 54); Art Education 50, 6 cr.; 53, 4 cr.; 54, 3 cr.; 55, 3 cr.; 60, 3 cr.; 62, 6 cr.; 70, 71, 72 or 177, 3 cr.

ART EDUCATION AND APPLIED ARTS CURRICULUM

FRESHMAN YEAR

(For all art majors in Art Education or in Applied Arts and in either Sequence A or B)

First Semester	Credits	Second Semester	Credits
English 1a	3	English	3
Science (Mathematics—4)	5	Science (Mathematics—4)	5
Art Education 50a	3	Art Education 50b	3
Art Education 62a	3	Art Education 62b	3
Art Education 53a	2	Art Education 53b	2
Physical Education	0	Physical Education	0
Military Training	0	Military Training	0
	15–16		15–16

SOPHOMORE YEAR

(For all art majors in Art Education or in Applied Arts)

Sequence A

English	3	English	3
History	3	History	3
Art Education 70, 71 or 72	3	Art History (elective)	3
Art Education 55a	3	Art Education 54 or 60	3
Art History 22 or 54	3	Art Education electives	3–6
Art Education 63 or Art Education elective	2	Physical Education (women only)	0
Physical Education (women only)	0	Military Training	0
Military Training	0		
	17		15–18

Sequence B

English	3	English	3
Foreign language	3–4	Foreign language	3–4
Art Education 60 or 54	3	Art Education 54 or 60	3
Art Education 55a	3	Art Education elective	3
Art History 22 or 54	3	Art History elective	3
Art Education 63 or Art Education elective	2	Physical Education (women only)	0
Physical Education (women only)	0	Military Training	0
Military Training	0		
	17–18		15–16

JUNIOR YEAR

Art Education majors begin their work in Education, in Art Education 161a and 161b, and continue studio courses in junior-senior electives.

Applied Arts majors continue courses meeting the Social Studies and Philosophy, and History requirements and continue studio courses in junior-senior electives.

SENIOR YEAR

Art Education majors complete education courses and practice teaching concurrently with art courses elected to complete major requirements.

Applied Arts majors complete the minimum of 56 academic credits (not including 6 credits of Art History) and the art courses elected to complete major requirements.

Art majors in either curricula who have completed the prescribed art courses of the freshman and sophomore years may elect 20 or more credits from the following list, guided by their teaching interests and aptitudes. Before electing courses, students must confer with their advisers.

Art Education

52—Watercolor
54—Composition
56—Oil painting
60—Layout and letter structure
70—Art metal
71—Ceramics
72—Sculpture
106—Stage lighting
132—Portraiture and figure painting
140—Stage design
150—Advanced art problems
152—Advanced watercolor
155—Advanced life drawing
156—Advanced painting
160—Graphic arts
162—Design research

163—Commercial design
166—Silk screen processes
167—Graphics research
170—Advanced art metal
171—Advanced ceramics
172—Advanced sculpture
173—Gem cutting
174—Photographic design
175—General crafts
177—Materials workshop (design)
179—Museum techniques

The department recommends that students planning to enter commercial art fields include the following courses in their course of study:

Art Education

50 a & b—Basic drawing
55 a & b—Life drawing and anatomy
60—Layout and letter structure
62 a & b—Creative design
155—Advanced life drawing and anatomy
160 a & b—Graphic arts
162—Advanced design
163—Commercial design
166—Serigraphy
174—Photographic design
177—Materials workshop (design)

NON-DEPARTMENTAL COURSES

Students in either curriculum may elect work in the following departments other than Art Education and apply not more than 10 credits so earned to the elective credits in the major:

Home Economics (Related Art)

8—House furnishing
18—Interior design
20—Costume design and selection
28—Home architecture
94—Decorative textiles
95—Weaving
114—Technique of interior design
115—Traditional interior design
116—Traditional interior design
121—Advanced costume design
194—Advanced studies in related art

Agricultural Engineering

18—Architectural drawing

Horticulture (Landscape Design)

6—Landscape design
12—Home grounds design
101—Advanced home grounds design
102—Public grounds

Physical Education

146—Theory and philosophy of dance

Drawing

10 or 12—Elements of drawing

MINOR IN ART EDUCATION*

A minimum of 20 credits in addition to Education 62, 2 credits. Art Education 50a, 3 cr., 53, 2 cr., and 62, 3 cr. must be included in the minor. Art Education 57, 3 cr. and 175, 3 cr. are strongly recommended. Students should have their plan of study for other Art Education courses approved by the chairman of the department. (Students in the College of Letters and Science may anticipate the minor by electing Art Education 50a, 50b, and 62 before the junior year. These courses are free electives and may be taken without special permission of the dean of the college.)

---

* It is suggested that a student considering a minor in Art Education confer directly with the Department of Art Education and Applied Art for further details concerning the requirements and possible revisions which may be made after this bulletin is published.

COURSE IN OCCUPATIONAL THERAPY

A four-year course, leading to the degree of Bachelor of Science (Occupational Therapy), is offered in the School of Education. For entrance to this course a student must satisfy the general admission requirements of the University. The course is under the joint control of the Schools of Education and Medicine.

No student may transfer to the Course in Occupational Therapy with advanced standing from other colleges or universities unless she is especially qualified and has completed the proper prerequisites.

The curriculum requirements are the completion of 124 credits and at least 248 grade-points, the subjects meeting the following requirements.

To continue beyond the sophomore year in the Course in Occupational Therapy the student must have completed Occupational Therapy I with a grade of *C* or better and have a general grade-point average of not less than 2.5.

Further requirements are as follows:

ENGLISH: 12 credits, unless exempt from part of freshman composition requirement.

UNITED STATES HISTORY AND INSTITUTIONS: 6 credits. (See page 342.)

SCIENCE: 20 credits, to include at least one course in each of the following: physics or chemistry, zoology, physiology, and anatomy.

PSYCHOLOGY: 10 credits.

SOCIOLOGY: 3 credits.

SPEECH: 2 credits.

TECHNICAL TRAINING: 35 credits to be earned in the Departments of Art Education, Physical Education, Home Economics, and Music, and to include courses in creative design, major arts and crafts, minor crafts, first aid, and therapeutic, recreational, and physical activities for hospital patients.

OCCUPATIONAL THERAPY: 19 credits—theory and practice, to include studies in surgery, medicine, neurology, orthopedics, psychiatry, pediatrics, theory of occupational therapy and supervised pre-clinical practice.

ELECTIVES: 17 credits.

HOSPITAL AFFILIATION: This academic work is followed by ten months of hospital affiliation. It includes practical experience in treating patients under the supervision of a registered occupational therapist in selected hospitals with the following types of patients, as required by the American Medical Association: psychiatric, orthopedic, pediatric, tuberculous and general medical and surgical cases. Upon completion of the requirements, the student will receive both a B.S. (Occupational Therapy) recommended by the School of Education and a Certificate in Occupational Therapy, recommended by the Medical School.

Dr. H. D. Bouman, Professor of Physical Medicine, 152D Hospital, is in charge of the Course in Occupational Therapy.

Assistant Professor Caroline G. Thompson, Temporary 14—Room 12, is adviser to the students in the Course in Occupational Therapy.

RECOMMENDED SEQUENCE FOR COURSE IN OCCUPATIONAL THERAPY

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a	3	English 1b	3
Art. Ed. 62a—Creative design	3	Art. Ed. 57	3
Physics 65 or 1a, *or*		Zoology 17 or 1	3–5
Chemistry 5 or 1a	3–5	Phys. Ed. 16—First aid	1
Sociology 1 or 2	3	Phys. Ed. 48—Recreational therapy	1
O.T. 10—Orientation to occupational therapy	1	Electives	3
Physical Education	0	Physical Education	0
	13–15		14–16

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
English	3	English	3
Art Ed. 54—Elementary modelling	3	Art Ed. 108—Painting for occupational therapy	3
Physiology 1 or 3	4	U.S. History and Institutions	3
Speech 1	2	Electives	6
U.S. History and Institutions	3	Physical Education	0
O.T. 1—Pre-clinical practice	1		
Physical Education	0		
	16		15

JUNIOR YEAR

Art Ed. 70a—Art metal	3	Art Ed. 71a—Ceramics	3
Art Ed. 175a—Crafts for occupational therapy	3	Art Ed. 175b	3
Home Ec. 85—Weaving	3	Anatomy 37	6
Psychology 1	4	Psychology 105—Human adjustment	3
Electives	3		
	16		15

SENIOR YEAR

Psychology 165—Behavior pathology	3	O.T. 2—Medical lectures	1
O.T. 3—Surgery, Orthopedics	2	O.T. 5—Theory of occupational therapy	4
O.T. 4—Practical applications of crafts for occupational therapy	3	O.T. 6—Pre-clinical practice	1
O.T. 7a—Neurology, Psychiatry	2	O.T. 7a—Pediatrics	1
O.T. 121—Treatment of physical disabilities	3	Home Ec. 94—Decorative textiles	2
Home Ec. 15	2	Home Ec. 119—Child development	2
		Electives	5
	15		16

COURSE IN OCCUPATIONAL THERAPY WITH SPECIALIZATION IN MUSIC

In order to provide opportunities for development to students of the Course in Occupational Therapy who have adequate skill and a strong interest in the use of music as a therapeutic occupation, the Medical School and the School of Education, in collaboration with the School of Music, offer a course in Occupational Therapy with specialization in Music. In addition to the regular curriculum in occupational therapy, the following courses in the School of Music are required:

	Credits
Music 11 and/or 12—Theory	4
Music 20a–b—Appreciation and history	4
Applied Music	6
Music 76a—Conducting	2
Music 65 or 75—Instrumental techniques	4
Music Organizations—Four semesters, principally University Chorus or A Cappella Choir	0

The following are recommended as audit courses:

Music 9—String quartets of Haydn and Mozart
Music 38—Vocal problems and interpretation of song literature
Music 115—Music in society

During the student's fifth year of professional training, part of the required ten months of hospital experience will be arranged in an occupational therapy department offering supervised practice in the use of music as a therapeutic medium.

COURSE IN PHYSICAL EDUCATION AND ATHLETIC COACHING FOR MEN

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (PHYSICAL EDUCATION)

ROBERT NOHR, *B.S.*, Professor of Physical Education, *Director*

A total of 124 credits and at least 248 grade-points is required for graduation from this course.

The four-year undergraduate course is so organized that graduates are prepared to be directors and instructors in physical education (including coaching of all sports), health education and recreation. In addition graduates will have the opportunity to prepare themselves to teach one or two academic subjects. Students must be certified before graduation in speech proficiency by the Speech Examination Committee.

The department reserves the right, at any time, to ask students who do not show adaptability in this field to transfer to some other course. An *A* grade from the Student Health Department is necessary as a prerequisite to enrolling in this course.

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 or the student may elect a joint major in Education and Physical Education (see bulletin of the Graduate School).

SPECIFIC REQUIREMENTS

	Credits	*Total Credits*
ENGLISH	6	
SPEECH	4	
SOCIAL STUDIES (including courses taken to satisfy the United States History and Institutions requirement. See page 342.)	12	
SCIENCE	13	35
Zoology 1 (5)		
Anatomy 39 (4)		
Physiology 2 (4)		
EDUCATION	18	18
PROFESSIONAL COURSES		
Physical Education Activities (Proficiency work)	0	
TECHNIQUES AND MATERIALS IN PHYSICAL EDUCATION	12	
PHYS. ED. 16—First aid in safety	2	
PHYS. ED. 17—Athletic conditioning and training	1	
PHYS. ED. 58—Kinesiology	2	
PHYS. ED. 59—Nature and function of play	3	
PHYS. ED. 71—Camp administration and Scouting	3	
PHYS. ED. 103—Physiology of exercise	3	
PHYS. ED. 119a—School health examinations	3	
PHYS. ED. 119b—Physical education for the handicapped	2	
PHYS. ED. 197—Problems and materials in health education	3	
PHYS. ED. 168—Organization and administration of physical education and athletics	2	36
ELECTIVES		
Academic—Minors in teaching (one or two)		15–33
Education—(Minor teaching courses)		0–2
Physical Education		0–4
Free Academic		4–18
TOTAL		124

SAMPLE DISTRIBUTION OF COURSES

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman composition	3	English 1b—Freshman composition	3
Zoology 1—Animal biology	5	Anatomy 39—Human anatomy	4
Speech 8a	2	Speech 8b	2
Electives	4–6	Electives	6–7
Phys. Ed. 6—Physical education activities	0	Phys. Ed. 7—Physical education activities	0
Military Training	0	Military Training	0
	14–16		15–16

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
Physiology 2—Elementary physiology	4	Phys. Ed. 16—First aid and safety education	2
Phys. Ed. 17—Athletic conditioning and training	1	Phys. Ed. 71—Camp administration and Scouting	3
Phys. Ed. 59—Nature, function and organization of play	3	Electives	10–12
Electives	7–8	Phys. Ed. 9—Physical education activities	0
Phys. Ed. 8—Physical education activities	0	Military Training	0
Military Training	0		
	15–16		15–17

JUNIOR YEAR

Phys. Ed. 58—Kinesiology	2	Phys. Ed. 103—Physiology of exercise	3
Phys. Ed. 119a—School health examination	3	Phys. Ed. 119b—Physical education for the handicapped	2
Education 73—The Child: His nature and his needs	3	Education 74—The school and society	3
Electives	4–6	Electives	5–6
Phys. Ed. 10—Techniques and materials in physical education	3	Phys. Ed. 11—Techniques and materials in physical education	3
	15–17		15–17

SENIOR YEAR

Phys. Ed. 197—Problems and materials in health education	3	Phys. Ed. 168—Organization and administration of physical education	2
Education 75—The nature and direction of learning	3	Education 70—The teaching of physical education	5
Education 91—Student teaching	2	Electives	5–7
Electives	4–6	Phys. Ed. 13—Techniques and materials in physical education	3
Phys. Ed. 12—Techniques and materials in physical education	3		
	15–17		15–17

MINOR IN PHYSICAL EDUCATION (MEN)

This minor is offered to qualify men to assist in the general physical education program, and to coach and supervise athletics in high schools and colleges in connection with teaching of academic subjects. 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
I. Physical Education Activities, Techniques and Materials in Physical Education	10
II. Electives	10
From the following list of courses:	
Phys. Ed. 16—First aid and safety education	
Phys. Ed. 59—Nature and function of play	
Phys. Ed. 71—Camp administration and Scouting	
Phys. Ed. 103—Physiology of exercise	
Phys. Ed. 197—Problems and materials in health education	
Phys. Ed. 168—Organization and administration of physical education	
Phys. Ed. 178—Physical education in elementary and secondary schools	
III. Education 70—The teaching of physical education	2
Total	22

COURSE IN PHYSICAL EDUCATION FOR WOMEN

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (PHYSICAL EDUCATION)

Marie L. Carns, *M.D.*, Professor of Physical Education, *Director*

This course is designed to prepare teachers for all types of positions in physical education, and to lay the foundation for future specialization in this profession or in related fields. A student may major either in general physical education or in dance.

The department reserves the right to ask a student to withdraw if she cannot meet standards in terms of health, general aptitude, and scholarship.

A student who must work to earn part of her expenses may not carry a full program during her first semester.

A student transferring from another institution may need extra time to complete the requirements.

Regulation class costumes are required.

For admission requirements see page 340.

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 or jointly in Physical Education and Education. The degree of Doctor of Philosophy is offered with a major in Physical Education or as a joint major with one of the following departments: Anatomy, Education or Physiology. The bulletin of the Graduate School will be sent on request.

GENERAL MAJOR

A total of 125 credits and at least 250 grade-points (on a 4-point basis) is required for graduation with a major in General Physical Education.

Requirements are planned to give a broad, substantial foundation as a basis for sound technical training. To this end there is emphasis upon basic sciences, applied sciences, educational psychology, and principles of education and teaching.

If the student intends to teach in the state of Wisconsin, she must have a minor in a field other than her major. The certification regulations of the Wisconsin Department of Public Instruction provides that this minor shall consist of 15 credits of college courses in any one department. However, if the student desires to qualify for the University Teachers' Certificate in her minor field, she must fulfill the specific requirements established by the department offering the minor. The following university minors are apt to be most feasible and desirable: Health Education, Community Leadership in Recreation, General Science.

SPECIFIC REQUIREMENTS

	Credits
ENGLISH, to include:	8–9
A course in composition beyond freshman English.	
UNITED STATES HISTORY AND INSTITUTIONS (see page 342)	0–6
SCIENCE, to include:	19–27
One course each in zoology, physics, human anatomy, and kinesiology. Physiology, to include a course in physiology applied to physical education activities.	
PSYCHOLOGY	2–4
ART AND MUSIC	0–6
One course each or equivalent.	
Requirement will be waived upon presentation of a suitable substitute.	
	29–52
EDUCATION, to include:	
Courses required for the University Teachers' Certificate, including, in addition to required student teaching, one week of field work in teaching.	
A course in health information for teachers.	
	19
PROFESSIONAL COURSES, to include:	
Practice, principles, and techniques of physical education with a minimum of 6 credits in dance	21–23
A course in movement and its rhythmic structure	2–3
A course in therapeutic gymnastics	2–3
A course in organization and administration of physical education	2

	Credits
A course in tests and measurement in physical education	2
Advanced courses in physical education, to include a course in principles of relaxation	4
	33–37
SPEECH CERTIFICATION—Option A or Option B (see page 342)	
ELECTIVES	44–17

GENERAL MAJOR*

Suggested study lists planned to meet all course prerequisites as well as specific requirements. Elective credits will need to be used, in part, for requirements in social studies, art, music and English composition.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman composition	3	English 1b—Freshman composition	3
Zoology 1—Animal biology	5	Physics 61—General physics	5
Phys. Ed. 30—Physical education theory, practice and technique	2	Phys. Ed. 30—Physical education theory, practice and technique	2
Electives	5–6	Electives	5–6
Phys. Ed. Required	0	Phys. Ed. Required	0
	15–16		15–16

SOPHOMORE YEAR

United States History	3	United States History	3
Anatomy 36—Human anatomy	4	Psychology 1—Introduction to psychology	4
Phys. Ed. 40—Folk and square dance	1	Phys. Ed. 56—Kinesiology	3
Phys. Ed. 31—Physical education theory, practice and technique	2	Phys. Ed. 41—Dance technique for general majors	1
Electives	5–6	Phys. Ed. 31—Physical education theory, practice and technique	1
Phys. Ed. Required	0	Electives	3–4
		Phys. Ed. Required	0
	15–16		15–16

JUNIOR YEAR

Physiology 1—Elements of human physiology	4	Education 75—Nature and direction of learning	3
Education 73—The Child: His nature and his needs	3	Education 91—Student teaching	1
Phys. Ed. 130—Tests and measurements in physical education	2	Education 169—Health information for teachers of physical education	3
Phys. Ed. 60—Movement and its rhythmic structure	3	Phys. Ed. 120—Physiology applied to physical education activities	3
Phys. Ed. 32—Physical education theory, practice and technique	4	Phys. Ed. 176—Therapeutic gymnastics	3
		Phys. Ed. 42—Dance in the elementary school	1
		Phys. Ed. 32—Physical education theory, practice and technique	3
	16		17

SENIOR YEAR

Education 69—Teaching of physical education	3	Education 69—Teaching of physical education	3
Methods course in minor or advanced Phys. Ed. Course	2–3	Education 74—School and society	3
Phys. Ed. 177—Principles of relaxation	2	Advanced Phys. Ed. Course or teaching course in minor	2–3
Phys. Ed. 190—Organization and administration of physical education	2	Phys. Ed. 33—Physical education theory, practice and technique	1
Phys. Ed. 61—Dance summary	2	Electives (to include an American History course numbered over 100 if university requirement has not yet been met)	5–6
Phys. Ed. 33—Physical education theory, practice and technique	2		
Electives	2–3		
	15–17		14–16

DANCE MAJOR

A total of 130 credits and at least 260 grade-points (on a 4-point basis) is required for graduation with a major in Dance in the Department of Physical Education for Women.

* It is suggested that a student considering a major in General Physical Education or in Dance write directly to the Department of Physical Education for Women for further details concerning requirements and possible revisions which may be made after this bulletin is published.

There is a recognized demand today for well-prepared teachers of dance. The intellectual aspect of dance and its increasing advance into the fields of psychology, art and education make it a study well worthy of academic recognition. The course is planned to provide the teacher with a comprehensive view of dance and with the necessary technical training essential both to performance and teaching. Provision is made for courses in sports, fundamentals of physical education and therapeutic gymnastics to enable the teacher to qualify for various types of positions.

The general education requirements for the first two years may be met in the College of Letters and Science Course in Integrated Liberal Studies (ILS). An ILS Bulletin will be sent upon request.

SPECIFIC REQUIREMENTS

	Credits
*English and/or comparative literature	12
*History (Medieval history recommended)	4–6
**United States History and Institutions (see page 342)	0–6
Music, to include dance accompaniment	4–6
*Art (2 courses)	4–6
Speech (including Speech Certification, see page 342)	2–3
Psychology	3–4
**Philosophy, to include philosophy of dance	5–6
	34–49
Science	
*Zoology, *physics, anatomy, kinesiology, physiology and physiology applied to physical education activities.	17–23
Education	
Courses required for the University Teachers' Certificate, to include one week of field work in teaching (or substitute project) in addition to required student teaching.	
A course in health information for teachers.	18–19
Professional Courses, to include:	
Practice, principles and technique of dance and a minimum of 6 credits in general physical education; movement and its rhythmic structure, composition, percussion, dance summary, production and historical survey.	36–38
Electives	25–1

DANCE MAJOR†

Suggested study lists planned to meet in minimum time all course prerequisites as well as specific requirements listed above. (Students may elect the first two years in the Integrated Liberal Studies curriculum. A student wishing to major in Dance and electing the first two years in the ILS curriculum should consult her adviser in Dance. Students electing such a sequence should understand that they may have to spend an additional academic year to complete the B.S. degree.)

---

*The requirement may be satisfied by the ILS curriculum.
**This requirement may be satisfied in part by the ILS curriculum.
†It is suggested that a student considering majoring in Dance or General Physical Education write directly to the Department of Physical Education for Women for further details concerning requirements and possible revisions which may be made after this bulletin is published.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman composition	3	Social Studies	3
Zoology 1—Animal biology	5	English 1b—Freshman composition	3
History	3	Physics 17—Survey of physics	4
Phys. Ed. 35—Theory and practice of dance technique	2	History	3
Phys. Ed. 40—Folk and square dance	1	Phys. Ed. 35—Theory and practice of dance technique	2
Phys. Ed. Required	0	Phys. Ed. Required	0
	14		15

SOPHOMORE YEAR

Anatomy 36—Human anatomy	4	Art History	3
Art History	2–3	English	3
English	3	United States History and Institutions (see page 342)	3
Philosophy	3	Phys. Ed. 160—Dance composition (elementary)	2
Phys. Ed. 60—Movement and its rhythmic structure	2	Phys. Ed. 56—Kinesiology	3
Phys. Ed. 36—Theory and practice of dance technique	2	Phys. Ed. 36—Theory and practice of dance technique	2
Phys. Ed. Required	0	Phys. Ed. 31—Physical education theory, practice and technique	1
		Phys. Ed. Required	0
	16–17		17

SUMMER SESSION

Psychology	4
Speech	2
Phys. Ed. 142—Teaching of dance to children	2
	8

JUNIOR YEAR

Physiology 1—Elements of human physiology	4	Education 91—Student teaching	1
Education 73—The Child: His nature and his needs	3	Education 75—Nature and direction of learning	3
Phys. Ed. 162—Dance accompaniment-percussion or, 165—Dance composition (advanced)	2	Phys. Ed. 146—Theory and philosophy of dance	3
Phys. Ed. 62a—Structural relationships between music and dance	2	Phys. Ed. 120—Physiology applied to physical education activities	2–3
Phys. Ed. 37—Theory and practice of dance technique	2	Phys. Ed. 62b—Structural relationships between music and dance	2
Electives	2	Phys. Ed. 42—Dance in the elementary school	1
		Phys. Ed. 37—Theory and practice of dance technique	2
		Phys. Ed. 32—Physical education theory, practice and technique	2
	15		16–17

SENIOR YEAR

Education 74—School and society	3	Education 169—Health information for teachers of physical education	3
Education 69—Teaching of physical education	3	Education 69—Teaching of physical education	3
Phys. Ed. 166—Lecture-demonstration workshop	2	United States History and Institutions	0–3
Phys. Ed. 165—Dance composition (advanced) or, 162—Dance accompaniment-percussion	2	Phys. Ed. 176—Therapeutic gymnastics	3
Phys. Ed. 163—Dance accompaniment-music.	2	Phys. Ed. 167—Cultural history of dance	2
Phys. Ed. 61—Dance summary	2	Phys. Ed. 38—Theory and practice of dance technique	2
Phys. Ed. 38—Theory and practice of dance technique	2		
	16		16

MINOR IN PHYSICAL EDUCATION (WOMEN)

A minimum of 20 credits, to include 3 credits in orientation to physical education, 4 credits in mechanics and dynamics of movement, 2 credits in health information for teachers, 7 credits in theory and practice in physical education. In addition: 2 credits in Education 69 (theory) and a minimum of 2 credits of student teaching in physical education, 1 credit taken concurrently with Education 75 and 1 credit to be applied to Education 69.

It is important for the student to secure, as early as possible, detailed information about specific courses and sequence of courses from the Department of Physical Education for Women.

CURRICULUM IN RECREATION LEADERSHIP

The Curriculum for Community Leadership in Recreation is a four-year undergraduate program for men and women interested in the leadership of community recreation services. (Advanced preparation for administrative and supervisory positions is obtainable in the graduate program.) This curriculum is administered by the School of Education through a staff member in the Department of Education who serves as Co-ordinator. An intercollege advisory committee, appointed annually by the Dean of the School of Education, assists the Co-ordinator in the development of the program. Students interested in a *major* or *minor* in Recreation Leadership should consult Mr. H. C. Hutchins, 306B Education Building, who is Co-ordinator of the Curriculum.

THE MAJOR IN RECREATION LEADERSHIP

A total of 124 credits and 248 grade-points is required for graduation. Students electing this major may qualify for a University Teachers' Certificate by completing an academic minor and all other requirements enumerated on pages 343 and 344. The teaching license is required only of those who seek employment in recreation programs conducted by boards of education or in state welfare institutions of Wisconsin. Certification as to proficiency in speech (see page 342) is required of all majors. Students shall submit a proposed program of courses which meets all requirements of the Curriculum for approval by the Co-ordinator at or before the beginning of the junior year.

Credits

1. B.S. or B.A. Requirements (See College of Letters and Science bulletin.)
   These should be substantially completed by the end of the sophomore year. The program of Integrated Liberal Studies satisfies nearly all of these degree requirements and is recommended as a foundation for professional preparation in Recreation Leadership 51

2. Foundation Courses (to be completed within the 51 credits of B.S. or B.A. requirements).

   Natural Science. The student is required to complete one or more courses in at least three departments in the natural sciences; he is advised to include Physiology 1 and other courses numbered 17 in such fields as astronomy, botany, geography, geology, meteorology, physics, zoology (all giving laboratory credit).

   Social Studies (Anthropology, Economics, Political Science, Psychology, Sociology). The student is required to complete two courses each in at least three of the specified departments; he is advised to include Sociology-Anthropology 1, Psychology 1 and Psychology or Sociology 139. Students entering the Recreation Curriculum after completing the course in Integrated Liberal Studies must add two courses in psychology, one course in political science or economics and one course in sociology.

3. Exploratory Courses (required)
   Education 14—Introduction to recreation 2
   Recreation Laboratory (year) 0

4. Field Experience. The student will elect one summer of supervised leadership experience, with or without pay, in a camp or playground program, the placement to be approved in advance by the Co-ordinator. 0

5. First Aid. The student shall possess a valid American Red Cross standard or higher first-aid certificate at the time of graduation. Qualification for the instructors' certificate is desirable. 0–2

6. Professional Courses (required)
   - Education 73—The child: His nature and his needs 3
   - Rural Sociology 127—Rural community organization 2
     or *Education 74—The school and society, 3cr.
   - Education 169—Health information for teachers 3
   - Education 114—Organization of recreation services 3
   - Education 113—Theory and practice of group leadership (year) 6
   - Education 155—Principles of adult education 3
     or *Education 75—The nature and direction of learning, 3 cr.
   - Physical Education 59—Nature, function and organization of play 3
     or *educational methods course in minor subject, 4 cr.

7. Resource Courses
   - Core requirement for all:
     - Art Education 57a or 50a or Home Economics 2 3
     - Speech 19 or Agricultural Extension Education 144 2–3
     - Music 15 or 115 2–3
     - Physical Education 40a 1
     - Course credit or demonstrated proficiency in three recreational (individual or dual) sports 0–3
   - Concentrations:**
     - Six or more credits of approved courses in each of three areas chosen from the following: Arts and Crafts, Dramatics, Music, Natural Science, Sports and Games, Literature 18

THE MINOR IN RECREATION LEADERSHIP

Students in the School of Education or in other colleges of the University may qualify (subject to their own college regulations) for a minor in Recreation Leadership by completing the following requirements:

	Credits
Exploratory Courses	
Education 14—Introduction to recreation	2
Recreation Laboratory (year)	0
Professional Courses	
Education (or Social Work) 113 with field work (year)	6
Education (or Social Work) 114	3
(Majors in Physical Education may elect Physical Education 159 as alternative.)	
Resource Courses	
Art Education 57a or 50a or Home Economics 2	3
Speech 19 or Agricultural Extension Education 144	2–3
Music 15 or 115	2–3
Physical Education 40a	1
Course credit or demonstrated proficiency in two recreational (individual or dual) sports	0–2
Students with a major in Art Education, Speech (drama), Music or Physical Education will be considered as having met the resource requirement in that subject.	
Other approved resource courses, if needed, to complete 20 credits.	

* Required only of those students who wish to qualify for the University Teachers' Certificate.
** Students qualifying for the University Teachers' Certificate take six or more credits of approved courses in each of two areas in addition to courses required for their academic minor.

THE PROGRAM FOR THE PREPARATION OF ELEMENTARY SCHOOL TEACHERS

(Requirements for Graduation and the University Teachers' Certificate—Elementary Education—see pages 342, 343.)

General Nature of the Program

The Elementary Education Program is a four-year program of teacher education leading to a Bachelor of Science degree in Education. The program is for both men and women.

The program is designed to prepare general elementary school teachers for kindergarten and grades one through eight. There are also programs in the School of Education for preparing special elementary school teachers in art, speech, physical education, and music.

Sequences of courses in general education, professional education, and programs of laboratory and field experiences are included as related phases of the program over the four years. The student should consult his faculty adviser for assistance in planning an area of concentration and in the selection of additional general education courses in the junior and senior years. A student may choose an area of concentration from the following:

Art and Art Education
Language and Literature
Mathematics
Modern Languages (French, German, or Spanish)
Music
Physical Education
Science
Social Studies
Speech

Who May Enter the Program

Any student qualified to enter the University as a beginning freshman may apply for admission to the program for preparing elementary school teachers. Since the number is restricted, it is recommended that early application be made. The applicant will be notified of the action taken on his application for admission to this program at the time he is notified of admission to the University.

How to Apply for Admission to Program

Write to the Dean of the School of Education, University of Wisconsin, Madison 6.

Role in the University

Students in the program for elementary school teachers are regular members of the university student body and are eligible for participation in all extra-curricular activities, intercollegiate athletics, and special interest functions open to other students of the University.

For the first two years, the student will be a member of both the School of Education and the College of Letters and Science student bodies.

The Program of Studies

An adviser in the School of Education will work closely with the student to help him plan his program of courses for each semester of the four years in the University. The adviser will help the student to understand the scope of the whole program, to identify and make important decisions, and to make full use of university resources and opportunities.

The program in general education will be developed through work in the College of Letters and Science. There are three alternative programs outlined as requirements of the College of Letters and Science, from which the student may make his selection. These three curricula include the general requirements for the Bachelor of Arts, the Bachelor of Science, and the Integrated Liberal Studies programs.

After the orientation period in the first two years, the program for professional education is extended in the junior and senior years.

The following outline is an example of a general program for four years:

GENERAL PROGRAM FOR FOUR YEARS

During the freshman and sophomore years a student may choose to meet the basic requirements for the B.A. or the B.S. degree or the requirements for the Integrated Liberal Studies. The outline of courses below lists only the educational courses and total credit load for each semester. The requirements for the several curricula may be found in the bulletin of the College of Letters and Science.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Basic degree requirements	12–13	Basic degree requirements	12–13
Education 1—Integrated arts	2	Education 2—Integrated arts	2
Education 11a—Introduction to elementary education	1	Education 11b—Introduction to elementary education	1
Military Science (men)	0	Military Science (men)	0
Physical Education (all students)	0	Physical Education (all students)	0
	15–16		15–16

SOPHOMORE YEAR

Basic degree requirements*	12–13	Basic degree requirements*	12–14
Education 7—Integrated arts	2	Education 8—Integrated arts	2
Education 21a—Introduction to elementary education	1	Education 21b—Introduction to elementary education	1
Military Science (men)	0	Military Science (men)	0
Physical Education (women only)	0	Physical Education (women only)	0
	15–16		15–17

JUNIOR YEAR

Education 73—The Child: His nature and his needs	3	Education 75—The nature and direction of learning	4
Education 31a—Curriculum and instruction in the elementary school	4	Education 31b—Curriculum and instruction in the elementary school	4
Electives	8–9	Electives	7–8
	15–16		15–16

SENIOR YEAR

Education 41—Supervised teaching in the elementary school**	16	Education 74—School and society**	3
		Electives**	13–15
	16		16–18

THE PROGRAM FOR THE PREPARATION OF SECONDARY SCHOOL TEACHERS

(Requirements for Graduation and the University Teachers' Certificate—Secondary Education—see pages 343, 344.)

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.

Attention is called to the fact that "all the regulations of the major subject must be met, including at least 15 credits and 15 grade-points in advanced courses (in the major) in the University," (General Announcement of Courses—College of Letters and Science.)

---

* It is recommended that Mathematics 9 (Mathematics for elementary teachers) be taken one of these semesters. This course may also be elected in the junior year.

** These semesters will have to be interchanged in the programs of some students since it is not possible to provide teaching experience for all students during the same semester.

MAJOR IN AMERICAN INSTITUTIONS

PURPOSE

This major in the Division of Social Studies is designed for (a) students in the College of Letters and Science desiring a broad liberal knowledge of American life in a number of its phases and not specialization in a department, (b) students in the School of Education, and (c) students planning to enter the Law School. It is open only to students whose major interest is essentially interdepartmental in scope.

PROCEDURE

A Divisional Committee consisting of Professors Sharp *(chairman),* Barton, Brandeis, Curvin, Loomer, Olmstead, and Penniman administers the major. The chairman will assign a member of the committee as an adviser to each student entering the major. At the beginning of the junior year the student will work out a program of studies meeting the requirements below and secure the approval of the adviser representing the committee.

A student who plans to elect the major in American Institutions in the School of Education should, as early as possible, carefully plan his college work so as to complete:

a. the necessary and desirable major and minor combinations required for the University Teachers' Certificate;

b. statutory requirements of courses in conservation and co-operatives;

c. preparation for successful placement in positions in secondary schools.

In fulfilling the requirements of one major and two minor subjects, therefore, the student will normally satisfy the first minor requirement within the 40 credits of the American Institutions major. The second minor of 15 credits, required for certification by the State Department of Public Instruction, should be in a subject outside the general social studies field, and the practice teaching in connection with Education 75 should be in this second minor. For additional information the student should confer with Professor Burr W. Phillips before the beginning of his junior year.

PREPARATION FOR THE MAJOR

Students electing this major will normally have completed one or more of the required courses during their freshman and sophomore years. Integrated Liberal Studies provides a satisfactory background for the major. For other students, course work dealing with the antecedents of American Institutions is recommended in the freshman and sophomore years. This may be obtained in History 5a–b, History 3a–b, or English Literature. It is recommended that majors not planning to take advanced American Literature courses in the major meet their sophomore English requirements by taking English 40.

COURSE WORK

The 40 credits required by the major include:

I. Required Courses, totaling 22 hours, as follows:

6 cr. History 4a–b—History of the United States, 1607–1955 (with the consent of the adviser, the student may substitute: History 113—History of American thought and culture, or History 121—Social development of the American people).

3 cr. Political Science 7a or 107a—American government and politics.

4 cr. Economics 1a—General economics (with the consent of the adviser, students enrolled in the Integrated Liberal Studies program may substitute Integrated Liberal Studies 23—Modern industrial society).

3 cr. Geography 103—Geography of Anglo-America (with the consent of the adviser, the student may substitute Geograyhy 146—Historical geography: United States and Canada).

3 cr. Sociology 185—Modern American communities.

3 cr. American Institutions 110—Evaluation of American institutions. This is a final seminar for majors, given during the second semester, and scheduled normally at the end of the senior year.

II. Optional Courses, totaling 18 hours, selected from this list:
Art History and Criticism—131, 135, and 159
Contemporary Trends—103
Economics—1b, 4, 105, 110, 117, 119, 120, 122, 123, 124a, 124b, 126, 127, 134, 135, 136, 137, 139, 142, 143, 144, 145, 146, 148, 152, 158, 162, 166, 172, 177, and 179
English—112, 114, 140, 150, 166, 169, 170, 171, 173, 174, 190, and 191
Geography—104, 125, 126, 127, 128, 129, 146, and 153
History—101, 102, 103, 104, 105, 106, 107, 108, 109, 111, 112, 113, 117, 119, 120, 121, 122, 137, and 152
History of Science—170
Journalism—110, 111, and 114
Philosophy—54, 120, 134, 139, 147, 150, 157, 158, and 162
Political Science—7b or 107b, 13, 110, 112a–b, 115, 120, 21–121, 122, 123, 126, 131, 134, 135, 139, 143, 148, 152, 159, 163, 165, 166, 170, 171, 172, 173, 174, and 175
Psychology—105, 139
Social Work—145
Sociology and Anthropology—25, 39, 60, 78, 101, 114, 125, 126, 127, 130, 131, 133, 134, 136, 139, 144, 145, 150, 154, 156, 159, 161, 164, 171, 174, 177, 193, 198, and 199
Speech—116, 130, 131, and 156

COURSES OUTSIDE THE COLLEGE OF LETTERS AND SCIENCE

To take these courses, students will need to comply with the Twenty-Credits Rule (see the General Regulations of the College of Letters and Science, Section 17). Permission of the Dean is required for all except those starred:
School of Commerce—*43 and *178
School of Education—104 and 115
College of Engineering: Civil Engineering—141 and 142
Law School—Law in Society; History of Anglo-American Law
College of Agriculture: Agricultural Economics—114
With the approval of his adviser, the student will carefully select courses from the above list so that:

a. not more than 9 of the 18 hours are in one department,
b. at least half of the 40 hours of courses for the major are in courses numbered above 100,
c. at least 12 hours of the 18 hours of optional courses are approved by the adviser as relevant to a theme such as those described below, within the general field of American Institutions.

OPTIONAL THEMES OF INTEREST

Eleven themes are suggested here, any one of which will satisfy requirements II.c. above. The committee may approve a theme not listed here, provided it is interdepartmental in scope. After the description of each theme, representative courses are listed which will be approved by the adviser as relevant to it. But these are merely suggestive, not required, and the adviser will approve any other courses from the list above which are relevant to the theme and meet the individual needs of the student.

1. Rural Life in America. A large part of the American population still lives in rural surroundings, and rural areas will continue to be the great source of population reproduction and replacement for the cities. Traditions of the frontier, the farm, the mining and logging camp, and the village are fundamental in the American social and economic system, even in its urban aspects. Within this theme, students may study the agricultural environment, economy, and society; or they may view developments of American culture from a rural perspective.
Representative course offerings: Economics 117—Outlines of land economics (Agr. Econ.); History 152—Farmer movements; Pol. Sci. 134—Rural local government; Soc. 25—Rural life (Rural Soc.).

2. Urbanization and Industrialization. Since Theodore Roosevelt, national leaders have been concerned with the deep changes in American life occasioned by the shift to the city and the factory. Since most people work for others, central controls of financial investment, of transportation, power and other utilities, and of strategically located land become crucial to the economy. The family ceases to be the unit of work and play; new forces of social disorganization and dependence follow. In a mobile population, vertical affiliations with profressional or interest groups replace the old neighborhood affiliations. Cities sprawl over the surrounding countryside, and their industrialized media of communication reach the remotest farmstead. Accentuated social needs have brought forth new professions to which this theme should provide useful background: social work, corporate and industrial management, social research. Medicine, law, teaching, engineering, and architecture encounter new problems and opportunities in an urban industrial society.

   A program of studies on this theme may be selected in preparation for graduate study in metropolitan regional planning. For a description of the special major in Regional Planning (undergraduate), see College of Letters and Science bulletin.

   Representative course offerings: Geography 129—Urban geography; Soc. 177—The modern city; Pol. Sci. 13—Municipal government; Economics 134—Economic history of the United States; or History 122b—American economic life: the growth of industrial and finance capitalism; Economics 122—Labor problems; Pol. Sci. 163—Local planning administration.

3. Conservation and Planning in the Use of American Resources. America's wealth, productive capacity and welfare are intricately related to the quantity, quality and intelligent use of its mineral, soil, water, plant, animal, and population resources. The problems of conservation and planning in the wise use of resources become more critical as the ratio of population to available resources increases, as technology calls for more intensive use of resources, and as we begin to regard our part of the earth as a permanent homestead for the American people. The student will discover many new legal, political, scientific, and economic solutions to specific conservation problems.

   Representative course offerings: Economics 117—Outlines of land economics (Agr. Econ.); Geography 128—Conservation of natural resources; Philosophy 144—Philosophy of social planning; History 111—History of the West.

   One of the following courses dealing with the natural phenomena out of which conservation problems arise may, with approval of the adviser, be credited toward requirement I.b. above for students electing this theme: Soils 106, Wildlife Management 118, Geology 150 or 136, Botany 160 or 164, Zoology 124.

4. Implications of Technology for American Life. It is commonplace to speak of "the atomic age." In a wider sense, we may be in the process of a "technological revolution" which will leave its mark on our institutions as deeply as did the earlier phase, now called the Industrial Revolution. The pattern of technological change itself is studied in the history of science. Its interaction with economic institutions, with family, church, and government are explored in cultural anthropology and sociology. It is reflected as a formative influence in specific studies of the farm economy, business corporations, labor unions, law, political parties, government administration. Whether or not the scientific method comprises a philosophy, it has certainly had a powerful effect on American ideals. The interdepartmental course, Contemporary Trends, affords an unusual opportunity to bring these varied approaches into synthesis.

   Representative course offerings: History of Science 170—Modern science; Economics 146—Government and business; Philosophy 120—Philosophy of science; Contemporary Trends 103—Contemporary trends.

5. Social and Intellectual Development. This theme provides the opportunity to study the development of science, art, literature, philosophy, and law as influenced by, and in turn shaping, the society of which they are parts.

   Representative course offerings: Art History 131—American architecture; or Art

History 159—Development of American art; History 113—History of American thought and culture; Philosophy 139—American philosophers; English—Any 100 course in American literature.

6. Interpretations of American Social Development which have originated in the University of Wisconsin and have become part of its intellectual pattern and are as such known to the world: Frederick Jackson Turner's theory of the role of the frontier in American history and John R. Commons' theory of the "rise of bargaining classes" and of "industrial government."

   It is not the intention to indoctrinate the student but to demonstrate to him by these examples how original thinkers operating within the same culture as his own, have constructed intellectual configurations explaining the past and casting light on the present and future.

   Representative course offerings: Economics 119—Evolution of industrial society; Economics 145—American labor history; Philosophy 139—American philosophers; Pol. Sci. 115—Law in society; History 111—History of the West, 1763–1893.

7. Security and Opportunity in American Life. With the growth of large-scale social organizations, the traditional American ideal of opportunity comes into apparent conflict with human desires for security. In this theme the student may explore the historical ideals of enterprise, self-reliance and progress through political movements, literature, philosophy, and social manners. With these he may compare the drive for security evidenced by trade associations and union organization, new political alignments, welfare and assistance legislation; or as revealed by religion or psychology. He may thus seek scholarly perspective on what seems destined to remain a many-sided national controversy.

   Representative course offerings: Economics 120—Social security; or Econ. 123—Labor legislation; English 150—American fiction; or English 170—Contemporary American literature; Philosophy 150—A philosophy of democracy; Pol. Sci. 165—History of American political thought; History 108, 109—Recent history of the U.S.

8. America and World Problems. America's new position as the world's strongest nation, and a vigorous participant in international affairs opens up many lines of inquiry. A comparative study may be made of ideals and institutions, American and foreign. America's role may be observed in international trade, organizations, and politics. Students who may elect this might include those who are interested in the responsibilities posed for the citizen by the threat of war and national aggression, or who want a broad base for graduate training in international affairs. Those interested in the foreign service as a vocation, or in a slightly more concentrated study of international affairs should consider the major in International Relations.

   Representative course offerings: Economics 144—Capitalism and socialism; Geography 125—Political geography: world survey; History 120—American foreign relations; Social Studies 159—Current problems of American foreign policy (Pol. Sci. 159).

   Students electing *America and World Problems* as a theme may, with the approval of their adviser, satisfy part of the requirement II.c. above by courses on foreign areas or international affairs not listed under II. above.

9. Old World Contributions to American Life. Our concept of America as "the melting pot" conceals the distinctive influences of older populations and cultures. These are still reflected as differences among national-origin groups in America. But in a wider sense, we have taken up scientific discoveries, literary and artistic movements, legal devices, social ideals and economic practices from older societies. American institutions can be studied as offshoots of European institutions conditioned by developments affecting all human society.

   Representative course offerings: History 113—History of American thought and culture; or History 121—Social development of the American people; Economics 119—Evolution of industrial society; or Econ. 144—Capitalism and socialism; Soc.

145—The individual and his culture; Soc. 164—Problems of American minority groups; English 173—The rise of a national literature in America 1775–1836; Geography 146—Historical geography of the United States and Canada. In this theme, students may, with the approval of the adviser, satisfy the requirement II.c. above by courses on foreign governments or cultures not listed under II. above.

10. An Area of the United States. It is entirely possible to integrate one's study of American Institutions around a particular area of the United States. For instance a student interested in the northern part of Wisconsin would find relevant course work in geography, land economics, rural zoning, wildlife management, local government, archaeology and ethnography, rural sociology, and history. This theme will be especially productive for students who have an opportunity to make a systematic first-hand observation of the area chosen.

11. A Period Illustrative of American Development. An intensive study of an historical period, approached via several of the social studies, lends itself particularly well to an appreciation of the interrelation of institutions with environment and ideas. Examples are the post-Civil War period of railroad building, the period producing the Populist movement, the New Deal.

BIOLOGY

Students planning to major or minor in Biology should consult Professor Stauffer, Botany, or Professor Noland, Zoology, by the beginning of the junior year. (Please note also the statutory requirement for Wisconsin state license, p. 344.)

Major. A minimum of 40 credits, in addition to Education 97, which must include the following: (1) an elementary course in each of botany and zoology (ILS 33 and 34 together may be counted as 7 credits toward this major); (2) genetics; (3) a course in each of the departments of botany and zoology in each of the three following fields: (a) physiology (Physiology 3 may be substituted for zoology physiology); (b) a field or systematics course; (c) morphology.

Minor. The student shall present 20 credits in botany and zoology (ILS 33 and 34 together may be counted as 7 credits toward this minor), including one advanced course in either of the two departments and a minimum of 6 credits in each department, in addition to Education 97.

The Biology minor may not be combined with a Botany or a Zoology major or minor. If either a Zoology or Botany major or minor is taken, a minor consisting of 15 credits may be taken in the other department.

Education 97. The teaching of science, 2–5 credits.

BOTANY

John Frederick Stauffer, Professor of Botany, *Chairman*

(Please note also the statutory requirement for Wisconsin state license, p. 344.)

Major. 30 credits, including Botany 1 or 17 and an elementary course in zoology (ILS 33 and 34 will be accepted in place of an introductory course in botany and an introductory course in zoology for 7 credits toward this major). High-school mathematical preparation is required. Botany 24 may not be counted as an advanced course toward the major. Zoology 6 or 106 may be counted toward the major. A student who majors in the department and attains a grade-point average of 3.0 or above may be permitted to undertake an independent research problem and write a thesis during the senior year. Such a student should confer with his aviser or with the chairman of the department in regard to the feasibility of electing a thesis.

Minor. A minimum of 15 credits, which may include 3–5 credits in an introductory zoology laboratory course (ILS 33 and 34 accepted and credited as in the major above).

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 teacher's minor in Botany.

EDUCATION 97. The teaching of science, 2–5 credits.

CHEMISTRY

FARRINGTON DANIELS, *Ph.D.*, Professor of Chemistry, *Chairman*

(Please note also the statutory requirement for Wisconsin state license, p. 344.)

MAJOR. 24 credits in chemistry to include courses 4a and 4b, 8–10 credits; 10 or (11a, 11b), 4–8 credits; 120–122, 3–6 credits; 121, 2 credits; and 107, 2 credits. These course requirements may be satisfied by similar courses that are approved by the Chemistry Department. Chemistry 130 is recommended as an elective, a year of Physics is also recommended.

To be accepted as a candidate for a teaching major a student must have a grade-point average of 2.5 or better in chemistry courses taken prior to his junior year.

MINOR. 15 credits with a grade-point average of 2.2 or better in these courses. The following courses are required: 4a and 4b, 8–10 credits; 10, 4 credits; 120, 3 credits. These requirements may be satisfied by similar courses that are approved by the Chemistry Department.

EDUCATION 97. The teaching of science, 2–5 credits.

COMPARATIVE LITERATURE

GIAN N. G. ORSINI, *Dr. Lett.*, Professor of Comparative Literature, *Chairman*

This major serves a double purpose: first, to acquaint the student with the more important work, in translation or in the original, in the literatures of the world and to show their present-day significance; and second, to enable the student to study in their mutual relationships two or more literatures.

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 47 credits, including the following: (a) 21 credits in Department of Comparative Literature, including Course 7 or 9 or its equivalent. Course 165 is also required. In the senior year 2 to 4 credits may, in the judgment of the adviser, be taken as independent work. The result of this independent work is to be shown by a thesis or documented paper. Courses 100 and 181 are available for such work. (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. (c) 12 credits in related courses in at least two of the following departments: Art History, Philosophy, History. Courses in the language departments below the following numbers are not accepted as part of the major: Latin 21, Greek 20, English 37, French 21, German 20, Spanish 21, Italian 21, Scandinavian 21. For other literatures consult the Chairman of the Department of Comparative Literature.

MINOR. (Comparative Literature.) Comp. Lit. 9 and Comp. Lit. 165 are required. At least one other course should be taken to complete a total of 15 credits, the selection depending upon what is offered in the year during which the minor is being completed.

A teachers' course in Comparative Literature is not offered, but majors in Comparative Literature find it possible to fit themselves to teach in two departments and should arrange their teachers' course in accordance with their plans. Education 76 (The teaching of English), or any other course in the teaching of ancient or modern languages, is accepted in lieu thereof.

BIOLOGICAL ASPECTS OF CONSERVATION

Students interested in this major should consult with Professor John W. Thomson, Room 209, Birge Hall. (Please note also the statutory requirements for Wisconsin state license, p. 344.)

Objectives: To provide (a) a knowledge of the importance to man of biological resources; (b) an understanding of some of the relationships of these various resources to one another; (c) training in the natural sciences dealing with these resources; (d) an appreciation of the esthetic and recreational values and possibilities attached to these resources.

While this major will not train professionals in any phase of conservation, it will be training for subprofessionals such as biological aides, wardens, ranger naturalists, museum workers, etc., and will prepare for graduate work in certain phases of conservation. *If taken in the School of Education, it will be preparation for teaching in biology and general science.* It should also be useful as a cultural course and training for citizenship. Mathematical preparation is required, and a semester course or its equivalent in physics is required when taken in the School of Education.

1. Courses required of all students:

   A Survey of Botany (Botany 1 or 17)—5 cr. or 3 cr.
   A Survey of Zoology (Zoology 1 or 17)—5 cr. or 3 cr.
   A Survey of Geology (Geology 1 or 17)—5 cr. or 3 cr.
   or A Survey of Geography (Geography 2b or 17)—5 cr. or 4 cr.
   General Chemistry (Chemistry 1a)—5 cr.
   Flora of Wisconsin and Its Conservation (Botany 160)—3 cr.
   Conservation of Aquatic Resources (Zoology 124)—2 cr.
   or Field Zoology (Zoology 126)—3 cr.
   Conservation of Natural Resources (Geography 128)—3 cr.
   Wildlife Ecology (Wildlife Management 118)—3 cr.

2. Courses chosen from the following subjects, to bring the total to 50 credits; the number of credits in the 100-group of courses to total at least 25. (Subject to the rule governing election of courses outside of the college in which the student is enrolled.)

   Botany: Economic, Taxonomy, Dendrology, Identification, Ecology, Plant conservation.
   Economics: Land economics.
   Geography: Geography of North America, Geography of Wisconsin, Climatography, Mapping.
   Geology: Physiography, Soil erosion, Glacial geology, Mapping.
   Political Science: Government and natural resources, Rural local government.
   Zoology: Entomology, Ecology, Fishes, Birds, Mammals, Hydrobiology, Parasitology.
   Agricultural Economics: Land economics.
   Agricultural Engineering: Surveys and structures, Drainage and irrigation, Soil erosion.
   Agronomy: Crop production, Pastures.
   Entomology: Farm insects, Taxonomy, Control, Ecology.
   Forestry: Forest products, General forestry.
   Horticulture: Landscape design, Public grounds.
   Rural Sociology: Rural life, Rural local government.
   Soils: General survey, Soil erosion, Forest soils, Genesis and classification.
   Veterinary Science: Animal body, Fur farming.
   Wildlife Management: Wildlife ecology, Wildlife management.

3. At least one summer of practical experience, such as work with the Soil Conservation Service, the Wisconsin Conservation Department, the Fish and Wildlife Service, nature councillor at a camp, Ranger Naturalist, or the equivalent.

4. Attendance at the seminars in Wildlife, Limnology and Plant Ecology is recommended.

ECONOMICS

EDWIN YOUNG, *Ph.D.*, Professor of Economics, *Chairman*

(Please note also the statutory requirements for Wisconsin state license, p. 344.)

MAJOR. A minimum of 30 selected credits. Majors in Economics in the School of Education are required to fulfill the regular requirements for an Economics major in the College of Letters and Science, except that they may substitute Educational Statistics for Economics 130, and the requirement of three courses in one field is waived.

MINOR. Education 84 and a minimum of 15 credits in economics, to include Economics 1a and 1b (8 credits).

EDUCATION 84. The teaching of history and the social studies, 2–5 credits.

EDUCATION

For description of the courses offered in education, see pages 390–401. For detailed information on the requirements for the University Teachers' Certificate, see pages 342–344.

ENGLISH

HELEN C. WHITE, *Ph.D., Litt.D., L.H.D., LL.D.*, Professor of English, *Chairman*

By formal action the department recommends for the certificate all those whose general departmental rating is *B minus* or above. It withholds recommendation from all those whose general departmental rating is below *B minus*.

MAJOR. A minimum of 24 credits in advance of all required courses (that is, in advance of English 1, 2, 3, 11, 30, 32, 33, and 40) in freshman and sophomore English, and Education 76 (5 cr.). These 24 credits must include (1) one, and only one, of the following: 37, 136, 137; (2) two of the following, one of which must be either Chaucer or Milton: 57, 129, 131, 156, 157, 160, 161, 162; (3) at least one of the following: 112, 114, 132, 133, 134, 135, 138, 139b, 140, 150, 169, 174; (4) English 128 (for which, for B.S. candidates, English 2 or 3 is the prerequisite); (5) English 123 or 124; (6) three additional credits to be chosen in consultation with the adviser so as to round out the student's total English program. Candidates for teachers' certificates should be careful to include some work in the nineteenth and twentieth centuries, both British and American. In making their choice of an elective course they must remember that it may not come from among the Sophomore Literature courses (30, 32, 33, and 40).

Majors in English are strongly urged to plan with their advisers near the beginning of the junior year as much as possible of their total program, both in English and in other fields, for the junior and senior years.

MINOR. Education 76 (4 cr.) and a minimum of 18 credits in advance of Freshman English, to be selected as follows: I. Two semesters, and only two semesters, to be chosen from 30, 32, 33, 40 (30 and 33 may not be combined). II. One semester from the composition courses of the following group: 2, 3, 103, 105, 106, 107, 128. III. 123, or 124. IV. One of the following groups: (a) both 134 and 135; (b) one, and only one, among 37, 136, 137; (c) 169 and 174.

EDUCATION 76. The teaching of English, 2–5 credits.

FRENCH AND ITALIAN

JULIAN HARRIS, *Ph.D.*, Professor of French, *Chairman*

Students who expect to become teachers of French or Italian are advised to elect related courses in such fields as art history, history, history of science, other languages and literatures (especially English), music, music appreciation, and philosophy. By course work, reading, travel, visiting museums, attending worthwhile concerts, lectures, and theatrical perform-

ances, and by association with persons of education and taste, they should develop a broad and deep interest in the intellectual and artistic side of life upon which the humanistic studies are focused. Foreign-language teachers who have this sort of training and experience can be very important members of any community and can make invaluable contributions to the development of their pupils and to the life of the community. As part of their preparation such prospective teachers should seize every opportunity to increase their oral mastery of the language.

FRENCH HOUSE. *La Maison Francaise,* intended especially for training in speaking French, is maintained by the department. It is open to women students for room and board, and both men and women rooming outside may take their meals there. Young French women reside in the house to aid in conversation and preside at the tables where French only is spoken. Prospective teachers of French and all others desirous of acquiring practice in the spoken language are urged to room or board at the French House. With approval of the departmental faculty, a part of the prescribed training in conversation, necessary for the teachers' certificate, may be done in this House. Requests for further information and applications for rooms should be directed to the Chairman, Department of French and Italian, and sent well in advance, both for summer session and regular year.

ITALIAN TABLE. An Italian table is conducted several times a week whenever there is sufficient demand. Inquiries should be addressed to Professor Rossi.

CLUBS. French and Italian Clubs at the University give students the opportunity to hear talks and see films about the country whose language they are studying, and to converse in the language in which they are interested. Modern and classical plays are presented in public from time to time.

Those who expect to continue for advanced degrees should consult the bulletin of the Graduate School and elect the courses which are prerequisite to graduate work in the field. A special program is being planned under which students with a B.A. degree with a French major from a Liberal Arts college may take an "M.A. in French and Education" in one academic year and one eight-week summer session.

All majors and minors in French and Italian are required to register with the department at the beginning of their candidacy. Only candidates who have a grade-point average of 2.5 in the first two years of courses in the language will be accepted.

FRENCH

MAJOR. Candidates for the University Teachers' Certificate will be expected to be able to read, write, and speak the language with some facility and to have a general knowledge of the literature and civilization of France. The following specific requirements must be met:

1. 20 credits in courses of third-year college level (French 22) or above including:
   (a) 2 credits in practical phonetics (French 190);
   (b) 4 credits in conversation and composition courses (French 25, 124, 127). (Upon recommendation of the chairman of the department, training at the French House or foreign residence may be offered in lieu of this requirement);
   (c) 10 credits in courses in literature in the 100-group including 2–4 credits in French civilization (French 150); 4–6 of these must be taken in the senior year. (In lieu of this senior requirement, "upper-group" students may elect to write a senior thesis);
2. The Departmental Certificate of Oral Proficiency. (Examinations for oral proficiency are scheduled toward the end of each semester);
3. A course in the teaching of foreign languages (Education 81, 5 credits).

MINOR. Students intending to offer a minor in French should have their plan of French studies approved by Professor Laura B. Johnson. The following specific requirements must be met:

1. 10 credits in courses of third-year college level (French 22) or above including:

(a) 2 credits in practical phonetics (French 190);

(b) 2 credits in French composition and conversation (French 25, 124, 127), to be acquired before the second semester of the junior year. (Upon recommendation of the chairman of the department, training in the French House or foreign residence may be offered in lieu of this requirement);

(c) 6 credits in French 22 or 3 credits in a more advanced course in French literature or civilization;

2. The Departmental Certificate of Oral Proficiency. (Examinations for oral proficiency are scheduled toward the end of each semester);

3. 2 credits in Education 81 unless the student's major is another foreign language.

ITALIAN

MAJOR. (1) 24 credits in advance of Italian 1b, including 4 credits in composition and conversation with an average grade of *B*. (2) Education 81, The teaching of French and Italian, 5 credits.

MINOR. (1) 18 credits in advance of Italian 1b, including 2 credits in composition and conversation. (2) Education 81, The teaching of French and Italian, 4 credits.

EDUCATION 81. The teaching of French and Italian, 2–5 credits.

GENERAL SCIENCE

(See Natural Science, page 376.)

GEOGRAPHY

ARTHUR H. ROBINSON, *Ph.D.*, Professor of Geography, *Chairman*

(Please note also the statutory requirements for Wisconsin state license, p. 344, and the departmental statement in the bulletin of the College of Letters and Science or the General Catalog.)

Students preparing to teach geography as a major or minor subject should register with the department no later than the beginning of their junior year. Students should report to Mr. Sterling (Room 327 Science) for assignment to a departmental adviser.

MAJOR. A minimum of 30 credits as prescribed by the Department of Geography.

MINOR. A minimum of 15 credits to be prescribed by the Department of Geography. Ordinarily these will include at least one course in physical geography and selected regional and topical courses in cultural geography.

EDUCATION 84. The teaching of history and the social studies, 2–5 credits.

GERMAN

ROE-MERRILL S. HEFFNER, *Ph.D.*, Professor of German, *Chairman*

Students who are preparing to teach German as their major or minor subject should consult Professor Workman, if possible, at the end of their sophomore year, or, by letter during the summer months before the opening of the fall semester of their junior year. 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 be granted only on the basis of examination, and, in no case will students be recommended by the department unless they have taken at least 6 credits in German at the University of Wisconsin.

MAJOR. A minimum of 27 credits in advance of course 10a. These credits must include courses 25a, 25b (unless 112 is substituted), 131, 191. In addition, majors in German must take Education 83. A certificate of *oral proficiency in German* is awarded to those who pass

the oral proficiency test or who otherwise demonstrate the necessary command of the spoken language. This certificate is required of all teaching majors.

MINOR. A minimum of 15 credits in advance of course 10a. These credits must include courses 25a, 25b (unless 112 is substituted) and 9 credits in German literature, 3 of which must be from Group B (101–109). In addition, a minor in German must elect Education 81.

EDUCATION 81. The teaching of German—2–5 credits.

HISPANIC STUDIES (DIVISIONAL MAJOR)

EDUARDO ALVARO NEALE-SILVA, *Ph.D.*, Professor of Spanish, *Chairman*

MAJOR. Prerequisites for registration are: (a) completion of all or nearly all required subjects for the B.A. degree other than foreign languages; (b) 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 2a–2b (Physical geography); Geography 5 (Physical earth and its resources) or Georgraphy 17 (Survey of physical geography: man's natural environment); Geography 6–7 (World survey of cultural geography: I, Regional aspects; II, Economic aspects); History 2 (Modern European history); History 3 (European civilization, 800 to the present); History 4 (History of the United States); Political Science 7 (American government and politics). Following is a list of the required courses for this major:

	Credits
Art History 157—Patterns and principles of Spanish art (or cognate fields of Spanish or Spanish-American art offered by this department)	2
Economics 151—Economic problems of Latin America	2
Geography 102—Geography of South America	3
Political Science 130—Governments of Latin America	3
Spanish 47—Spain of today	3
Spanish 48—Spanish America of today	3
Spanish 112—Composition and conversation	2
Spanish courses above 100 in the field of literature	4
A total of 17 credits chosen from the following group	(17)
Anthropology 109—Archaeology of Mexico, Central, and South America	3
Anthropology 115—The Indians of Central and South America	3
Geography 111—Geography of Middle America	3
History 119—Latin-American history	6
Journalism 121—Interpreting Hispanic affairs	2
Political Science 131—The United States and Latin America	3
Spanish 117—Commercial and industrial language practice in Hispanic countries	2
Spanish 150—Spanish civilization	4
Spanish 151—Spanish-American civilization	4
Total credits required for major	39

Students who major in this field are required to obtain a grade of *B* in Spanish 112. Those who have not taken a second foreign language in high school or college are required to take a minimum of one year of college Portuguese, the language of Portugal and Brazil. For further information consult the bulletin of the College of Letters and Science.

HISTORY

HENRY B. HILL, *Ph.D.*, Professor of History, *Chairman*

(Please note also the statutory requirements for Wisconsin state license, p. 344.)

MAJOR. A minimum of 30 credits, as follows:

(1) Twelve credits in European History, of which 6 must be chosen from History 1, 2, 3.

5, and 10; this requirement must include Ancient and Medieval History (at least 3 credits in each).

(2) Six credits in American History.

(3) Fifteen credits in advanced history courses (numbered 100–199) taken in residence at the University of Wisconsin—advanced courses taken under (1) and (2) above count toward these 15 credits.

Outside the Department of History, Education 84 (5 cr.) is required.

Integrated Liberal Studies 12 (3 cr.) and 22 (4 cr.) are accepted as equivalent to History 1 and 2 and reckoned as Medieval History. History 5a counts also as Medieval History.

MINOR. Education 84 (4 cr.), and a minimum of 18 credits in History: 12 credits in European History, of which 6 must be chosen from History 1, 2, 3, 5, and 10 (this requirement must include Ancient and Medieval History—at least 3 credits in each); and a continuous year advanced course in American History, which must be taken in residence at the University of Wisconsin.

EDUCATION 84. The teaching of history and the social studies, 2–5 credits.

For additional information the student should confer with Professor Burr W. Phillips before the beginning of his junior year.

HUMANITIES (DIVISIONAL MAJOR)

For students who are candidates for the degree of Bachelor of Arts (Modern Humanities) or Bachelor of Arts (Classical Humanities) and who are also candidates for the University Teachers' Certificate, with joint registration in the School of Education.

(I) Choice of three of the following: (1) History or a Social Science, 16 credits; (2) English, including courses numbered 30 or 33, 32, or 40, and a course in Shakespeare, 15 credits; (3) Latin, 17 credits beyond Latin 11; (4) French, German, Spanish, or Italian, intermediate examination (14 credits). (II) Satisfaction of the specific requirements for the degree in the Humanities. (III) Completion of the required courses for the University Teachers' Certificate.

The requirements for graduation and certification are as follows: (I) A total of 124 credits and 124 grade-points. (II) Requirements for a teaching major and two teaching minor subjects will be satisfied by the blanket *divisional major*. (III) The B.A. degree in the Humanities. (IV) A rating by the Speech Examination Committee of the School of Education. (V) Recommendation from the Humanities Committee, and, for Classical Humanities students, from the Department of Classics. (VI) Certificate of physical health and fitness from the University Medical Examiner. (VII) Completion of the following professional requirements (18 credits): Education 73, 74, 75 and 81, and one of the following: Education 84, 76, or 81 for two credits. (VIII) Special statutory requirements for those who choose History and Social Science, 6 credits.

JOURNALISM

RALPH O. NAFZIGER, *Ph.D.*, Professor of Journalism, *Director*

MAJOR. A minimum of 30 credits, including Journalism 191 and the required studies of the Bachelor of Arts or Bachelor of Science (Journalism) degree.

Journalism candidates for the University Teachers' Certificate are required to register in the School of Education, as well as in the School of Journalism, at the beginning of the junior year. Such students should elect Education 76 (The teaching of English), should complete one minor in English (omitting the intermediate courses in English composition numbered 2 and 3) and may substitute a second minor in one social science in place of the 15 credits of advanced social science for the degree in Journalism (see the Letters and Science bulletin or the General Catalog). Evidence of proficiency in speech must be shown by meeting the requirements of either *Option A* or *Option B* (see page 342).

MINOR. A minimum of 15 credits, including Journalism 3 and 4, Journalism 191, and one semester of Journalism 2.

EDUCATION 76. The teaching of English, 2–5 credits.

LATIN

HERBERT MARSHALL HOWE, *Ph.D.*, Associate Professor of Classics, *Chairman*

MAJOR. A minimum of 25 credits beyond Latin 1b (two years of high-school Latin), or 17 credits beyond Latin 11 (four years of high-school Latin), including Latin 102 (6 cr.), 103 and 104 (6 cr.), 101 (4 cr.). For the teaching major, 5 credits in the methods of teaching Latin (Education 81), in addition to the courses listed above.

MINOR. A minimum of 19 credits beyond Latin 1b (two years of high-school Latin) or 11 credits beyond Latin 11 (four years of high-school Latin), including Latin 102 (6 cr.), 103 or 104 (3 cr.), and 101a (2 cr.). Education 81 is required of all minors who are not majoring in another foreign language.

EDUCATION 81. The teaching of Latin, 2–5 cr.

LIBRARY SCIENCE

RACHEL KATHERINE SCHENK, *M.A.*, Associate Professor of Library Science, *Director*

Students in the School of Education may qualify for a minor* in Library Science by earning 15 credits in the following courses:

L. S. 71—Introduction to cataloging and classification	2 cr.
L. S. 72—Introduction to reference	2 cr.
L. S. 73—Introduction to library materials	2 cr.
L. S. 142—Children's literature	3 cr.
L. S. 144—Reading interests of adolescents	3 cr.
L. S. 191—The School Library	3 cr.
TOTAL	15 cr.

The purpose of this minor is to prepare students for teacher-librarian positions, to meet licensing requirements in the state of Wisconsin, and also to meet the requirements of the North Central Association of Colleges and Secondary Schools. (This minor meets the pre-professional training requirements for admission to the Library School's graduate program.)

MATHEMATICS

CYRUS COLTON MACDUFFEE, *Ph.D.*, Professor of Mathematics, *Chairman*

MAJOR. Students majoring in mathematics are required to take a year's course in the calculus, and, ordinarily, a year's course in physics, preferably Physics 31. The course in physics should be taken concurrently with or following the course in calculus. In addition to these requirements the major comprises a minimum of 15 credits selected from the following courses: Mathematics 104, 106, 108, 111 or 112, 113, 115, 116, 117, 118, 119, 120, 121, 122, 123, 133, 134, 137, 138. However, students who are enrolled in the School of Education may count 3 credits of Education 93 as part of the 15-credits requirement. Students majoring in mathematics must earn a grade-point average of 2.25 or better in mathematics courses (excluding Education 93) included in the major. Those entering the junior class with advanced standing, who expect to complete a major in Mathematics in four semesters, should previously have completed their year's work in the calculus.

MINOR. This is composed of Education 93 and 15 credits in mathematics, including

* Since practice teaching and methods work are not available, this minor can be counted only as a second minor.

Mathematics 22 or 102b or the equivalent. A grade-point average of at least 2.25 is required in these mathematics courses.

EDUCATION 93. The teaching of mathematics, 2–5 cr.

MUSIC

(See pages 383–384.)

NATURAL SCIENCE

MAJOR. Fifty-five 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 and/or physical geography); 10 additional credits in one of these fields; 4 credits in physiology; and such elective courses in science as may be needed to make up the total requirement of 50 or 55 credits. (Please note also statutory requirement for Wisconsin state license, p. 344.)

(NOTE: This teaching major in Natural Science will be regarded as fulfilling the requirement of the School of Education for both a major and a minor. Also, the requirement of a major and two minors, as fixed by the *Wisconsin Department of Public Instruction,* is satisfied by the completion of this major.)

GENERAL SCIENCE MINOR for students whose major field is a field other than Natural Science: A minimum of 20 credits, including 5 or 6 credits covering the basic units of physics and 3 credits each in chemistry, botany and zoology, in addition to Education 97. (ILS 31, 32, 33 and 34 may be counted toward the total of 20 credits and ILS 33 and 34 may may be considered as satisfying the requirement in botany and zoology. Please note also the statutory requirement for Wisconsin state license, p. 344.)

EDUCATION 97. The teaching of science, 2–5 credits.

(For additional information consult Professor Milton O. Pella, Wisconsin High School.)

PHYSICAL EDUCATION

(See pages 352–358.)

PHYSICS

RAGNAR ROLLEFSON, *Ph.D.,* Professor of Physics, *Chairman*

(Please note also the statutory requirement for Wisconsin state license, p. 344.)

MAJOR. A minimum of 32 credits in physics which shall include the following courses: 1 or 31, or 51–52, 102, 103, 104a, 106a, and 106b. The remaining credits will be selected from physics courses numbered 100 and above, but not including 119. In addition, the student shall take Education 97.

MINOR. A minimum of 15 credits in physics selected from the courses listed for a major.

EDUCATION 97. The teaching of science, 2–5 credits.

PHYSIOLOGY

W. B. YOUMANS, *M.D.,* Professor of Physiology, *Chairman*

(Please note also the statutory requirement for Wisconsin state license, p. 344.)

MINOR. 15 credits, selected from the following: Physiology 35, 36, 105; Physiological Chemistry 104, 114; Anatomy 36; Physical Education 197 (Problems and materials in health education).

POLISH

(See Slavic Languages.)

POLITICAL SCIENCE

W. H. Young, *Ph.D.*, Professor of Political Science, *Chairman*

(Please note also the statutory requirement for Wisconsin state license, p. 344.)

Minor. Political Science 7a or 107a, plus a minimum of 12 credits. In addition, Education 84, The teaching of history and the social studies.

Education 84. The teaching of history and the social studies, 2–5 cr. (The attention of graduate assistants is called to Education 286, page 400.)

PSYCHOLOGY

Fifteen credits in psychology are accepted by the Wisconsin Department of Public Instruction in satisfaction of requirements for one academic minor. However, Psychology is not accepted as a minor for the University Teachers' Certificate.

RUSSIAN

(See Slavic Languages.)

SLAVIC LANGUAGES

Edmund Zawacki, *Ph.D.*, Associate Professor of Slavic Languages, *Chairman*

POLISH

Major. (a) 24 credits in advance of course 1b, 15 of which must be in advanced courses. (b) Education 81.

Minor. (a) 18 credits in advance of course 1b, 10 of which must be in advanced courses. (b) Education 81.

RUSSIAN

Major. (a) 24 credits in advance of course 1b, 15 of which must be in advanced courses. (b) Education 81.

Minor. (a) 18 credits in advance of course 1b, 10 of which must be in advanced courses. (b) Education 81.

Education 81. The teaching of French, Italian, Latin and Spanish, 2–5 credits. (Special arrangements about practice teaching must be made since no practice teaching in Polish or in Russian is available.)

SOCIOLOGY AND ANTHROPOLOGY

David A. Baerreis, *Ph.D.*, Professor of Anthropology, *Chairman*

(Please note also the statutory requirement for Wisconsin state license, p. 344.)

Major. Thirty credits in sociology and anthropology to include Sociology-Anthropology 1a, or 101a and Sociology 2 (6 cr.), 51 (3 cr.), 32 or 132 (3 cr.), 139 (3 cr.), and Anthropology 40 (3 cr.). Twenty credits in related social studies (basic degree requirements in the social studies area) and Education 84 (5 cr.) are required in addition.

Minor. Sociology-Anthropology 1a or 101a, Sociology 2, and Anthropology 40 for a total of 9 credits, plus 6 additional credits in sociology or anthropology, to make a total of 15, and Education 84 (4 cr.)

Note: Sociology-Anthropology 1a or 101a has been substituted for the former require-

Education 84. The teaching of history and the social studies, 2–5 credits.

ments Sociology 1 and Anthropology 3. For students who have had Sociology 1 *or* Anthropology 3 *but not both*, the following substitutions should be made: Anthropology 40 for Anthropology 3; Sociology 79 for Sociology 1.

SPANISH AND PORTUGUESE

SPANISH

E. R. MULVIHILL, *Ph.D.*, Professor of Spanish, *Chairman*

Students who expect to become teachers of Spanish are advised to elect related courses in such fields as art history, history, other languages and literatures (especially English and Latin), music, music appreciation, and philosophy. They should develop a broad and deep interest in the intellectual and artistic side of life upon which the humanistic studies are focused. As a part of their preparation, prospective teachers should avail themselves of the opportunity to use Spanish by active participation in the Spanish Corridor (during the summer session), in the Spanish and Latin-American clubs, and in Spanish plays.

Those who expect to continue for advanced degrees should consult the bulletin of the Graduate School and elect the courses which are prerequisite to graduate work in the field.

All education majors and minors in Spanish must develop adequate oral facility in order to be recommended for a teaching certificate. Before such recommendation is made, the candidate must pass an oral proficiency examination which is given each semester by the department.

MAJOR. Twenty-seven credits in advance of Spanish 10a, and distributed as follows:

Spanish 10b	3 credits	
Spanish 21a and b	6 credits	
Spanish 16	4 credits	
Spanish 25	4 credits	
Spanish 190	2 credits	(with a grade of *B* or above)
Spanish courses on the 100 level	8 credits	(must include one literature or civilization course. At least 2 credits in civilization are recommended.)
	27	

and Education 81 (5 credits) which does not give credit in Spanish. Well-qualified students may apply to the chairman of the department for permission to write a thesis.

MINOR. Fifteen credits in advance of Spanish 10 as follows:

Spanish 10b	3 credits	
Spanish 16	4 credits	(1 year of 16 or 25)
Spanish 21a and b	6 credits	
Spanish 25	2 credits	(with a grade of *B*)
	15	

and also Education 81, if not majoring in another foreign language. Minor students are advised to elect Spanish 190.

EDUCATION 81. The teaching of Spanish, 2–5 credits.

PORTUGUESE

Special arrangements will be made for students interested in majoring or minoring in this language. In general a major will consist of 16 credits of work in the 100-group, including 4 credits in composition and conversation.

Attention is also called to the teaching major in Hispanic Studies. See p. 373.

SPEECH

FREDERICK W. HABERMAN, *Ph.D.*, Professor of Speech, *Chairman*

MAJOR. A minimum of 30 credits, including courses 1, 2, 3, 6, 18 or 25, and 141, to be taken in sequence so far as possible. Those beginning the major in their junior year are

urged to take courses 1, 6, and 18 concurrently if possible. Twelve credits including Speech 141 must be in courses numbered above 100. In addition to the required 30 credits, 5 credits must be earned in Education 198.

MINOR. A minimum of 15 credits in approved courses, including courses 1 and 2. In addition to these 15 credits, 4 credits must be earned in Education 198.

SPEECH CORRECTION MAJOR. A minimum of 30 credits in Speech, including courses 1, 2, 25, 121, 125, 126, 141, 143, 179, and 185. 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 Psychology 105, Education 125, Education 128, and Education 145, or the equivalent. In addition to the above courses, 5 credits must be earned in Education 198. In selecting a minor, the Speech Correction major has the following options: (a) to complete the minor in Health Education; (b) to complete the requirements of an academic minor as listed in the School of Education bulletin by the department offering the minor; (c) to complete a minimum of 15 credits in a recognized teaching field in the secondary school program (without particular reference to the specifications of the department concerned). A major in Speech Correction does not need to satisfy the requirements of a second minor for a license to teach in the State of Wisconsin.

SPEECH CORRECTION MINOR. A minimum of 15 credits, including courses 1 and 25, with the remaining credits to be chosen from courses 121, 125, 126, and 185. Also 4 credits in Education 198.

EDUCATION 198. Speaking and listening in the high school, 2–5 credits.

ZOOLOGY

ARTHUR D. HASLER, *Ph.D.*, Professor of Zoology, *Chairman*

(Please note also the statutory requirement for Wisconsin state license, p. 344.)

MAJOR. A minimum of 30 credits including introductory zoology (one only of the following: Zoology 1, 2, 17, or ILS 33–34), Invertebrate Zoology (141 or a combination of 119 with either 101 or 112), Vertebrate Zoology (104 or 105), Ecology (143 or two of the following: 115, 124, 125, 140, Wildlife Management 118 and Botany 160 or 164), and Physiology (Zoology 121, 127 or 144). Botany 1 or 17 or ILS 33–34 is required and counts toward the major. One year of chemistry is prerequisite for the physiology requirement.

MINOR. A minimum of 15 credits. Zoology 1 and 2, which together constitute a year's work, are especially recommended. Botany 1 or 17 or ILS 33–34 may be credited toward the minor provided the major and the other minor are not in a biological science.

EDUCATION 97. The teaching of science, 2–5 credits.

PROGRAM FOR TEACHERS OF AGRICULTURE AND HOME ECONOMICS

The four-year courses in Agriculture and 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, *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 and the School of Home Economics.

Graduates of the four-year Course in Agriculture and in Home Economics who have complied with the regulations relative to registration and to approval of major and minor subjects will be entitled to receive the University Teachers' Certificate upon fulfillment of the special professional requirements indicated below.

SPECIAL STATUTORY REQUIREMENTS

For teachers of science, the social studies, and agriculture.

Chapter 397, Laws of 1935, State of Wisconsin, reads as follows: "In granting certificates for the teaching of courses in economics, the social studies, and agriculture adequate instruction in co-operative marketing and consumers' co-operatives shall be required." *See Agricultural Economics 127,* Co-operation (first semester or second semester).

AGRICULTURAL AND EXTENSION EDUCATION

WALTER T. BJORAKER, *Ph.D.,* Associate Professor of Agricultural Education, *Chairman*

Students in the College of Agriculture who wish to prepare for the teaching of agriculture in secondary schools must complete, in addition to a major and a teaching minor, the general requirements of the Long Course in Agriculture and the eighteen credits in education required for the University Teachers' Certificate as outlined below. Also, they must show evidence of proficiency in speech as prescribed under *Option A* or *Option B,* page 342. The major consists of twenty-one credits in the Department of Education and Agricultural Education which also meet the requirements for the Certificate. Students are advised to follow the elective list furnished by the Department of Agricultural and Extension 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
EDUCATION 73—The child: His nature and his needs	
or	
EDUCATION 74—The school and society	3
EDUCATION 75—The nature and direction of learning	3
EDUCATION 91—Student teaching	2
AGRICULTURAL AND EXTENSION EDUCATION 1—Rural education	2
AGRICULTURAL AND EXTENSION EDUCATION 128—Program building in vocational agriculture	3
EDUCATION 50—The teaching of agriculture	5
	18

MINOR IN GENERAL SCIENCE. For students whose major is a field other than natural science. A minimum of 20 credits, including 5 or 6 credits covering the basic units of physics and 3 credits each in chemistry, botany and zoology, in addition to Education 97.

MINOR IN COMMUNITY RELATIONSHIPS. Economics 1a, 4 credits; Agricultural Economics 4, 3 credits; Agricultural Economics 127, 3 credits; Rural Sociology 25, 3 credits; Political Science 7, 3 credits; a course in political science, rural sociology, or American history, 3 credits; Education 84, 2 credits. Total credits, 21.

HOME ECONOMICS EDUCATION

FRANCES ZUILL, *M.A.,* Professor of Home Economics, *Associate Dean*

MAJOR. To prepare for teaching home economics in high schools and in vocational schools, a student must fulfill the requirements in the Home Economics and Education major, the major in Clothing and Textiles, or the major in Foods and Nutrition, and, in addition, must include the following courses in education which are required for the University Teachers' Certificate:

	Credits
EDUCATION 73—The child: His nature and his needs	3
EDUCATION 74—The school and society	3
EDUCATION 75—The nature and direction of learning	3
EDUCATION 52—Teaching of home economics (junior year)	5
EDUCATION 156—Teaching of homemaking in vocational programs	5
A course in the teaching of the academic minor or a 2 cr. elective in education	2
	21

Evidence of speech proficiency must be shown by meeting the requirements of either *Option A* or *Option B* (see page 342).

VOCATIONAL SCHOOL REQUIREMENT: Candidates for the University Teachers' Certificate who prepare for teaching homemaking in schools of vocational and adult education must take Education 156 for 5 credits and Education 52 for 5 credits.

ACADEMIC MINOR. The certification regulations of Wisconsin Department of Public Instruction provide that majors in Home Economics shall have one academic teaching minor. This academic teaching minor requirement may be met by one of the following plans:

1. The completion of an academic teaching minor as described by an academic department in the University of Wisconsin (see pages 362–379.) A two-credit course in the teaching of the academic minor is required. Chemistry, general science, history, the social studies, health education and English have proved satisfactory academic minors in combination with a Home Economics major.

A minor in Chemistry for Home Economics students includes: Chemistry 1, 10 credits; Biochemistry 1 or 3, 4 credits; Textile Chemistry (Home Economics 50), 3 credits; Education 97, 2 credits. Other academic teaching minors are described on pages 362–379.

2. The completion of an academic teaching minor consisting of 15 credits of college courses in an academic subject area recognized as a teaching field in the secondary school. The student may elect to take a two-credit methods course in the minor or a two-credit elective in Education (the recognized academic teaching fields in the secondary school are those described on pages 362–379).

MINORS FOR STUDENTS IN THE SCHOOL OF EDUCATION. A minor for students who plan to teach home economics, in combination with their academic major, in small high schools of Wisconsin, must include 20 credits in Home Economics 2, 3, 5, 7, 8, 50, 109 or 119, 117, or equivalent, and Education 52 (3 cr.).

MINORS FOR HOME ECONOMICS STUDENTS. Home economics students, with a major in Foods and Nutrition or in Clothing and Textiles, should include a minor in another phase of home economics.

(1) A teaching minor in Foods and Nutrition should include Home Economics 3, 4, and 6.

(2) A teaching minor in Textiles and Clothing should include Home Economics 2, 5, 11, 50, and 197.

(3) A teaching minor in Related Art should include Home Economics 2, 8, 18, 20, and 194.

EDUCATION 52—The teaching of home economics, 3 or 5 credits.

EDUCATION 156—Teaching homemaking in vocational programs, 5 credits.

EDUCATION 288—Seminar in home economics education, 2 credits.

COURSE FOR TEACHERS OF BUSINESS EDUCATION

RUSSELL J. HOSLER, *Ed.D.*, Professor of Education and of Commerce

Students interested in the major in Business Teacher Education should consult Professor Hosler prior to their junior year.

The program in business-teacher education is offered jointly by the School of Education and the School of Commerce. The student enrolled in this curriculum will be graduated from the School of Commerce, but, in order to receive the University Teachers' Certificate, must register concurrently in the School of Education, and will complete the following requirements:

EDUCATION 73—The child: His nature and his needs, 3 cr.

EDUCATION 74—The school and society, 3 cr.

EDUCATION 75—The nature and direction of learning, 3 cr.

EDUCATION 20—The teaching of the secretarial subjects, 4 or 5 cr.

EDUCATION 77—The teaching of bookkeeping and the social business subjects, 4 or 5 cr.

(Includes practice teaching.)

(NOTE: The student may elect only one of the two methods courses—Education 20 or 77, for 5 credits.)

Evidence of proficiency in speech must be shown by meeting the requirements of either *Option A* or *Option B* (see page 342).

COMMERCE

a. The Pre-Commerce and basic Commerce courses required of all students in the School of Commerce.

b. Economics 1b, to complete requirements for University Teachers' Certificate minor. (The student may elect a minor other than economics.)

c. The following courses in secretarial training (enrollment in these courses for credit is limited to those students enrolled in the business education curriculum):

COMMERCE 63—Beginning typewriting, 2 cr.

COMMERCE 64—Advanced typewriting, 2 cr.

COMMERCE 65—Fundamentals of shorthand, 4 cr.

COMMERCE 66—Advanced shorthand, 4 cr.

COMMERCE 163—Secretarial techniques, 3 cr.

COMMERCE 164—Office procedures, 3 cr.

Students who have had previous preparation in typewriting or in shorthand will be given attainment examinations prior to enrollment in typewriting or in shorthand. Based upon the attainment examinations, exemption may be granted from Commerce 63, 64, 65, or 66. If the student is exempted from any course (or courses) in typewriting and/or shorthand, he shall select an equivalent number of elective credits.

Commerce 63 and/or Commerce 65 shall be taken without credit by those students who have had more than one year in high school in typewriting and/or shorthand, and who do not meet proficiency standards as determined by the attainment examinations.

A total of not less than 130 credits is required to graduate from the curriculum in business education.

The program as outlined in business education will qualify the student for the University Teachers' Certificate with a major in Business Education and a minor in Economics. It is recommended also that the student secure teaching minors in other subject fields.

COURSE FOR TEACHERS OF MUSIC

S. T. BURNS, *Ph.D.*, Professor of Music and Education, *Chairman*

Candidates for the degree of Bachelor of Music who wish to obtain the University Teachers' Certificate are required to register also in the School of Education at the beginning of the junior year, to give evidence of proficiency in speech as prescribed under *Option A* or *Option B* (see page 342) and to earn (subject to the quality-of-work rule) a total of 130 credits and 260 grade-points, including a minimum of 32 credits in Letters and Science and the 19 required credits in education. The degree for such students will not be awarded unless and until the requirements for the certificate have been met, and *vice versa*. The following courses in education are required:

	Credits
EDUCATION 73—The child: His nature and his needs	3
EDUCATION 74—The school and society	3
EDUCATION 75—The nature and direction of learning	3
EDUCATION 91—Student teaching	2
EDUCATION 4—Music education for elementary schools	4
EDUCATION 5—Music education for secondary schools	4

MINOR. Designed for persons who have some musical background and skill and who wish to do part-time music work while teaching subjects in their major fields. All such music minors must pass entrance tests for admission to the School of Music. Required: 22 credits in the following courses: Music 11a and 11b (Theory), 8 credits; Music 76a (Conducting), 2 credits; Music 65 or 75 (Instrumental techniques), *or* Music 62 (Voice), 4 credits; Music 85, 86, and 87 (Organizations), 6 credits; electives in Music, 2 credits and in addition, Education 4 and 5, 2 credits each.

CURRICULUM FOR A MAJOR IN SCHOOL MUSIC—VOCAL

RECOMMENDED SEQUENCE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Music 11a—First-year theory	4	Music 11b—First-year theory	4
Music 20a—Appreciation and history	2	Music 20b—Appreciation and history	2
Music 61, 62, 63, 64a—Applied music	2	Music 61, 62, 63, 64b—Applied music	2
Music 85, 86, 87—Music organizations	1	Music 85, 86, 87—Music organizations	1
English 1a—Freshman English	3	English 1b—Freshman English	3
L & S Electives	4	L & S Electives	4
Physical Education	0	Physical Education	0
Military Training	0	Military Training	0
	16		16

SOPHOMORE YEAR

Music 21a—Second-year theory	4	Music 21b—Second-year theory	4
Music 30a—Music in the Baroque era	2	Music 30b—Music in the Classic era	2
Music 65a, or 75a—Instrumental technics	2	Music 65b, or 75b—Instrumental technics	2
Music 71, 72, 73, 74a—Applied music	2	Music 71, 72, 73, 74b—Applied music	2
Music 85, 86, 87—Music organizations	1	Music 85, 86, 87—Music organizations	1
English	3	English	3
L & S Electives	3	Speech 1a	3
Physical Education (women only)	0	Physical Education (women only)	0
Military Training	0	Military Training	0
	17		17

JUNIOR YEAR

Music 9a—Quartets of Haydn and Mozart	1	Music 9b—Quartets of Mozart and Beethoven	1
Music 38—Vocal technic and song literature	2	Music 40b—Music in the post-Romantic era	2
Music 40a—Music in the Romantic era	2	Music 76b—Conducting	2
Music 76a—Conducting	2	Music 81, 82, 83, 84b—Applied music	2
Music 81, 82, 83, 84a—Applied music	2	Music 85, 86, 87—Music organizations	1
Music 85, 86, 87—Music organizations	1	Education 75—Nature and direction of learning	3
Education 73—The Child: His nature and his needs	3	Education 91—Student teaching	2
Education 74—The school and society	3	Electives	3
	16		16

SENIOR YEAR

First Semester	Credits	Second Semester	Credits
Music 34a—Arranging	2	Music 34b—Arranging	2
Music 91, 92, 93, 94a—Applied music	2	Music 91, 92, 93, 94b—Applied music	2
Music 85, 86, 87—Music organizations	1	Music 85, 86, 87—Music organizations	1
Education 4—Music education for elementary schools	4	Music 138—Choral technic and literature	2
Electives	7	Education 5—Music education for secondary schools	4
		L & S Electives	3
		Electives	2
	16		16

CURRICULUM FOR A MAJOR IN SCHOOL MUSIC—INSTRUMENTAL

FRESHMAN YEAR

Music 11a—First-year theory	4	Music 11b—First-year theory	4
Music 20a—Appreciation and history	2	Music 20b—Appreciation and history	2
Music 61, 62, 63, 64a—Applied music	2	Music 61, 62, 63, 64b—Applied music	2
Music 85, 86, 87—Music organizations	1	Music 85, 86, 87—Music organizations	1
English 1a—Freshman English	3	English 1b—Freshman English	3
L & S Electives	4	L & S Electives	4
Physical Education	0	Physical Education	0
Military Training	0	Military Training	0
	16		16

SOPHOMORE YEAR

Music 21a—Second-year theory	4	Music 21b—Second-year theory	4
Music 30a—Music in the Baroque era	2	Music 30b—Music in the Classic era	2
Music 65a—Instrumental technics	2	Music 65b—Instrumental technics	2
Music 71, 72, 73, 74a—Applied music	2	Music 71, 72, 73, 74b—Applied music	2
Music 85, 86, 87—Music organizations	1	Music 85, 86, 87—Music organizations	1
English	3	English	3
Speech 1a	3	L & S Electives	3
Physical Education (women only)	0	Physical Education (women only)	0
Military Training	0	Military Training	0
	17		17

JUNIOR YEAR

Music 38—Vocal technics and song literature	2	Music 40b—Music in the post-Romantic era.	2
Music 40a—Music in the Romantic era	2	Music 75b—Instrumental technics	2
Music 75a—Instrumental technics	2	Music 76b—Conducting	2
Music 76a—Conducting	2	Music 81, 82, 83, 84b—Applied music	2
Music 81, 82, 83, 84a—Applied music	2	Music 85, 86, 87—Music organizations	1
Music 85, 86, 87—Music organizations	1	Education 75—Nature and direction of learning	3
Education 73—The Child: His nature and his needs	3	Education 91—Student teaching	2
Education 74—The school and society	3	Electives	3
	17		17

SENIOR YEAR

Music 9a—Quartets of Haydn and Mozart	1	Music 9b—Quartets of Mozart and Beethoven	1
Music 34a—Arranging	2	Music 34b—Arranging	2
Music 91, 92, 93, 94a—Applied music	2	Music 91, 92, 93, 94b—Applied music	2
Music 85, 86, 87—Music organizations	1	Music 85, 86, 87—Music organizations	1
Education 4—Music education for elementary schools	4	Education 5—Music education for secondary schools	4
Electives	2	Electives	5
L & S Electives	3		
	15		15

TABLE OF CREDITS

Major	L & S Cr.	Music Cr.	Education Cr.	Electives Cr.	Total Cr.
Applied Music	46	84	0		130
History and Theory	46	84	0		130
School Music — Vocal	32	70	19	9	130
School Music — Instr.	32	72	19	7	130

MINOR IN HEALTH EDUCATION

The teaching minor in Health Education is primarily for students who are preparing to teach in any of the following fields: child development, elementary education, home economics, physical education, recreation, science, and social studies. It provides prospective teachers with an enlightened philosophy of health education, a background of health science, and a core of skills and techniques for motivating desirable health behavior among boys and girls. This minor is planned to prepare teachers to: (1) teach health as a separate course or as a planned integral part of other teaching areas, and (2) assist the school administration and teaching staff in developing a broad school health program.

A teaching minor in a special field requires a total of 20 credits, of which 14 may be earned through courses in closely related areas, and 6 must be in the special field (including a methods course). The following is a composite of the courses which have been approved by the School of Education and the State Department of Public Instruction for certification in health education.

Background Courses. A minimum of 14 credits from this group including some in biological sciences (at least one and preferably two) and some in social sciences (at least one and preferably two). It is desirable that the credits be drawn from several different departments in the following list:

BIOLOGICAL SCIENCES

	Credits
Anatomy	
Human Anatomy 36	6
Physical Education Anatomy 39	4
Agricultural Bacteriology	
General Survey of Bacteriology 1	4
General Survey 4	4
Biochemistry	
Elementary Biochemistry 1	2–4
Survey of Biochemistry 3	4
Chemistry	
Organic Chemistry 120	2
Organic Chemistry 121	2
Integrated Liberal Studies	
Biology 33	3
Biology 34	4
Home Economics	
Nutrition and Dietetics 6	4
Survey of Nutrition Principles 117	2–3
Child Nutrition 147	2
Physical Education (Women)	
Physiology Applied to Physical Education Activities 103 (or Physiology 116)	3
Physical Education (Men)	
Effects of Physical Activities on the Body 107 (or Physiology 116)	2
Physical Examinations and Therapeutics 119a or 119b	3
Physiological Chemistry	
Physiological Chemistry 104	5
Physiological Chemistry 114	3
Physiology	
Elements of Human Physiology 1	4
Elementary Physiology 2	4
Physiology 115	5
Physiology 116 (or Physical Education 107 or 103)	3

Preventive Medicine
- Health Problems for University Students 1 1

Zoology
- Animal Biology 1 5
- General Zoology 2 5
- Heredity 6 2–3

SOCIAL SCIENCES

Geography
- Geography of the Americas 3 3
- Geography of Anglo-America 103 3
- Geography of Wisconsin 104 2
- Conservation of Natural Resources 128 3

History
- History of the United States 4a or 4b 3
- Recent History of the United States 124 3
- European Civilization 3a or 3b 3
- Modern European History 2a or 2b 3

Home Economics
- Humanities (Home and Family) 109 2
- Development of the Young Child in the Home and Nursery School 119.... 2

Integrated Liberal Studies
- Transition to Industrial Society 22 4
- Modern Industrial Society 23 4

Psychology
- Introduction to Psychology 1 4
- Applied Psychology 50 2
- Psychology of Human Adjustment 105 3
- Psychology of Human Emotions 108 3
- Child Psychology 147 3
- Psychology of Adolescence 148 3

Political Science
- American Government and Politics 7 3
- Introduction to Public Administration 143 3

Social Work
- Introduction to the Field of Social Work 145 3
- Child Welfare 162 2–3

Sociology
- Man, Culture, and Society 1a 3
- Social Disorganization 2 3
- Marriage and the Family 60 3
- Sociology of the Family 159 3
- Social Psychology 139 3
- Contemporary American Society 96 3
- The Modern City 124 3
- Treatment and Prevention of Social Disorganization 154 3
- Processes of Social and Community Disorganization 169 3
- Modern Population Problems 163 3
- Racial and Minority Groups in the U. S. 164 3

Rural Sociology
- Rural Life 25 3
- Rural Community Organization 127 2
- The Family in Rural Society 129 2

HEALTH EDUCATION

Health Education courses—a minimum of 6 credits from this group:	
*Education 169—Health education for teachers	3
*Education 197—(Men's Physical Education 197) Problems and materials in health education	3
Education 170—School and community health problems	3

* Education 169 followed by Education 197 is the recommended sequence and combination for a minimum 6 credits.

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
sem—semester course may be scheduled in any 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 AND APPLIED ART

PROFESSORS ANNEN, LOGAN *(chairman)*; ASSOCIATE PROFESSORS ANDERSON, GRILLEY, MEEKER, SESSLER, WILDE, ZINGALE; ASSISTANT PROFESSORS COLESCOTT, LITTLETON, VIERTHALER, WEINBERG, ZAGORSKI; INSTRUCTORS KREILICK, MARX, SCHINNELLER.

The following courses are open to Letters and Science students in the same way as regular Letters and Science subjects: Art Education 50a, 50b, open to freshmen and others; Art Education 52, 54, 55, 56, 62, 71, 72, 140, 150, and 171 open to sophomores and upperclassmen. Other courses are open to election by Letters and Science students upon approval of the dean of that college.

50a. BASIC DRAWING. I, II; 3 cr. Freehand drawing and perspective. Open to freshmen. Mr. Colescott, Mr. Grilley, Mr. Marx, Mr. Wilde.

50b. BASIC DRAWING. I, II; 3 cr. Freehand drawing, light and shade. Prerequisite: Art Education 50a. Mr. Colescott, Mr. Grilley, Mr. Marx, Mr. Meeker, Mr. Wilde.

52. WATERCOLOR. Yr; 2–3 cr. Prerequisites: Art Education 50b, 54. Mr. Anderson, Mrs. Annen, Mr. Zingale.

53. ART SURVEY. Introduction to contemporary arts. Yr; 2 cr. Mr. Logan.

54 (formerly 64). COMPOSITION. Sem; 3 cr. Prerequisite: Art Education 50b. Mr. Zingale.

55. LIFE DRAWING AND ANATOMY. Yr; 3 cr. Prerequisite: Art Education 50b. Mr. Grilley, Mr. Meeker, Mr. Wilde.

56. OIL PAINTING. Yr; 3 cr. Prerequisites: Art Education 54a and 55a. Mr. Colescott, Mr. Grilley, Mr. Meeker, Mr. Zingale.

57. DRAWING AND DESIGN. Sem; 3 cr. For Occupational Therapy, Recreation, and Elementary Education students. Mrs. Annen, Miss Kreilick.

60. LAYOUT AND LETTER STRUCTURE. Sem; 3 cr. Proportions of the classical letter. Contemporary layout and lettering adaptations. Open to freshmen in the Course in Art Education. Mr. Anderson, Mr. Zagorski.

62a. CREATIVE DESIGN. Yr; 3 cr. Open to freshmen. Home Economics majors with a prerequisite of Home Economics 2 (Introduction to related arts) may enter either semester. Mrs. Annen, Mr. Colescott, Mr. Marx, Mr. Zagorski.

62b. CREATIVE DESIGN. Yr; 3 cr. Prerequisite: Art Education 62a. Mrs. Annen, Mr. Colescott, Mr. Marx, Mr. Zagorski.

70. ART METAL. Yr; 3 cr. Problems in copper, silver, gold, pewter, lapidary. Prerequisite: Art Education 62. Mr. Vierthaler, Mr. Zagorski.

71. CERAMICS. Yr; 3 cr. Prerequisite: Art Education 62. Mr. Littleton.

72 (formerly 54). SCULPTURE. Yr; 3 cr. Mr. Andrews, Mr. Weinberg.

106. STAGE LIGHTING. Sem; 3 cr. Prerequisite: Junior standing. Mr. Buerki.

108. PAINTING FOR OCCUPATIONAL THERAPY. Sem; 3 cr. Prerequisite: Art Education 57. Mrs. Annen.

132. FIGURE PAINTING AND PORTRAITURE. Yr; 3 cr. Prerequisite: Art Education 56. Mr. Meeker.

140. DESIGN FOR STAGE AND TELEVISION. Yr; 3 cr. First semester: Principles of design in relation to scenic designing and television production. Mr. Colescott. Second semester: Application of these principles; scene construction and lighting in the University Theater. Mr. Buerki. Prerequisite: Art Education 62. Also open to students registered in or with credit in Speech 10a or 19b or graduate standing in speech.

150. ADVANCED ART PROBLEMS. Yr; 1–3 cr. Special course open only to seniors and graduate students, with consent of chairman and instructor.

152. ADVANCED WATERCOLOR. Yr; 2–3 cr. Prerequisite: Art Education 52, or equivalent. Mrs. Annen, Mr. Anderson, Mr. Zingale.

155. ADVANCED LIFE DRAWING. Yr; 1–3 cr. Figure composition; methods of interpreting the human figure. Mr. Grilley, Mr. Meeker, Mr. Wilde.

156. ADVANCED PAINTING. Yr; 2–3 cr. Prerequisite: Art Education 56. Mr. Anderson, Mr. Colescott, Mr. Grilley, Mr. Zingale.

160. GRAPHIC ARTS. Yr; 3 cr. Prerequisites: Art Education 54a, 62 and consent of instructor. Mr. Sessler.

161a (formerly 61a). ART IN ELEMENTARY EDUCATION. Yr; 3 cr. Prerequisite: Junior standing. Mr. Andrews.

161b (formerly 61b). ART IN SECONDARY EDUCATION. Yr; 3 cr. Prerequisite: Art Education 161a. Mr. Andrews.

162. DESIGN RESEARCH. Yr; 2–3 cr. Advanced work in field of creative design. Prerequisite: Elementary course in design. Mrs. Annen.

163. COMMERCIAL DESIGN. Yr; 3 cr. Prerequisites: Art Education 50, 60, 62. Mr. Anderson.

166. SILK SCREEN PROCESSES. Yr; 3 cr. Prerequisite: Consent of instructor. Mr. Meeker.

167a. ADVANCED GRAPHICS. I; 2–3 cr. Advanced work in wood-cut, wood engraving, and etching. Prerequisite: Art Education 160b. Mr. Sessler.

167b. ADVANCED GRAPHICS. II; 2–3 cr. Advanced work and original research in lithograghy. Prerequisite: Art Education 160b. Mr. Sessler.

170. ADVANCED ART METAL. Yr; 3 cr. Projects include enameling, jewelry techniques. Mr. Vierthaler.

171 (formerly 168). ADVANCED CERAMICS. Yr; 2–3 cr. Prerequisite: Art Education 71 or consent of instructor. Mr. Littleton.

172 (formerly 154). ADVANCED SCULPTURE. Yr; 2–3 cr. Prerequisite: Art Education 72, or equivalent. Mr. Weinberg.

173. Gem Cutting. II; 2–3 cr. A lecture-laboratory course in Lapidary Science. Special emphasis on natural phenomena of design elements and proper cutting on individual gem stones. Prerequisites: Art Education 70a and 70b or Geology 106, junior standing, consent of instructor. Mr. Vierthaler.

174. Photographic Design. Yr; 3 cr. Application of design principles to photography. Prerequisite: Art Education 54 for art education majors; consent of instructor for other majors. (Not offered in 1955–56). Staff.

175. General Crafts. Yr; 2–3 cr. Prerequisite: Art Education 57 or 62b. Miss Kreilick.

177. Materials Workshop (Design). Yr; 3 cr. Prerequisites: Art Education 62b, junior standing. Mr. Zagorski.

179. Museum Techniques. Sem; 2 cr. Prerequisite: Junior standing. (Not offered in 1955–56.) Staff.

180. Advanced Independent Study. Yr; *cr. Open only to upper-group students with consent of the chairman and instructor. Staff.

200. Research Problem:. Yr; *cr. Prerequisite: Graduate standing. Staff.

210. Seminar, Art Education. Yr; 2 cr. Prerequisite: Graduate standing. Mr. Logan.

211. Reading and Research Problems in Art Education. Yr; *cr. Prerequisite: Graduate standing. Staff.

The Teaching of Art. See Education 62, 63, and 171, pages 392, 391, and 397.

EDUCATION

Professors Barr, Borchers, Burns, Davis, Dalrymple, Dawe, Edgerton, Eye, Fowlkes, Gregg, C. Harris, Henderson, Herrick, Hosler *(Chairman)*, Jensen, Johnson, Krug, Liddle, Little, Low, Mayor, Nohr, Peterson, Phillips, Rothney, Southworth, Stiles, Wittich, Zuill; Associate Professors Arnold, Bjoraker, Cronin, Eberman, Estvan, T. Harris, Klausmeier, Kreitlow, Pella, Rhue, Searles, Stanley, Trump; Assistant Professors Bach, Baker, Beery, Borrowman, Gauger, Hutchins, Iverson, Paxton, Petzold, Siggelkow, Sledge, Steffen, White; Lecturers Juola, Shannon; Instructors Goldgruber, Schinneller, Weightman.

UNDERGRADUATE PROFESSIONAL EDUCATION COURSES

ELEMENTARY EDUCATION

Education 1, 2, 7, 8, 11a, 11b, 21a, 21b, 31a, 31b, 41, 73, 74, and 75 are basic education courses required of students working to qualify for certification to teach in the elementary school. (Education 73 is a prerequisite for Education 75 and is to be taken concurrently with Education 31a. Education 75 is a prerequisite for Education 41 and is to be taken concurrently with Education 31b.)

SECONDARY EDUCATION

Education 73, 74, 75 plus student teaching experiences in both the first minor and major fields are basic requirements to qualify for certification to teach in the secondary school. Education 73 is a prerequisite for Education 75 and student teaching (Education 91 or student teaching credits attached to the Minor Methods Course). Education 75 and teaching in the first minor field are prerequisites to the Methods Course and student teaching in the major field. Education 75 and the Methods Course in the minor field are to be taken concurrently.

UNDERGRADUATE PROFESSIONAL COURSES ELEMENTARY AND SECONDARY SCHOOL

Introductory Courses

1. INTEGRATED ARTS.* I; 2 cr. Direct studio experiences in areas of visual and plastic arts; movement and dance; speech and dramatics; and music. Staff.

2. INTEGRATED ARTS.* II; 2 cr. Continuation of Education 1 with emphasis on the understanding of the interrelatedness of the arts and their place in contemporary society. Prerequisite: Education 1. Staff.

7. INTEGRATED ARTS.* I; 2 cr. Continuation of Education 2 with emphasis on greater maturity in and understanding of the arts. Observation and study of drama and art productions of the campus in addition to direct studio experiences. Prerequisite: Education 2. Staff.

8. INTEGRATED ARTS.* II; 2 cr. Continuation of Education 7. Greater emphasis on the role of art in the personal and social development of the individual. Continued studio experiences and participation in the art and cultural life of the university community. Prerequisite: Education 7. Staff.

11a. INTRODUCTION TO ELEMENTARY EDUCATION.* I; 1 cr. Overview of programs of elementary education. Field trips and observations. Staff.

11b. INTRODUCTION TO ELEMENTARY EDUCATION.* II; 1 cr. Examination of the general nature of the instructional program of the elementary school. Field trips and observations. Continuation of Education 11a. Staff.

14. INTRODUCTION TO RECREATION. I; 2 cr. The nature of recreation and its effect on people; history of the movement in America; personal and environmental resources for recreational experience; agencies of recreation. Mr. Hutchins.

21a. INTRODUCTION TO ELEMENTARY EDUCATION.* I; 1 cr. Definition of the persistent problems of teaching and learning in the elementary school. Field trips and observations. Continuation of Education 11b. Staff.

21b. INTRODUCTION TO ELEMENTARY EDUCATION.* II; 1 cr. Continuation of emphasis on definition and analysis of persistent problems of teaching and learning. Field trips and observations. Continuation of Education 21a. Staff.

63. DEVELOPMENT AND PRACTICES OF AMERICAN ART EDUCATION. Sem; 2 cr. Present status and practice of general art education as the product of strong art movements and general curricular developments. Mr. Logan, Mr. Schinneller.

Basic Undergraduate Courses

31a, I; 31b, II. CURRICULUM AND INSTRUCTION IN THE ELEMENTARY SCHOOL.* Yr; 4 cr. per semester. Principles and practices in organizing and developing the instructional program; major emphasis on social studies, science, arithmetic, reading and other language arts. Includes school observation and participation. Prerequisites: Junior standing and Education 21b. Education 31a is to be taken concurrently with Education 73. Education 31b is to be taken concurrently with Education 75. Staff.

73. THE CHILD: HIS NATURE AND HIS NEEDS. I, II; 3 cr. Major sequences in the social, physical, and mental development of children from birth through adolescence; identification of the more specific problems children meet in growing up; techniques in observing children and interpreting their behavior. (Open only to candidates for the University Teachers' Certificate—Elementary or Secondary School.) Prerequisite: Junior standing. Staff.

74. THE SCHOOL AND SOCIETY. I, II; 3 cr. Social control of the school. Democracy and education. School and community. Professional status of teachers. (Open only to candidates for the University Teachers' Certificate—Elementary and Secondary School). Staff.

*Open only to candidates for the University Teachers' Certificate—Elementary School.

75. The Nature and Direction of Learning. I, II; 3 or 4 cr. (4 cr. for majors in Elementary Education; 3 cr. for all others.) The nature, processes, outcomes, and conditions of learning; organization and direction of pupil learning activities. (Open only to candidates for the University Teachers' Certificate—Elementary or Secondary School.) Prerequisites: Junior standing, Education 73. Staff.

Methods and Student Teaching Courses

4. Music Education for Elementary Schools. I; 2, 3, or 4 cr. Teaching materials and procedures for the development of musical responsiveness in the elementary grades; problems of organization and administration. Lectures, observation and laboratory practice. Mr. Burns.

5. Music Education for Secondary Schools. II; 2, 3, or 4 cr. The development of music curricula in junior and senior high schools; materials and procedures for high school music groups. Lectures, observation and laboratory practice. Mr. Burns.

20. Teaching of Secretarial Subjects. I; 2–5 cr. Mr. Hosler.

41. Supervised Teaching in the Elementary School. I, II; 16 cr. A 6-week workshop designed to provide needed methods, techniques, and materials. Full-time teaching for a 12-week period under intensive supervision. (Open only to candidates for the University Teachers' Certificate—Elementary School.) Prerequisites: Senior standing, Education 31b and Education 75. Staff.

50. Teaching of Agriculture. I, II; 2–5 cr. Mr. Bjoraker.

52. Teaching of Home Economics. I, II; 3–5 cr. Miss Henderson.

62. Teaching of Art. II; 2–5 cr. Mr. Bach.

69. Teaching of Physical Education (Women). Yr; 6 cr. (4 cr. educational practice, 2 cr. theory.) Miss Cronin, and others.

70. Teaching of Physical Education (Men). I, II; 2–5 cr. Mr. Anderson.

76. Teaching of English. I, II; 2–5 cr. Mr. Searles.

77. Teaching of Bookkeeping and the Social Business Subjects. II; 2–5 cr. Mr. Hosler.

81. Teaching of French, German, Italian, Latin, and Spanish. I, II; 2 or 5 cr. Miss Johnson and Staff.

84. Teaching of History and the Other Social Studies. I, II; 2–5 cr. Mr. Phillips.

91. Student Teaching. I, II; 1–5 cr. The selection, organization, presentation and evaluation of learning experiences in actual classroom situations. Staff.

93. Teaching of Mathematics. II; 2–5 cr. Mr. Mayor.

97. Teaching of Science. I, II; 2–5 cr. Mr. Davis.

113. Theory and Practice of Group Leadership. Yr; 3 cr. (See Field V.) Prerequisite: Senior standing. Mr. Lengfeld.

156. Teaching Homemaking in Vocational Programs. Yr; 4 cr. (See Field V.) Prerequisite: Education 75. Miss Dalrymple.

198. Speaking and Listening in the High School. I, II; 2–5 cr. (See Field V.) Miss Borchers.

CLASSIFICATION OF ADVANCED COURSES

A. Educational Foundations

Field I. Human Development, Behavior, and Learning
Field II. Educational Survey, Theory and Criticism
Field III. Measurement, Statistics, and Research Procedures

B. Educational Functions
- Field IV. Administration and Supervision
- Field V. Curriculum Planning and Teaching of School Subjects
- Field VI. Educational Diagnosis and Remediation
- Field VII. Guidance and Personnel Services

C. Individual Study

EDUCATIONAL FOUNDATIONS

FIELD I. HUMAN DEVELOPMENT, BEHAVIOR, AND LEARNING

118. Human Abilities and Learning. I, II; 3 cr. Principles and techniques of learning; individual differences in education. Prerequisite: Education 75 or consent of instructor. Mr. Klausmeier or Mr. Stanley.

119. Human Development in Infancy and Early Childhood. I; 3 cr. A course dealing with the behavior and development of children up to adolescence. (Not open to students who have had or are taking Psychology 147.) Mr. Jensen.

120. Human Development in Adolescence. II; 3 cr. Physical, physiological, social, and mental changes which characterize the transition from childhood to adult life. Mr. Jensen.

123. Early Childhood Education. (See Field V.) Miss Dawe.

124. Education for Self-Adjustment. Sem; 3 cr. An exploration and evaluation of verbal responses, action patterns, and problem-solving techniques which maintain and foster integrity of the self.

125. Nature of the Exceptional Child. Sem; 3 cr. Psychological nature of mental, social, and physical deviates. Mrs. Arnold or Mr. Jensen.

153. Conceptual Learning. Sem; 3 cr. Transfer generalization, meaning, and problem solving, with particular reference to published classroom experiments. Mr. Stanley.

179. Field Work in Child Development.

206. Laboratory Study of School Learning Problems. II; 2 cr. Experimental study of individual and group learning processes; development of laboratory techniques; interpretation of laboratory data. Staff.

207. Field Study of School Learning Problems. I, II; 2 cr. Systematic study of school learning problems in actual school situations. Staff.

208. Foundations of Student Adjustment. I, II; 3 cr. Critical study of personality and adjustment processes with emphasis on implications for education. Prerequisite: Education 118 or equivalent. Mr. Klausmeier.

209. Modern Psychological Theories and Education. II; 3 cr. Critical study of the educational implications of conflicting psychological theories and systems. Prerequisite: Education 118. Mr. Stanley.

210. Theory and Practice of Learning. II; 3 cr. Study of theoretical literature and experimental studies having implications for human learning situations with special reference to controlled experiments in the classroom. Mr. Stanley.

219. Seminar in Child Development. Yr; 2 cr. Mr. Jensen.

249. Seminar in Educational Psychology. Yr; 2 cr. Mr. Stanley or Mr. Klausmeier.

FIELD II. EDUCATIONAL SURVEY, THEORY, AND CRITICISM

104. Social History of Education. I; 3 cr. Survey of school development from early times to the present. Previous courses in the history of western civilization will be helpful. Mr. Borrowman.

106. Comparative Education. II; 2–3 cr. Survey of forgein school systems, especially those of France, Germany, England, Russia, and Latin America.

115. Social Issues and Education. II; 3 cr. Contemporary social issues or problems and their significance for educational purposes and practices. Mr. Krug.

155. Principles of Adult Education. I; 2–3 cr. Philosophy, principles, and practice of adult education as evidenced in programs of various adult education organizations. Relationship of methods to principles of adult education. Mr. Kreitlow.

168. Rural Education: Community Backgrounds. II; 3 cr. Influences of rural community life on the educational program. Principles involved in determining educational needs and in making needed adaptations in rural organizations and institutions. Mr. Kreitlow.

172. (formerly Education 217). Modern Philosophies of Education. I; 3 cr. Critical comparison of present-day schools of thought on the nature, objectives, and functions of American education. Mr. Borrowman.

190. History of Education in the American Culture. I, II; 3 cr. A study of the development of educational theory and practice against a background of American social and intellectual history. Previous courses in American history are recommended. Mr. Borrowman.

209. Modern Psychological Theories and Education. (See Field I.)

215. The Educational Philosophy of Experimentalism. II; 3 cr. Study of the educational writings of John Dewey and other experimentalist educators. Previous graduate study in general or educational philosophy is recommended. Mr. Borrowman.

218. Seminar in Educational Theory and Criticism. II; 2 cr. Special problems and assignments. Prerequisite: Education 115, 172, 209, or 258. Mr. Borrowman.

220. Issues in Rural Education. I, II; 3 cr. Survey and analysis of major issues and problems confronting rural education. Implications for rural life. Evaluation of proposed solutions. Mr. Kreitlow.

221. Issues in Secondary Education. Sem; 3 cr. Analysis of the major issues or problems in secondary education today. Implications for secondary school organization, administration, and curriculum planning. Mr. Krug.

222. Issues in Elementary Education. I, II; 3 cr. Critical survey of issues and trends; their social, educational bases; implications for elementary schools; examination and analysis of major problems. Mr. Herrick or Mr. Eberman.

248. Seminar in Recent Developments in Higher Education. Yr; 2 cr. Mr. Little.

258 (formerly Education 108.) A Study of Educational Classics. II; 3 cr. Reading and discussion of educational classics. Education 104, though not a prerequisite, is a desirable foundation for this course. Mr. Borrowman.

271. Financial Support of Public Education. I; 3 cr. Contemporary bases for raising and distributing federal, state and local funds for public education. Problems and issues involved in financial support of public schools. Detailed analysis of school support in one state. Previous course in economics, especially in finance, recommended. Mr. Peterson.

FIELD III. MEASUREMENT, STATISTICS, AND RESEARCH PROCEDURES

111. Principles of Appraisal and Evaluation in Education. II; 3 cr. Introduction to a general theory of school appraisal of equipment, personnel, teaching practices, administrative organization, etc. Principles of organizing, conducting, and interpreting the findings of an evaluation program. Mr. C. Harris.

112. Statistical Method Applied to Education. I; 3 cr. An introductory course in de-

scriptive statistics; measures of central tendency and variability; correlational techniques; and related topics. Mr. Barr.

131. FOUNDATIONS OF EDUCATIONAL MEASUREMENT. I; 3 cr. Introduction to a theory of mental measurement, with particular reference to intelligence and personality. Problems of reliability, objectivity, validity, types of scales, types of norms, etc. Mr. C. Harris.

201. TECHNIQUES OF EDUCATIONAL RESEARCH. II; 3 cr. Reading and interpretation of research literature; study of research methods; and planning of research studies. Mr. Barr.

211. MULTIVARIATE ANALYSIS. II; 3 cr. Advanced course in statistics. Factor analysis, discriminant analysis, canonical correlation, etc., will be considered in relation to each other. Contributions of Fisher, Hotelling, Spearman, Thurstone, Rao and others. Prerequisite: Education 112 or its equivalent. Mr. C. Harris.

212. INTERMEDIATE STATISTICS. 3 cr. A second course in statistics devoted to sampling theory, the various tests of statistical significance, X^2, student's "t," analysis of variance, co-variance, and related topics. Mr. Barr.

213. STATISTICAL ANALYSIS AND DESIGN IN EDUCATIONAL RESEARCH. II; 3 cr. Survey of major types of statistical design in educational research. Various types of correlation analysis, random vs. cluster sampling procedures, sequential analysis, etc. Mr. C. Harris.

225. TEST CONSTRUCTION. I; 3 cr. Principles of test construction and test validation. Methods of studying and improving written examinations, performance tests, anecdotal records, etc. Mr. C. Harris.

226. SEMINAR IN MEASUREMENT, STATISTICS, AND RESEARCH TECHNIQUES. Yr; 2 cr. For students pursuing research involving measurement and statistical techniques. Mr. C. Harris.

EDUCATIONAL FUNCTIONS

FIELD IV. ADMINISTRATION AND SUPERVISION

193. INTRODUCTION TO SUPERVISION: THE PLANNING AND EVALUATION OF EDUCATIONAL PROGRAMS. II; 3 cr. A study of teacher-learner situations and relationships as a basis for improving educational programs. Mr. Barr or Mr. Eye.

261. NATIONAL, STATE, AND COUNTY SCHOOL ADMINISTRATION. I; 3 cr. Federal activities and relationships in education. State organization and administration of public education. Principles of satisfactory school district organization. Mr. Gregg.

262. LOCAL SCHOOL ADMINISTRATION. II; 3 cr. Principles of local school organization and administration. Functions of boards of education, administrators, teachers, specialists, pupils and laymen in the administration of public education. Mr. Eye or Mr. Gregg.

263. ADMINISTRATION OF TEACHER PERSONNEL. 2–3 cr. Techniques and problems of administration related to the more effective service of the teaching personnel. Mr. Eye.

268. BUSINESS ADMINISTRATION IN LOCAL SCHOOL SYSTEMS. II; 3 cr. Financial accounting, unit costs, financial reports; insurance; depreciation; budgetary procedure and school budgets. Mr. Gregg or Mr. Peterson.

271. FINANCIAL SUPPORT OF PUBLIC EDUCATION. (See FIELD II.)

272. SCHOOL BUILDING AND SCHOOL-BUILDING PROGRAMS. II; 2–3 cr. Determination of school-plant needs based upon educational program, population, and utilization studies. Evaluation of existing school plant. Mr. Gregg.

275. LEGAL ASPECTS OF SCHOOL ADMINISTRATION. I; 3 cr. The legal character of the public school corporation. Legal authority, powers, and liabilities of school personnel. Legal control of school finances, curriculum, property. Emphasis on state and Federal court decisions. Mr. Peterson.

278. Seminar in School Administration. I, II; 2 cr. For advanced students and others pursuing research problems. Mr. Gregg or Mr. Eye.

Field V. Curriculum Planning and Teaching of School Subjects

General Curriculum Planning

174. Introduction to Curriculum Planning. I; 2–3 cr. The concept of curriculum in modern American education. Foundation principles and major objectives. Mr. Krug.

175. Practices of Curriculum Planning. II; 3 cr. Development of curriculum guides and teaching aids. Use of teaching aids in pupil-teacher planning. Organization of curriculum programs on the state-wide basis and in local school systems. Prerequisite: Education 174 or consent of instructor. Mr. Krug or Mr. Liddle.

244. Seminar in Curriculum Construction. II; 2 cr. Opportunity to develop curriculum materials or work on individual problems in curriculum. Prerequisite: Consent of instructor. Mr. Krug.

Curriculum Planning at Various School Levels

123. Early Childhood Education. I, II; 2–3 cr. Trends, basic principles, and curriculum planning for the nursery group education of preschool children. Miss Dawe.

140. Elementary School Curriculum. II; 3 cr. Basic concepts of curriculum; the relation of foundation areas to the problems of curriculum development; modern trends in developing educational programs for children. Mr. Herrick.

147. Curriculum Problems and Practices in Kindergarten-Primary Education. 3 cr. Current practices, instructional materials and teaching techniques studied in relation to basic principles underlying kindergarten-primary education. Miss Rhue and Staff.

240. Seminar in Elementary Education. Yr; 2 cr. Provides opportunity to work on individual problems. Current research problems and programs are reported and analyzed. Mr. Herrick.

141. Secondary School Curriculum. I; 2–3 cr. Social function of the secondary school; recent developments; historical development of the curriculum; types of curricula; relation of the curriculum and the extra-curriculum; preparation of units of instruction. Mr. Krug or Mr. Liddle.

157. Part-Time Education. 3 cr.

Curriculum Planning and Instructional Materials

116. Proseminar on Family Financial Security Education. 6 cr. Staff.

163. Classroom Use of Radio and Television. 2–3 cr.

165E, 165S. Section 165E, as applied to elementary education; Section 165S as applied to secondary education. The role of and selection and use of audio-visual teaching materials. The chalkboard, community study, graphics, three-dimensional materials; maps, globes, and charts; classroom radio, classroom television, 16 mm. sound film, still projection devices, tackboard and study displays. Emphasis on effective utilization of audio-visual materials. Prerequisite: Consent of instructor. 3 cr. Mr. Wittich, Mr. Allen, Mr. Iverson, Mr. White.

166A. Local Production of Audio-Visual Materials. 2–3 cr. Designed for those interested in production of slides, view-graph cells, models, terrain maps, filmstrips, 16 mm. sound pictures. Emphasis on course-of-study implementation through production techniques at local level. Camera required. Prerequisite: Consent of instructor. Mr. Wittich or Mr. Iverson.

166B. Local Production of Audio-Visual Materials. 2–3 cr. Survey and practice in production of 16 mm. sound and silent film for instructional purposes via straight projection or television. Includes research, authentication, script writing, direction, photography, cutting, editing, sound, conforming. Prerequisite: Consent of instructor. Equipment: 16 mm. semi-professional motion-picture camera recommended. Mr. Wittich or Mr. Iverson.

265. Seminar in Audio-Visual Education. 2 cr. Primarily to offer further study of problems involved in the administration and supervision of audio-visual instruction. Opportunity for wide reading and specific problem consideration. Prerequisite: Education 165 or consent of instructor. Mr. Wittich, Mr. White.

Curriculum Planning in Relation to Teaching Procedures and Teacher Education

235. Seminar in the Development and Improvement of Teaching Methods. Yr; 2 cr. Criticism and report upon current methods of teaching; planning experimental studies of teaching methods and related topics. Mr. Barr.

245. Seminar in the Pre-Service Education of Teachers. Yr; 2 cr. For advanced students interested in problems of teacher education. Mr. Barr.

290. Field Practice in Supervision, Curriculum, and Method. I, II; 2–3 cr. Designed to supply first-hand experience in supervision, curriculum making, and teaching through directed field practice. Students assigned to cooperating schools and activities according to needs. Staff.

Curriculum Planning and Instruction in School Subjects

Art:

171. Contemporary Practices in Art Education. Sem; 3 cr. Recent experimental and theoretical developments in art education, analyses of teaching techniques and adaptation for classroom use of new art methods and media. Mr. Bach or Mr. Logan.

Business Education:

121. Improvement of Instruction in Shorthand and Typewriting. I; 3 cr. Problems in development of occupational proficiency in shorthand and typewriting; achievement and aptitude tests; standards of achievement; integration of shorthand, typewriting, English, and style. Prerequisite: Teaching experience. Mr. Hosler.

162. Improvement of Instruction in the Basic Business Subjects. 3 cr. A course for teachers of basic business subjects. Objectives, instructional materials available, teaching techniques, and testing procedures. Analysis of research in the field. Mr. Hosler.

173. Basic Principles of Business Education. II; 3 cr. Philosophy of business education; administrative and supervisory problems; departmental organization; guidance, placement, and follow-up practices; and the critical analysis of research in business education. Mr. Hosler.

238. Seminar in Business Education. Yr; 2 cr. Mr. Hosler.

English Language and Literature:

133. Reading in the Elementary School. Sem; 2–3 cr. Problems arising in a well-rounded reading program; development of basic reading abilities and skills; improvement of attitudes and tastes; adjusting materials and methods to individual needs. Miss Rhue.

142. Reading in the Secondary School. II; 3 cr. The development and evaluation of effective reading habits, especially in the content fields, in junior and senior high schools. Mr. T. Harris.

146. Children's Literature. I, II; 3 cr. To acquaint students with the best books for children through wide reading and interpretive study of literature of all time. Evaluation and use of current materials. Miss Rhue.

158. Directing Instruction in the Language Arts. II; 3 cr. Mr. Pooley.

177. Teaching Language and Composition in the Secondary School. 3 cr. For teachers of secondary school English. Problems, curricular materials, and teaching procedures in language, grammar, and written composition, with emphasis on language history and applications of linguistic knowledge. Mr. Searles.

178. Teaching Literature in the Secondary School. 3 cr. Curricular materials, methods of organization, and approaches to secondary school literature; problems of teaching prose fiction and non-fiction, drama, and poetry. Prerequisite: Teaching experience. Mr. Searles.

194. Language Arts in the Elementary School. II; 2–3 cr. Survey and critical appraisal of programs, practices, and trends; emphasis on oral and written expression including spelling and handwriting; specific study of individual problems. Mr. Estvan.

Foreign Languages:

187. Advanced Problems in the Teaching of Foreign Languages. 2–3 cr. Intended for teachers with experience. Preparation of teaching units. Use of audio-visual aids. Miss Johnson or Mr. Neale-Silva.

196. Foreign Language Workshops. 3 cr. Three weeks during the summer school. Separate sections French, German, Spanish, Latin (1956 only). Classes in language, literature, cultural backgrounds, teaching problems. Credit in Education or Letters and Science. Staff.

Health, Recreation, and Safety:

101. Problems and Materials of Safety Education. 3 cr. The philosophy, content and methods requisite to teacher participation in safety education programs. Critical analysis of present safety education programs; examination and evaluation of materials; development of effective teaching methods. Prerequisite: Junior standing or consent of instructor.

103. Problems and Materials in Driver Education. 3 cr. Development of proper attitudes, knowledge, and skills necessary for driving an automobile; traffic safety; psychophysical limitations of drivers; sound driving practices; basic knowledge of the automobile; road training and skill tests. Prerequisite: Junior standing or consent of instructor.

113. Theory and Practice of Group Leadership. Yr; 3 cr. Consideration of individual and group dynamics, leadership techniques, and programming, all directly related to supervised field experience in a public or private agency. Prerequisite: Senior standing. Mr. Lengfeld.

114. Organization of Recreation Services. II; 3 cr. The community, its people and recreation resources; relation of public and private agency services; program planning and organization. Mr. Hutchins.

169. Health Information for Teachers. I, II; 3 cr. Basic scientific health knowledge and its application to the total school program. Prerequisite: Junior standing or consent of instructor. Dr. Southworth.

170. School and Community Health Problems. I; 3 cr. Analysis of child health problems, and ways of solving these problems through home, school, and community planning and action. Prerequisite: Junior standing or consent of instructor. Dr. Southworth.

197. Problems and Materials in Health Education. I, II; 3 cr. Principles, materials, and techniques of health education in elementary and secondary schools. Special emphasis on sex education. Dr. Southworth.

214a, b. Administration of Public Recreation. Yr; 3 cr. Policies and procedures in the administration of local public recreation. First semester: Development of recreation services; management of the program and staff. Second semester: Planning and administration of properties; fiscal practices. Mr. Hutchins.

Home Economics:

154. Advanced Course in the Teaching of Home Economics. 2 cr. Current philosophy, methods, and problems in effective home economics teaching. Prerequisite: Teaching experience. Miss Dalrymple or Miss Henderson.

156. Teaching Homemaking in Vocational Programs. I, II; 5 cr. Contribution of vocational education movement to home economics. Emphasis on curriculum, home-school-community relations, school clubs, and adult education at secondary level. Prerequisite: Education 75. Miss Dalyrmple.

188. Curriculum in Home Economics. 3–4 cr. Curriculum trends, principles, and problems in home economics. Opportunity provided for individual problems in development and evaluation of home economics programs. Prerequisite: Teaching experience. Miss Dalrymple.

191. New Perspectives in Home Economics and its Teaching. 2 cr. Recent developments in the field of home economics including teaching methods and techniques. Prerequisites: Graduate standing and teaching experience in home economics. Miss Dalrymple and staff.

195. Supervision in Home Economics. 2 cr. Consideration of the functions, principles, methods, and techniques involved in effective supervision in the field of home economics, a four-week course. Prerequisites: Graduate standing and teaching experience in home economics. Miss Dalrymple.

288. Seminar in Home Economics Education. II; 2 cr. Recent studies and research in home economics education and their implications. Individual problems. Prerequisites: Graduate standing and experience in teaching. Miss Dalrymple or Miss Zuill.

Mathematics:

164. Investigations in the Teaching of Arithmetic. 2–3 cr. Analysis of current trends including trends in individualization, evaluation, and application of the meaning theory. Study of problems of immediate concern to the student. Prerequisite: Teaching experience or consent of instructor. Mr. Mayor, Mr. Eberman, Miss Rhue.

192. Studies in Curriculum and Instruction in Mathematics. II; 3 cr. Problems in the teaching of secondary-school mathematics with emphasis on basic concepts and applications. Special consideration of general mathematics. Opportunities for work on individual problems. Prerequisites: Teaching experience and consent of instructor. Mr. Mayor.

Music:

102. Studies in Curriculum and Instruction in School Music. II; 3 cr. Problems in curriculum development and the psychological factors which determine procedures in school music teaching. Prerequisite: Teaching experience. Mr. Burns.

105a. The School Band: Problems of Conducting and Administering. 2 cr. A seminar and laboratory course dealing with the development of school bands; individual problems and research. Prerequisite: Teaching experience. Mr. Dvorak.

105b. The School Band: Marching, Parades, and Pageantry. 2 cr. Outdoor activities of the school band; purpose and values; precision drills, maneuvers, and field formations. Prerequisite: Teaching experience. Mr. Dvorak.

109. Music in the Elementary School. 3 cr. Materials and procedures for the elementary grades. Principles developed from activities demonstrated in the class. Designed primarily for classroom teachers. Open to music majors by special arrangement. Prerequisite: Teaching experience or consent of instructor. Mr. Burns.

202. Seminar in Music Education. 2 cr. For graduate students. Analysis of problems in music education; techniques involved in limiting the problem; developing the bibliography; recording, filing, and utilizing data; application of various research techniques to specific problems. Mr. Petzold.

Science:

135. Science in the Elementary School. 3 cr. Critical study and evaluation of methods and materials for teaching elementary science with references to course content, grade placement, learning difficulties, evaluation and research. Mr. Pella.

137. Advanced Problems in Science Education. II; 3 cr. Development and evaluation of research procedures for determining placement of science content in the different school levels. Prerequisite: Consent of instructor. Mr. Davis.

237. Seminar in Science Education. 2 cr. Research methods in improving instruction in elementary and secondary education. Mr. Davis.

Social Studies:

132. Social Studies in the Elementary School. I; 2–3 cr. Survey and critical appraisal of programs and practices, investigations, and trends; criteria for planning and improving social studies programs; specific study of individual problems. Mr. Estvan, Mr. Phillips.

185. Advanced Problems in the Teaching of History and the Other Social Studies. II; 2 cr. For experienced teachers and graduate students who wish to do intensive work on a limited aspect of the field. Mr. Phillips.

291. Seminar in the Teaching of History and Geography. 2 cr. For experienced teachers and graduate students. Mr. Phillips and representatives of the Geography Department.

Speech:

189. Speech in the Elementary School. 2 cr. Theory and techniques of teaching (1) the speech elements; and (2) special forms of speech activity such as drama, oral reading, discussion, parliamentary procedure, story telling, speech correction. Mr. Gauger.

198. Speaking and Listening in the High School. I, II; 2–5 cr. Methods for adapting the speech program to large or small rural or city high schools. Individual training, the special class, integration with other subject-matter fields, and the extra-curricular program. Miss Borchers.

299. Seminar in Speech Education. 2 or 4 cr. History of speech teaching in the United States. Implications for the teaching of speech derived from scientific research. Miss Borchers.

Practice Teaching:

286. Practice Teaching (College Level). Yr; 4 cr. Required of graduate assistants in the department of the major.

FIELD VI. EDUCATIONAL DIAGNOSIS AND REMEDIATION

122. Diagnosis and Treatment of Pupil Adjustment Difficulties. I; 3 cr. Identification, treatment, and prevention of problem behavior in schools. Mr. T. Harris.

125. Nature of the Exceptional Child. (See Field I.)

126. Quantitative Techniques in Educational Diagnosis. II; 2–3 cr. Selection, use and interpretation of tests and other instruments of appraisal in diagnosing and guiding pupil behavior. Mr. T. Harris.

127. Remedial Reading. I, II; 3 cr. Principles and techniques of diagnosis and remediation of reading disability. Mr. T. Harris.

128. Binet and Wechsler Testing. I, II; 3 or 5 cr. Instruction and practice in the use of the revised Binet and Wechsler-Bellevue Scales of Intelligence. Mrs. Arnold.

130. Measurement of the Physically Handicapped. II; 3 cr. Instruction and practice in the use of intelligence, achievement, and other tests for the deaf, blind, crippled and multiple handicapped. Prerequisites: Education 128 and consent of instructor. Mrs. Arnold.

139. Education of the Mentally Handicapped. 3 cr.

144. Education of the Partially Seeing Child. 3 cr.

145. Hearing Rehabilitation. 3 cr. Principles and practices in the development and

perception of speech, auditory training, speech reading and general rehabilitation of the defective in hearing. Mrs. Arnold.

148. Practice in Reading Clinic. I, II; 2–4 cr. Practice in the diagnosis and remediation of reading disabilities in children. Prerequisites: Education 127 and consent of instructor. Mr. T. Harris.

149. Practice in Psycho-Educational Clinic. I, II; 2–4 cr. Practice in the clinical testing of children, case studies, interviewing, staffing cases, parent and teacher conferences. Prerequisites: Education 128 and consent of instructor. Mrs. Arnold.

182. Advanced Clinic in Speech. 1–3 cr. Mr. Irwin and staff.

230. Seminar in Educational Diagnosis and Remediation. I, II; 2 cr. Mr. T. Harris or Mrs. Arnold.

FIELD VII. GUIDANCE AND PERSONNEL SERVICES

176. Introduction to Guidance and Personnel Services. I, II; 2–3 cr. Policies and practices of organized guidance for school and college levels. Social, educational and vocational adjustment problems and needs of urban and rural youth. Mr. Edgerton, Miss Low.

181. Techniques of Guidance and Personnel Services. I, II; 2–3 cr. Discussion and practice in the principal methods used in guidance, such as observing, interviewing, testing, home visiting, record keeping, the case study and group guidance. Mr. Edgerton, Miss Low.

183. Job and Occupational Analysis. I, II; 2–3 cr. Basic principles, types and methods of purposeful analysis appropriately applied to personnel, guidance and educational problems. Mr. Edgerton.

281. College Guidance and Personnel Services. I; 2–3 cr. Critical studies of trends and objectives in organizing and administering student personnel activities in institutions of higher learning with special emphasis on individual counseling. Mr. Edgerton.

282. Clinical Studies in Guidance. I, II; 2–3 cr. Intensive case studies of normal youth and of those who have difficulties in and out of school. Some opportunity for practical work with youth. Mr. Rothney.

283. Field Studies in Guidance and Personnel Services. I, II; 2–6 cr. Mr. Edgerton.

284. Seminar in Guidance and Personnel Services. I, II; 2 cr. Analysis of research trends, examination of critical issues, reports of student research projects. Mr. Edgerton, Miss Low, Mr. Rothney.

INDIVIDUAL STUDY

The following courses are designed for individuals and small groups engaged in special study. Credit, meetings, and the nature of the study are to be arranged with the staff member chosen to supervise the study.

180. Independent Reading. Sem. Staff.

280. Independent Reading. I, II. For the benefit of superior graduate students unable to secure needed content in regular courses. Staff.

Research or Thesis

200. Research or Thesis. I, II. Staff.

Field Work and Clinical Practice

148. Practice in Reading Clinic. (See Field VI.)

149. Practice in Psycho-Educational Clinic. (See Field VI.)

207. Field Study of School Learning Problems. (See Field I.)

179. Field Work in Child Development. (See Field I.)

283. Field Work in Guidance and Personnel Services. (See Field VII.)

290. Field Practice in Supervision, Curriculum, and Method. (See Field V.)

Practice Teaching

286. Practice Teaching (College Level). (See Field V.)

PHYSICAL EDUCATION—MEN

Professors Francis, Mansfield, Nohr *(chairman)*, Rarick, Rippe, Southworth; Associate Professors Anderson, Martin, Sanger; Assistant Professors Bauer, Best, Hickman, Wolf; Instructor Joachim.

Courses 59, 159 and 197 may be elected by students for credit in the School of Education.

2. Physiology (Physical Education—Men). Sem; 4 cr. Dr. Joachim. (See Physiology 2.)

6. Physical Education Activities. Sem; 0–2 cr. Proficiency in archery, golf, swimming, and volleyball. Staff.

7. Physical Education Activities. Sem; 0–2 cr. Proficiency in badminton, handball, and softball. Staff.

8. Physical Education Activities. Sem; 0–2 cr. Proficiency in tennis, football, apparatus, tumbling and basketball. Staff.

9. Physical Education Activities. Sem; 0–2 cr. Proficiency in wrestling, boxing, track and field, and baseball. Staff.

10. Techniques and Materials in Physical Education. Sem; 1–3 cr. Football theory, basketball theory, graded class materials, football team play, and advanced wrestling. Staff.

11. Techniques and Materials in Physical Education. Sem; 1–3 cr. Baseball theory, advanced swimming, winter sports, basketball team play, and preparation for practice teaching. Staff.

12. Techniques and Materials in Physical Education. Sem; 1–3 cr. Orientation, football coaching, basketball coaching, and track coaching. Staff.

13. Techniques and Materials in Physical Education. Sem; 1–3 cr. Conditioning exercises, tactics, coaching minor sports, and elementary programs. Staff.

16. First Aid and Safety Education. Sem; 1–2 cr. The American Red Cross Certificates will be issued to all who complete the course satisfactorily. Mr. Sanger.

17. Athletic Conditioning and Training. Sem; 1 cr. Open to majors and minors. Mr. Bakke.

23. Technique of Basketball. Sem; 1 cr. Open only to physical education minors. Mr. Mansfield.

29. Technique of Football. Sem; 1 cr. Open only to physical education minors. Mr. Mansfield.

39. Human Anatomy (Physical Education—Men). Sem; 4 cr. Dr. Joachim. (See Anatomy 39.)

40a. Group Dancing. Sem; 1 cr. (See Physical Education—Women.)

58. Kinesiology. Sem; 2 cr. Prerequisite: Human anatomy. Mr. Wolf.

59. Nature, Function, and Organization of Play. Sem; 3 cr. Mr. Anderson.

71. Camp Administration and Scouting. Sem; 3 cr. Mr. Anderson, Mr. Martin.

103. Physiology of Exercise. Sem; 3 cr. (See Physical Education 103—Women.)

107. Effects of Physical Activities on the Body. Sem; 2 cr. (S.S. only) Mr. Francis.

119a. School Health Examination. Sem; 3 cr. Prerequisites: Anatomy 39, Physiology 2. Mr. Francis.

119b. Physical Education for the Handicapped. Sem; 2 cr. Prerequisite: Physical Education 119a. Mr. Francis.

130. Measurement in Physical Education. Sem; 2 cr. Mr. Wolf.

159. Play, Recreation and Leisure-Time Problems. Sem; 2 cr. Prerequisite: Physical Education 59 or consent of instructor. Mr. Wolf.

168. Organization and Administration of Physical Education. Sem; 2 cr. Prerequisite: Senior or graduate standing or consent of instructor. Mr. Nohr.

178. Physical Education for Elementary and Secondary Schools. Sem; 2 cr. Prerequisite: Senior or graduate standing or consent or instructor. Mr. Nohr.

180. Advanced Independent Study. Sem; *cr. Open only to upper-group students of senior rank. Staff.

197. Problems and Materials in Health Education. Sem; 3 cr. Prerequisite: Anatomy, physiology, or consent of instructor. Mr. Southworth.

200. Research. Sem; *cr. Mr. Francis, Mr. Wolf, Mr. Rarick.

263. Problems in Health Education, Recreation, Safety and Other Allied Fields. Sem; 2 cr. Mr. Francis.

291. Problems in Physical Education. Sem; 2 cr. Mr. Francis

293. Seminar in Research Studies in Physical Education. Sem; 2 cr. (Required of all candidates (men) for the Master's Degree in Physical Education and in the joint major in Education and Physical Education.) Mr. Nohr.

TEACHER'S COURSE

Education 70. The Teaching of Physical Education. Sem; 2–5 cr. (See Education 70.) Mr. Anderson.

PHYSICAL EDUCATION—WOMEN

Professors Carns *(Director)*, Glassow, H'Doubler *(Emeritus)*, Rarick; Associate Professors Bassett, Cronin, Kloepper, Schade; Assistant Professor Fee; Instructors Benson, Eastham, Gross, Halverson, Hawes, Hyde, Liba, Meyer, Minks, Ross, Shafer, Sloan, van der Stok, Waterland.

A student who is not a major or a minor in Physical Education may take starred (★) courses only with the consent of the instructor and the approval of the dean of the college in which the student is enrolled.

20. Orientation to Physical Education. I; 3 cr. Consideration of basic structures of the human body; principles of mechanics involved in bodily movement; physiological responses to physical activities. Mr. Rarick.

★30, ★31, ★32, ★33. Physical Education Theory, Practice and Technique. Yr; 1–4 cr. each. Staff.

★35, ★36, ★37, ★38. Theory and Practice of Dance Technique. Yr; 1–2 cr. each. Special emphasis is placed on the kinesthetic approach to the study of movement as experience. Miss Fee, Miss Kloepper.

★40. Folk and Square Dance. I; 1 cr. Elementary calling techniques. Miss Eastham.

41. Dance Technique for General Majors. II; 1 cr. Miss Fee.

★42. Dance in the Elementary School. II; 1 cr. Dance skills and activities suitable for grades 1–6 with special emphasis on the creative side. Correlated reading and observation of dance classes for children are required. Miss Bassett.

48. Recreation Therapy. II; 1 cr. Basic course in activities, folk and square dance. Miss Eastham.

56. Kinesiology. II; 3 cr. Principles of body mechanics; the role of the skeletal, muscular and nervous systems in movement and skill. Prerequisites: Human anatomy, physics. Miss Glassow.

★60. Movement and its Rhythmic Structure. I; 2–3 cr. The study of kinesthetic perception as the basis of rhythmic perception. Analysis of rhythmic elements inherent in movement and the appreciation of their organization as the basis of form in all motor activity. Miss Fee.

★61. Dance Summary. I; 2 cr. Theory and practice. Participation in the presenting of movement as creative dance experience. Staff.

★62 a and b. Structural Relationships Between Music and Dance. Yr; 2 cr. each semester. A study of the structural parallels existing between music and dance. Mr. Hawes.

69. The Teaching of Physical Education (Education 69). Yr; 6 cr. (4 cr. educational practice; 2 cr. theory.) Student teaching at two or three age levels. Prerequisites: Education 75, Education 91, and technique courses in physical education activities including dance. Miss Cronin, Miss Bassett, Miss Purves.

★81. Camp Leadership and Campcraft. I; 1–2 cr. Fall term, 1 cr. Campcraft skills, outdoor cooking, pioneer camping. Winter term, 1 cr. Camp leadership. Miss Waterland.

120. Physiology Applied to Physical Education Activities. II; 3 cr. Physiological changes in the human body which accompany and follow exercise, with practical experience in measuring physiological variations. Prerequisite: Physiology. Mr. Rarick.

121. Physiological Effects of Motor Activity. I; 2 cr. The influence of physiological variations upon motor performance. Prerequisite: Physical Education 120 or consent of instructor. Mr. Rarick.

130. Tests and Measurement in Physical Education. I; 2 cr. Measurement as a functional part of method; its relation to objectives and to analysis. Criteria for selection of tests for the classroom; statistics for the classroom. Development of tests for motor skills. Miss Glassow.

135. Tests and Measurement. I; 2–3 cr. Tests for motor ability and physical fitness; anthropometric measures. Statistics involved in the construction of tests including more than one factor. Prerequisite: Physical Education 130 or consent of instructor. Miss Glassow.

★142. The Teaching of Dance to Children. 2 cr.

146. Theory and Philosophy of Dance. II; 3 cr. A clarification of the meaning of dance, its justification as an educational and creative art activity; its place in the curriculum, a theory of art technique. Prerequisites: Psychology, philosophy, and consent of instructor. Miss Fee.

156. Advanced Kinesiology. II; 2–3 cr. Prerequisite: Physical Education 56 or consent of instructor. Miss Glassow.

160. Dance Composition (Elementary). II; 2–3 cr. Includes the study of basic principles of form and their application to dance composition. Prerequisite: Physical Education 60. Miss Kloepper.

162. Dance Accompaniment—Percussion. I; 2–3 cr. Development of percussion tech-

niques in relation to dance. Improvisation and composition. Prerequisite: Physical Education 60. Given in 1954 and in alternate years. Miss Kloepper.

163. Dance Accompaniment—Music. I; 2–3 cr. Relationship between structure and expression in music and dance. Improvisation for dance techniques. Composition. Musical repertoire for dance. Prerequisites: Physical Education 162, Physical Education 62a and b. Mr. Hawes.

165. Dance Composition (Advanced). I; 2–3 cr. The study and analysis of content and its psychological bearing on the resulting style and form. The problems of solo and group composition and directing. Prerequisite: Physical Education 160. Given in 1955 and in alternate years. Miss Kloepper.

166. Lecture-Demonstration Workshop. I; *cr. The preparation and presentation of a dance demonstration for public performance. Miss Kloepper.

167. Cultural History of Dance. II; *cr. Historical survey of the cultural background of dance in various civilizations with emphasis on the relation of social structure to the existing dance forms. Miss Kloepper.

176. Therapeutic Gymnastics. II; 3 cr. Discussion of posture deviations. Analysis and practice of exercises for therapeutic purposes. Discussion of the restricted program. Prerequisites: Human anatomy and kinesiology. Miss Schade.

★177. Principles of Relaxation. I; 2 cr. Theory and practice of a specific technique of relaxation. Discussion of other methods. Prerequisites: Human anatomy, physiology, psychology or consent of instructor. Miss Schade.

180. Independent Study. Yr; *cr. Prerequisite: Open only to graduate and upper-group students of senior rank. Staff.

184. Age Characteristics in Motor Skills. I; 2 cr. Motor development during childhood and adolescence and its relationship to other aspects of growth. Factors influencing motor learning and the development of motor abilities. Mr. Rarick.

190. Organization and Administration of Physical Education. I; 2 cr. Typical administrative problems of the teacher of physical education. Departmental policies. Local, sectional and national organizations. Prerequisite: Senior standing in the Department of Physical Education for Women or consent of instructor. Miss Bassett, Miss Cronin.

★194. Physical Education Curriculum in Elementary Schools. II; 2 cr. The role of physical education in childhood education; a basic curriculum related to age characteristics and needs; evaluation of common practices. Laboratory work in teaching methods (optional). Prerequisite: Teaching experience. Miss Cronin.

195. Physical Education Curriculum for Junior and Senior High-School Girls. I; 2 cr. Prerequisite: Consent of instructor. Miss Cronin.

196. Supervision in Physical Education. II; 2 cr. Duties of the supervisor, planning and evaluating the supervisory program. Practice in observing and evaluating teaching and in devising observation techniques. Prerequisite: Consent of instructor. Miss Cronin.

200. Research in Physical Education. Staff.

202. Research Procedures and Critical Analysis of Professional Literature. I; 2 cr. Designed to acquaint the student with the scope and techniques of research in physical education; evaluation of professional literature and construction of the written report. Mr. Rarick.

205. Physical Education Seminar. Yr; 2 cr. each semester. For doctoral candidates only. Staff.

221. Seminar in Physiological Effects of Motor Activity. II; 2 cr. Mr. Rarick.

230. SEMINAR IN MEASUREMENT. II; 2 cr. Prerequisite: Physical Education 135. Miss Glassow.

250. PRINCIPLES OF MOVEMENT. I; 2 cr. Understanding of body structure and mechanical principles developed through movement experience. Techniques and teaching methods by which kinesthetic perception can be increased. Prerequisites: Human anatomy, kinesiology, or consent of instructor. Miss Schade.

256. SEMINAR IN KINESIOLOGY. II; 2 cr. Prerequisite: Physical Education 156. Miss Glassow.

260. RHYTHMIC STRUCTURE OF MOVEMENT. II; 2 cr. The nature of rhythmic perception and its relation to kinesthetic perception. Relationship of basic movement experience to daily activities, dance and sports. Miss Fee.

265. DANCE SEMINAR. II; 2 cr. Prerequisite: Physical Education 165 or consent of instructor. Miss Kloepper.

266. DANCE PRODUCTION SEMINAR. II; 2 cr. A study of dance production forms; lecture demonstration, recital, and theatre production. The work will involve presentation of original solo and group compositions, stage management (as well as lighting, scenery, properties), costuming, make-up, and arranging for dance accompaniment. Miss Kloepper.

277. SEMINAR IN RELAXATION. II; 2 cr. Independent work on topics of individual choice for a fuller understanding of relaxation. Prerequisite: Physical Education 177. Miss Schade.

280. ADVANCED INDEPENDENT STUDY. I, II; *cr. Staff.

284. SEMINAR IN MOTOR DEVELOPMENT. II; 2 cr. Prerequisite: Physical Education 184. Mr. Rarick.

290. PHYSICAL EDUCATION CURRICULAR PRACTICES. II; 1–2 cr. Curriculum planning. Teaching methods including laboratory. Miss Cronin, Miss Kloepper.

296. SEMINAR IN SUPERVISION AND CURRICULUM. II; *cr. Prerequisite: Teaching experience in physical education. Miss Cronin.

Other courses in physical education open to women are listed under PHYSICAL EDUCATION FOR MEN.

For required courses in education and for additional courses in human development, learning, guidance, and health education, see the DEPARTMENT OF EDUCATION, pages 390–401.

See also announcements of the Medical School for courses required of physical education students.

Additional elective courses are offered in the Summer Session, descriptions of which may be found in the bulletins of the Summer Session.

COLLEGE OF ENGINEERING FACULTY

EDWIN B. FRED, President
KURT F. WENDT, Dean
WILLIAM R. MARSHALL, Associate Dean

ADKINS, HOWARD EUGENE, *M.S.*, Assistant Professor of Mechanical Engineering
AKERMAN, JOSEPH REID, *Ph.D.*, Assistant Professor of Mechanical Engineering
ALTPETER, ROGER JAMES, *Ph.D.*, Professor of Chemical Engineering
ASMUTH, JOHN L., *M.S.*, Instructor in Electrical Enginering

BARKER, GEORGE JOHN, *B.S., E.M.*, Professor of Mining and Metallurgical Engineering
BENEDICT, R. RALPH, *M.S.*, Professor of Electrical Engineering
BIRD, ROBERT BYRON, *Ph.D.*, Project Associate in Chemical Engineering
BOE, WILLIAM A., *M.S.*, Instructor in Civil Engineering
BRIDGE, BERT BERNARD, Instructor in Mechanical Engineering
BUER, HOWARD H., *M.S.*, Instructor in Mechanics
BUROKER, DONALD JASPER, *B.S.*, Assistant Professor of Mechanical Engineering

COTTINGHAM, WILLARD SHERWIN, *M.S., C.E.*, Professor of Civil Engineering
CRANDALL, LEE WALTER, *Ph.D.*, Associate Professor of Civil Engineering
CUTLER, VERNE C., *M.S.*, Instructor in Mechanics

DAGGETT, RONALD LORIN, *M.S.*, Associate Professor of Mechanical Engineering
DAVIDSON, BRUCE M., *M.S.*, Instructor in Civil Engineering
DAVIDSON, CHARLES H., *Ph.D.*, Assistant Professor of Electrical Engineering
DOKE, HOWARD BAILEY, Assistant Professor of Drawing and Descriptive Geometry
DUFFIE, JOHN ATWOOD, *Ph.D.*, Project Associate, Engineering Experiment Station
DURKIN, ROBERT EMMETT, *B.A.*, Instructor; Assistant Librarian

EASTON, ARCHIE HARTER, *B.S.*, Associate Professor of Mechanical Engineering; Director of Truck Research Project
ELLIOTT, BENJAMIN GEORGE, *M.S., M.E.*, Professor of Mechanical Engineering
ENGELMAN, HELMUTH WILLIAM, *Ph.D.*, Assistant Professor of Mechanical Engineering

FEIEREISEN, WILLIAM JOHN, *M.S.*, Assistant Professor of Mechanical Engineering
FLEMING, ROBERT WILLIAM, *M.S.*, Assistant Professor of Mechanical Engineering
FLUCK, PAUL GEORGE, *Ph.D.*, Associate Professor of Mechanics

GAGE, JAMES ARNOLD, *M.S.*, Associate Professor of Mechanical Engineering
GARVER, JOHN CORMANY, *M.S.*, Project Associate, Engineering Experiment Station
GILPIN, CHARLES A., *B.S.*, Associate Professor of Mechanical Engineering
GOEHRING, HENRY GOLDSMITH, *B.A.*, Assistant Professor in Charge of Admission; Placement Director
GRIFFITH, FULLER ORVILLE, JR., *B.S.*, Assistant Professor of Drawing and Descriptive Geometry
GRISWOLD, ARNOLD FORREST, Instructor in Mechanical Engineering

HAFT, EVERETT E., *M.S.*, Instructor in Mechanics
HARKER, RALPH JACKSON, *M.S.*, Associate Professor of Mechanical Engineering
HARRIS, DWIGHT L., *Ph.D.*, Assistant Professor of Mining and Metallurgical Engineering
HEINE, RICHARD WALTER, *M.S.*, Associate Professor of Mining and Metallurgical Engineering

HIGGINS, THOMAS JAMES, *Ph.D.*, Professor of Electrical Engineering
HOUGEN, OLAF ANDREAS, *Ph.D., Ch.E.*, Professor of Chemical Engineering
HYLAND, PATRICK HENRY, *B.S., M.E.*, Professor of Mechanical Engineering

JACKSON, CLAYTON R., *B.S.*, Instructor in Electrical Engineering
JOHNSON, DOUGLAS LEWELLYN, *M.S.*, Instructor in Chemical Engineering
JOHNSON, WILLIAM CLARKE, *M.S.*, Instructor in Chemical Engineering

KALLSEN, HENRY A., *M.S.*, Instructor in Civil Engineering
KEMPKA, GILBERT EDWARD, *B.S.*, Project Associate in Mining and Metallurgical Engineering
KIRK, ROBERT STEWART, *Ph.D.*, Assistant Professor of Chemical Engineering
KOEHLER, GLENN, *M.S.*, Professor of Electrical Engineering
KOLF, RICHARD CLARK, *M.S.*, Instructor in Civil Engineering

LAWTON, GERALD WARREN, *Ph.D.*, Assistant Professor of Civil Engineering
LEIDEL, FREDERICK OTTO, *B.S.*, Assistant Professor of Drawing and Descriptive Geometry
LENZ, ARNO THOMAS, *Ph.D., C.E.*, Professor of Civil Engineering
LIGHTFOOT, EDWIN NIBLOCK, *Ph.D.*, Assistant Professor of Chemical Engineering
LINDBERG, ROY ALFRED, *M.S.*, Assistant Professor of Mechanical Engineering
LIVERMORE, DONALD FRANK, *M.S.*, Assistant Professor of Mechanical Engineering
LIVERMORE, JOSEPH DOW, *B.S.*, Associate Professor of Drawing and Descriptive Geometry

MACK, DAVID JOSEF, *Ph.D.*, Associate Professor of Mining and Metallurgical Engineering
MANN, RICHARD ARNOLD, *M.S.*, Instructor in Mechanics
MARKS, JAMES A., *M.S.*, Instructor in Drawing and Descriptive Geometry
MARSHALL, WILLIAM ROBERT, JR., *Ph.D.*, Professor of Chemical Engineering, Associate Dean, Associate Director of Engineering Experiment Station
MCIRVINE, JOHN DOUGLAS, *M.S.*, Instructor in Chemical Engineering
MCNAUL, JAMES WILBUR, *B.S.*, Professor of Mechanical Engineering
MILLER, JOHN BERNARD, *M.S.*, Instructor in Electrical Engineering
MILLER, ROBERT FRANK, *M.S.*, Instructor in Electrical Engineering
MYERS, PHILLIP SAMUEL, *Ph.D.*, Associate Professor of Mechanical Engineering

NEILL, WAYNE KENNETH, *Ph.D.*, Professor of Chemical Engineering
NELSON, DELMAR WOOD, *M.S., M.E.*, Professor of Mechanical Engineering
NICHOLS, MERLE STARR, *Ph.D.*, Professor of Sanitary Chemistry; Lecturer in Sanitary Engineering; Chemist, State Laboratory of Hygiene

ORTH, HERBERT DENNY, *B.S.*, Professor of Drawing and Descriptive Geometry

PARENT, ROBERT J., *M.S.*, Associate Professor of Electrical Engineering
PETERS, CHARLES FREDERICK, Instructor in Mechanical Engineering
PETERSON, HAROLD ALBERT, *M.S.*, Professor of Electrical Engineering
PICKETT, GERALD, *Ph.D.*, Professor of Mechanics
PORTER, LEW FOSTER, *M.S.*, Project Associate in Metallurgical Engineering

RADER, LLOYD FORREST, *Ph.D.*, Professor of Civil Engineering
RAGATZ, ROLAND ANDREW, *Ph.D.*, Professor of Chemical Engineering
REITAN, DANIEL KINSETH, *Ph.D.*, Assistant Professor of Electrical Engineering
RETHERFORD, ROBERT CURTIS, *Ph.D.*, Associate Professor of Electrical Engineering
RIDEOUT, VINCENT CHARLES, *M.S.*, Professor of Electrical Engineering
ROARK, RAYMOND JEFFERSON, *M.S.*, Professor of Mechanics
ROHLICH, GERARD ADDISON, *Ph.D.*, Professor of Civil Engineering
ROSE, REED ALDEN, *M.S., M.E.*, Associate Professor of Mechanical Engineering
ROSENTHAL, PHILIP CASPER, *M.S.*, Professor of Mining and Metallurgical Engineering
RUNDLE, WILLIAM JUDD, *M.S.*, Associate Professor of Mining and Metallurgical Engineering

SAEMANN, JESSE CHARLES, JR., *M.S.*, Instructor in Mechanics
SARTELL, JACK A., *M.S.*, Instructor in Mining and Metallurgical Engineering
SCHEIBE, ELMER HARRY, *Ph.D.*, Associate Professor of Electrical Engineering
SCHMITZ, NORBERT LEWIS, *Ph.D.*, Assistant Professor of Electrical Engineering
SCHWEBKE, HOWARD J., *M.S.*, Instructor in Drawing and Descriptive Geometry
SCHWEITZER, THEODORE J., *M.S.*, Assistant Professor of Mechanical Engineering
SELL, GEORGE R., *M.S.*, Instructor in Mechanical Engineering
SELL, ROBERT FREDERICK, *M.S.*, Instructor in Civil Engineering
SHERRER, ROBERT E., *M.S.*, Instructor in Mechanics
SHIELS, KENNETH GRINNELL, *M.S.*, Professor of Drawing and Descriptive Geometry; Assistant Dean
SHOREY, EDWIN ROY, *B.S.*, *E.M.*, Professor of Mining and Metallurgical Engineering
SKILES, JAMES J., *Ph.D.*, Assistant Professor of Electrical Engineering
SPOONER, MORTON G., *M.S.*, Instructor in Electrical Engineering
SWIFT, WAYNE BRADLEY, *M.S.*, Instructor in Electrical Engineering

TIEDEMANN, ARTHUR THEODORE, *M.S.*, Instructor in Electrical Engineering
TSCHERNITZ, JOHN, *Ph.D.*, Project Associate, Engineering Experiment Station

UYEHARA, OTTO ARTHUR, *Ph.D.*, Associate Professor of Mechanical Engineering

VILLEMONTE, JAMES RICHARD, *Ph.D.*, Associate Professor of Civil Engineering

WAGNER, ELDON CHRISTIAN, *M.S.*, Associate Professor of Civil Engineering
WASHA, GEORGE WILLIAM, *Ph.D.*, Professor of Mechanics
WATSON, CHARLES CHURCHILL, *Ph.D.*, Professor of Chemical Engineering
WEART, HARRY W., *M.S.*, Instructor in Mining and Metallurgical Engineering
WEBER, JOHN CARL, *M.S.*, Associate Professor of Electrical Engineering
WENDT, KURT FRANK, *B.S.*, Professor of Mechanics; Dean of College of Engineering
WILLIAMS, DUNCAN EDWIN, *Ph.D.*, Assistant Professor of Mechanics
WOODBURN, JAMES GELSTON, *Ph.D.*, Professor of Civil Engineering
WORSENCROFT, ROBERT ROCKWOOD, *B.S.*, Associate Professor of Drawing and Descriptive Geometry

YOUNG, WARREN CLARENCE, *M.S.*, Instructor in Mechanics

ZWEIFEL, LEROY GENE, *B.E.*, *B.L.S.*, Assistant Professor; Librarian

COLLEGE OF ENGINEERING

DEGREES IN THE COLLEGE OF ENGINEERING

A thorough training in fundamentals is essential preparation for a career in engineering. This conviction underlies the general policies of the College of Engineering of the University of Wisconsin. After a solid foundation of fundamentals has been laid, it seems desirable to give the students a limited amount of specialized training in the main fields into which professional engineering is divided.

In line with this policy, the college offers the following four-year curricula: CHEMICAL ENGINEERING; BIOCHEMICAL ENGINEERING; CIVIL ENGINEERING; ELECTRICAL ENGINEERING; MECHANICAL ENGINEERING; METALLURGICAL ENGINEERING; AND MINING ENGINEERING. (For aeronautical engineering see page 421.) These courses lead to the degree of Bachelor of Science.

The degrees of Master of Science and Doctor of Philosophy can be earned by graduate work in the departments of Chemical Engineering, Civil Engineering, Electrical Engineering, Mechanical Engineering, Mechanics, and Mining and Metallurgical Engineering. The professional degrees—"Chemical Engineer," Civil Engineer," etc.—are granted to graduates of the college who have had at least five years of successful professional practice and at least one of which must have been in a position of responsibility, and who present a satisfactory thesis.

The various curricula leading to a degree are administered with sufficient flexibility to permit a student to satisfy any reasonable desires in regard to the subjects to be studied. Those students who desire a greater amount of liberal education than is provided for in the four-year program are encouraged to arrange special five- or six-year programs.

The courses in engineering are designed to train the student thoroughly in mathematics, the physical sciences, and engineering principles, and to teach the student to apply these fundamentals to the various types of problems that are encountered in engineering practice. In addition to these technical objectives, there is the further objective that the training shall equip the graduates of the college to rise to the highest positions of responsibility in business and public affairs.

Because the College of Engineering is an integral and intimate part of a great university, it offers its students many important advantages. They receive their training in mathematics and the fundamental sciences under the direction of specialists; they have the privilege of choosing their electives from a wide range of courses offered in other colleges on the same campus; they have the excellent laboratory and library facilities that only a large institution can offer; they gain a true perspective of their own profession through contacts with students who are specializing in other fields; and they find relaxation and an outlet for their various talents in a wide range of student activities.

GRADUATE WORK

The graduate work in the College of Engineering is a part of the Graduate School of the University, and is in charge of an administrative committee. Excellent opportunities are offered in the various departments for advanced theoretical work and for research. A special fund is available to be devoted exclusively to experimental work in the engineering laboratories.

For admission to the Graduate School an official transcript of the undergraduate record of the applicant should be forwarded to the Dean of the Graduate School, Bascom Hall, some weeks in advance of the opening of the session.

The degree of Master of Science (in civil engineering, mechanical engineering, etc.) is conferred upon graduates of approved institutions who have completed suitable under-

graduate courses and who pursue advanced professional study at the University for one year or more, present a satisfactory thesis, and pass an oral or written examination upon the field of their graduate work. A part-time evening graduate program leading to Master of Science degrees in the various branches of engineering is offered in Milwaukee by the College of Engineering to meet the needs of this industrial area.

The degree of Doctor of Philosophy is conferred upon graduates of the engineering courses under the same requirements as apply to graduates of other divisions of the University. For statements of these requirements, see the bulletin of the Graduate School.

ENGINEERING EXPERIMENT STATION

The Engineering Experiment Station of the College of Engineering was established by action of the Board of Regents, March 4, 1914. The members of the engineering faculty, together with fellows, scholars and special assistants, devoting their time to research, constitute the members of the staff of the Experiment Station.

The purpose of this Experiment Station is the promotion of the engineering and industrial interests of the state by the scientific study of problems related thereto, although generally such problems prove of wider interest and importance. A wide range of facilities for experimental study is offered by the laboratories of all of the departments of the college as described below.

The results of the research done under the auspices of the Engineering Experiment Station have appeared in part in papers before the technical societies and in part in the Engineering Series of the University Bulletin. A list of the 227 reprints of technical papers and the 86 bulletins published to date may be secured upon application to the University Editor.

For further information regarding the Engineering Experiment Station address the Dean of the College of Engineering.

BUILDINGS

The College of Engineering occupies completely five permanent buildings. Included are the Engineering building, the Chemical Engineering building, the Hydraulic and Sanitary Laboratories, the Mechanical Engineering building and the Mining and Metallurgy building. The Department of Drawing and the Surveying Laboratory are presently housed in temporary structures.

LIBRARY

The library of the College of Engineering, located in the Mechanical Engineering building, contains a large collection of technical books and complete sets of all important magazines and the transactions of engineering societies. Students have available the current numbers of about 300 engineering periodicals. In addition, they have free access to the University Library, the Library of the State Historical Society, the Library of the Wisconsin Academy of Sciences, Arts and Letters, and the Madison Free Library System.

LABORATORIES

CHEMICAL ENGINEERING

CHEMICAL PROCESS LARORATORY—For experiments in chemical production on a pilot plant scale.

ELECTROCHEMISTRY LABORATORY—For instruction in electroplating, electrolysis, and corrosion.

TECHINCAL ANALYSIS LABORATORY—For testing heating values of coal and oil, for making gas analyses, and for testing petroleum products and water.

PROCESS MEASUREMENTS AND CONTROL LABORATORY—For instruction in the calibration of

instruments and in the measurement and control, under industrial conditions, of temperature, pressure, liquid level, and fluid flow.

PLASTICS LABORATORY—Equipment for the production and testing of plastics.

RESEARCH LABORATORIES—Equipment for research investigations on unit operations, applied kinetics and chemical processing.

UNIT OPERATIONS LABORATORY—For the study of the principles of fluid flow, heat transfer, humidification and dehumidification, drying, distillation, absorption, filtration, crushing and grinding, and combustion.

CIVIL ENGINEERING

HIGHWAY LABORATORY—The materials laboratory of the Wisconsin Highway Commission is located on the campus, and its excellent facilities for instruction and research are available to students in the courses in highway engineering.

HYDRAULICS LABORATORY—Occupies a special building on the shore of Lake Mendota and is fully equipped for both instruction and research.

SANITARY LABORATORY—Equipped for both teaching and research. Sewage treatment plants in nearby towns are available for graduate research.

SURVEYING LABORATORY—Equipped to give each student individual practice in the use of surveying instruments.

ELECTRICAL ENGINEERING

ELECTRIC MACHINERY LABORATORY—Equipped with a wide variety of direct-current and alternating-current machinery and apparatus.

ELECTRICAL STANDARDS AND INSTRUMENTATION LABORATORIES—The Electrical Standards Laboratory provides facilities for investigative work in electrical instruments and measurements. Does the official standardizing work for the Public Service Commission of Wisconsin and for the public utilities of the state. Maintains contact with national organizations concerned with standardization and with the National Bureau of Standards, many of whose facilities are available to the laboratory.

The Instrumentation Laboratory provides consulting, design, construction and maintenance facilities for instrumentation. Services of the laboratory are available to all departments within the University to aid in their instrumentation problems. Provides research and design opportunities for both undergraduate and graduate students.

ELECTRODYNAMICS LABORATORY—For demonstrating the fundamentals of electrodynamics and of conduction through vacuo and through gases.

HIGH-VOLTAGE LABORATORY—For routine tests and research. Equipped to supply 300,000 volts.

PHOTOMETRIC LABORATORY—For the study and testing of light sources.

SERVOMECHANISM LABORATORY—For the study of dynamic characteristics of automatic control devices.

INDUSTRIAL ELECTRONICS LABORATORY—For the study of electronic devices and their industrial applications.

COMPUTER LABORATORY—Equipped with high-speed electronic analogue computer for teaching and research.

ACOUSTICS LABORATORY—Equipped for teaching and research in electroacoustical engineering.

ULTRA HIGH FREQUENCY LABORATORY—Equipped with microwave measuring sets, wave guide equipment, antennas and radiators for teaching and research.

ELECTRONICS AND COMMUNICATIONS LABORATORIES—Equipped for teaching and research in the fields of electronics and communications. Equipment includes a wide variety of electronic instruments, artificial telephone line, radio receivers, transmitters, signal generators, bridges, and many other closely related items covering the frequency spectrum from d.c. to microwave frequencies.

MECHANICAL ENGINEERING

The laboratories of the Mechanical Engineering Department are well equipped for instruction and research in air conditioning, automotive fields, steam boilers, calibration and instrumentation, steam and internal combustion engines, machine tools, welding, precision gage testing, motion and time study, fuels and lubricants, and machine design.

MECHANICS

METALS LABORATORY—For instruction and research on metals. Apparatus available for tension, compression, shear, torsion, hardness, impact, and cross bending tests.

CONCRETE LABORATORY—For instruction and research on concrete and concrete products. Large freezer and special curing facilities are available.

SOILS LABORATORY—For experimental work in soil mechanics on such problems as consolidation, shear strength, classification, permeability, bearing strength, and compaction.

CEMENT LABORATORY—For instruction and research in cement, cement and lime mortars, and other masonry materials.

STRUCTURAL LABORATORY—For tests of structural units such as beams, columns, and floor panels. Largest machine has a capacity of 600,000 lbs. and will accommodate tension and compression specimens up to 30 ft. for work in experimental stress analysis.

VIBRATIONS LABORATORY—For instruction in general theory of mechanical vibrations, vibration instruments, balancing, critical speeds, stabilizers. Also equipped for research work in these fields.

FATIGUE LABORATORY—Equipped for fatigue testing of metallic materials.

PHOTOELASTICITY LABORATORY—Equipped for work in experimental stress analysis.

MINING AND METALLURGICAL ENGINEERING

METAL CASTING LABORATORY—This laboratory, located in a separate building, is designed and fully equipped for instruction and research in all phases of foundry engineering, including melting in various types of furnaces, sand molding, sand testing, and related subjects.

AN ANALYTICAL LABORATORY is provided for routine and special analyses required by class work or research.

The PYROMETALLURGICAL LABORATORY equipment includes a copper and lead blast furnace and various gas-fired, refining and assaying furnaces all equipped with the accessories and controls necessary to their operation.

The MINERAL DRESSING SUITE includes a crushing and screening laboratory, a mineral dressing laboratory, and control chemical and physical testing laboratory. The crushing laboratory is equipped with various types of crushers, pulverizers, and screening apparatus. The mineral dressing laboratory contains equipment demonstrating the various mineral preparation methods and is used for both instruction and research. This laboratory and the control laboratory contain additional special equipment for advanced research in this field.

The PHYSICAL METALLURGY LABORATORY is equipped with automatically controlled heat-treating furnaces of a wide range of sizes and types. Special features include atmosphere control, salt-bath and lead-pot furnaces for a wide temperature range, and portable control

equipment. Induction furnaces with auxiliary equipment and physical testing equipment are also available.

The X-Ray and Spectrographic Laboratories contain a General Electric Company diffraction apparatus with various types of X-ray tubes, a Dietert grating spectrograph and radiographic X-ray equipment for casting inspection.

The Metallographic Laboratory provides facilities for instruction in the use of microscope in studying and photographing the microstructure of metals and minerals. Research equipment includes a research model metallograph, microhardness tester, electrolytic polisher, and other special apparatus.

ADMISSION

The general method of admission to the College of Engineering is by presenting a certificate of graduation from an accredited high school with the recommendation of the principal. Sixteen units are the fundamental requirement, which must include 1 unit of algebra and 1 unit of plane geometry. Among the sixteen units, students are advised to present the following: 1½ or 2 units of algebra, 1 unit of plane geometry, ½ unit of solid geometry, ½ unit of trigonometry, 3 units of English, 2 units each of science and history and 2–4 units of foreign language.

Other methods of entrance are by passing entrance examinations or by qualifying as an "Adult Special" student. A fourth method is by submitting evidence of study successfully pursued in another institution of higher learning. Students seeking to transfer from another institution should write directly to the Dean of the College of Engineering.

For more detailed and explicit information concerning entrance, see the General Information bulletin of the University.

SPECIAL NOTICE REGARDING ALGEBRA

One and one-half units of algebra are required as preparation for the first semester of mathematics regularly scheduled for freshman engineers. Students will be admitted to the College of Engineering with one unit of algebra but those students must normally take one semester of algebra in the University without credit.

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; graphical representation of simple relations between two variables; simultaneous equations of the first degree, including the graphical solution of a pair of linear equations with two unknowns; factoring; fractions; ratio and proportion; 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; additional work in graphical representation; complex fractions; binomial theorem for positive integral exponents; logarithms; arithmetical and geometrical progressions.

All students entering the College of Engineering will be tested in algebra by an examination given during Freshman Period. 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 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 enroll in the regular freshman mathematics, but are required to take a review of algebra during the first semester. A special non-credit course, Mathematics 50, is provided for this purpose. Since the regular freshman mathematics course is a prerequisite for several courses in the curricula of the sophomore year, these students should complete their freshman mathematics by taking the second semester of the course in the summer session following their freshman year.

To those who have had but one year of algebra, or for those who wish a review of the subject, a course given by the University Extension Division is recommended. Students who complete this course satisfactorily before entering the University will be admitted without examination to the regular freshman mathematics required of engineers. The instruction fee for students in the state is $15; out of state $24. Students wishing to register for this course should make arrangements with their high-school principal or write to the University Extension Division, Madison, Wisconsin, inquiring about the course in advanced high-school algebra for engineers (Mathematics 50).

Each undergraduate student in engineering is assigned to a member of the faculty who assists in arranging his program of study, watches over his progress, and is available for consultation and advice whenever needed. Normally, the student will have a different adviser each year.

GENERAL REQUIREMENT IN UNITED STATES HISTORY

Every undergraduate student in the College of Engineering is required to include in his program for graduation courses approved by the faculty in which an objective is the improvement of the background of knowledge upon which well-rounded, informed, and responsible citizenship may be based. The student may satisfy it in one of three ways:

1. By passing, by the beginning of the junior year, an attainment examination in United States History based on college-level work.
2. By completing satisfactorily, in college, a continuous year course in United States History. A year course is here understood to be one so listed in the Announcement of Courses (i.e., History 4, 12–112, 113, 117, 120, 121, 122); or two semester courses which, as to content, are in chronological sequence (i.e., any two *consecutively numbered* semester courses chosen from the following: History 101, 102, 103, 104, 105, 106, 107, 108, 109).
3. By completing *two* semester courses concerned with the history, government, political thought, civil liberties, economy, or ideals of the United States. Courses approved for this purpose are: Courses in United States History numbered above 100, History 137; Economics 1a; English 140; Integrated Liberal Studies 23; Philosophy 139; Political Science 7a, 107a, 110, 112a, 112b, 165, 166, 171; Contemporary Trends 103; or Constitutional Law (Law School).

GRADE-POINT SYSTEM

Under the grade-point system, points are awarded as follows: For grade A (*excellent*), four points for each credit; for grade B (*good*), three points; for grade C (*fair*), two points; for grade D (*poor*), one point. For graduation from any curriculum in the College of Engineering a student must earn grade-points equal to at least twice the number of credits earned. No student will be recommended for the degree of Bachelor of Science who does not earn a grade-point average of at least 2.0 during the last year and the last semester of his attendance at the University.

Honors and High Honors are awarded at the end of the sophomore year, and at graduation to students who have completed not less than two full years of work in the University. In computing credits and points for honors or high honors, credits obtained by special examination, and credits earned at other institutions are not included.

Sophomore Honors and Sophomore High Honors are awarded on the basis of a minimum of two years' work (not less than 60 credits) completed in the University. A student earning during these two years 195 grade-points, plus 2.5 grade-points for each credit above 60 will be awarded *sophomore honors;* a student earning during these two years 225 grade-points plus 3 grade-points for each credit above 60, will be awarded *sophomore high honors.*

HONORS AND HIGH HONORS AT GRADUATION. Students having a grade-point average of 3.25 or more and less than 3.75 at graduation will be awarded *honors*. Students having a grade-point average of 3.75 or more will be awarded *high honors*.

PHYSICAL ACTIVITY REQUIREMENT

All male students in engineering are required to take two years of military training and one year of physical education. Students completing this basic course in military or air science may elect to take the advanced course for four more semesters in which case they are granted 8 additional credits toward graduation.

NAVAL SCIENCE COURSE

Requirements for the Bachelor of Naval Science degree are: a total of 136 credits, including not less than 100 credits of courses required in one of the engineering curricula, together with 24 credits of Naval Science courses prescribed in the NROTC Program.

FRESHMAN ENGLISH

Students who receive a grade of *A* in English 1a *may* substitute a free elective for English 1b. (1) A student who, on the basis of the English placement tests given at the beginning of each semester, is not admitted to English 1a must reduce his program by 3 credits: that is, he must drop English 1a, and he must not substitute for it any other course carrying credit. (2) He must enroll in English 0, a non-credit course. (3) If, through the placement test procedure, he is not admitted to English 1a by the beginning of his third semester in residence, he must withdraw from the University until he is so admitted.

FOREIGN STUDENTS

While facility in English adequate to the student's needs for his work at the University of Wisconsin is presupposed, every student whose native tongue is not English must, before registering for the first time at the University, take a special English language test for foreign students. A student who shows on this test a knowledge of English so inadequate as to indicate he will have trouble in carrying university work will be allowed to register if he already has a permit to register. He will be required to take English 9, a non-credit course designed to aid foreign students. Before he is allowed to register for the second semester his case must be reviewed by the dean of his college or school.

Others whose performance in the English language test indicates need of special training may be advised (or required by the appropriate college or major department) to take English 9. (English 9 is *not* a substitute for English 1.)

For further information, students should consult their academic adviser, the special adviser for foreign students, or the Office of Admissions. A special office is maintained, at present in Bascom Hall, to assist in the counseling and orientation of foreign students.

FRESHMAN LECTURES

Freshman engineers are required to attend a course of lectures given once a week for the first semester. The speakers include faculty men from various departments of the University who are outstanding in their fields. The purpose of the course is to give the student an adequate conception of the work of the engineer and of the preparation which is necessary for the successful practice of the profession. It also seeks to broaden his horizon by acquainting him with activities in other fields.

INSPECTION TRIPS

Inspection trips to various industrial plants and large construction projects are arranged and conducted by members of the faculty for the junior and senior engineering students and are required in most curricula. The opportunities enjoyed by the groups of students on these trips are unusual and are not readily obtained by individuals. The inspections offered by the various courses differ but are generally conducted in Milwaukee, southern Wisconsin, and Chicago and vicinity.

THESES

In all courses, candidates for a second or a professional degree in engineering shall submit a thesis. The thesis requirements for the B.S. degree in the different courses in the College of Engineering are as follows:

In the civil engineering course a thesis is required. In the electrical, mechanical, and mining and metallurgical engineering courses a thesis is optional. In chemical engineering a course in special problems replaces the thesis requirement.

If a thesis is elected, the subject of the thesis shall be selected by the student after consultation between the student, his adviser, and the instructor who is to direct the work, and it shall be submitted to the course committee for approval. The total number of credit hours granted for this work shall be not less than three nor more than five, except by special action. The thesis is to be typewritten according to specifications furnished by the librarian of the University, and before it is accepted it must be approved by the instructor under whom the work has been done. It shall be deposited in the University Library by the second Friday before Commencement.

ADVANCED INDEPENDENT STUDY

Graduate students and "upper-group" juniors and seniors in engineering may satisfy some elective credits in their various courses by advanced independent study of subjects or problems suitable for analytical investigative work. To validate such an election, the student's application and proposed project must be approved by his adviser and by the course committee of the department in which the student is enrolled not later than the end of the second week of the semester in which the work is to be taken. Such elections shall be placed on the student's semester study list under the course numbers 180 for undergraduate students and 280 for graduate students, and the approval of the Course Committee shall be recorded by the adviser on the class cards. The Course Committee will specify the number of credits for which the proposed independent study is approved.

The proposed study may be of an economic, historical, statistical, theoretical, or experimental type. The object of the study will be to carry forward the investigative work of the departments, and to develop the initiative and investigative ability of the student. The student must submit a typewritten report of his study to be kept for reference in the records of the department. Studies of unusual merit will be accepted as theses and filed in the University Library.

FOREST PRODUCTS LABORATORY

The United States Forest Products Laboratory, located in Madison, offers a number of undergraduate courses which are given by members of its staff, and, in addition, offers an opportunity for research in forest products. A description of the courses which are listed herewith will be found in the General Catalog.

First Semester	Credits	Second Semester	Credits
For. Prod. 101—Properties of wood.....	5	For. Prod. 103—Chemistry applied to Forest Products	2
		For. Prod. 200—Research in Forest Products	2

PHYSICS OPTION IN ENGINEERING

Students taking a B.S. degree in any branch of engineering who have completed 22 or more credits of physics courses (including the 10–13 credits normally required) will be granted an *Option in Physics,* corresponding to a short curriculum in engineering physics. Time for the extra work in physics may be secured partly by the use of electives and, with prior approval of the faculty, partly through some substitution of physics for the regular engineering requirements.

Students having a B.S. in engineering who are taking graduate work leading to the M.S. degree in any branch of engineering will satisfy a *minor in physics* if they have completed a total of 26 physics credits in their undergraduate and graduate work.

A joint *Master of Science Degree in Engineering and Physics* is established, for which a total of 26 graduate and undergraduate credits in physics is required. A candidate for this degree must have a B.S. degree in engineering and during his graduate year must complete at least 9 credits in approved graduate courses in engineering and at least 9 in approved graduate courses in physics, together with other credits to total 24.

The physics courses, beyond the first course, to meet any of the above requirements would normally be selected from the following list: Physics 102, 103, 104a, 104b, 106a, 106b, 110, 116, 118, 124, 126, 180, 210, 225.

MEMORANDUM ON CO-ORDINATION OF ENGINEERING AND COMMERCE UNDERGRADUATE AND POSTGRADUATE WORK

Interested students may be divided into three classes:

1. Students who hold degrees from engineering and wish to secure a Master of Business Administration degree.
2. Students who wish to secure a bachelor's degree from both engineering and commerce.
3. Students who wish to take the first two years of pre-commerce work in engineering and secure a bachelor's degree only from commerce.

I. *Students Who Hold Degrees in Engineering and Who Wish to Secure a Master of Business Administration Degree.*

For such students it is too late to plan their undergraduate engineering work to co-ordinate more closely with requirements in commerce. Consequently, the following compromises are proposed:

Commerce 6 will be waived by the School of Commerce if the student has had C.E. 99 and 2a or other courses that are the approximate equivalent.

Commerce 142, Public Utilities, will be waived for a student who has had M.E. 166 or the approximate equivalent.

Commerce 11 or Commerce 111, Industrial Management, will be waived for a student who has had M.E. 12. The similarity in both of these courses is so great that a student may not receive credit in both courses.

II. *Students Who Wish to Secure a Bachelor's Degree from Both Colleges.*

For those students who wish to secure a bachelor's degree from both colleges, it is desirable to plan as early as possible in the student's career for such a combination. Inasmuch as the engineering curriculum contains a large proportion of required courses, any engineering student of junior or more advanced standing may also take any commerce course for which he has the prerequisites. Since the School of Commerce requires for admission Commerce 8 and 9, Elementary and Intermediate Accounting, it will be well for engineering students to take these courses prior to entering that School, but they may be postponed.

Economics 1a is a prerequisite to many courses in commerce. If it were taken as early as possible the student would still be able to take many courses in commerce which do not require Commerce 8 or 9.

III. *Students Who Wish to Take Their Pre-Commerce Work in Engineering.*

In view of the fact that at present the School of Commerce accepts on probation students who are deficient in one or more of Economics 1a, Commerce 8, and Commerce 9, the School of Commerce will admit as juniors those who are certified by the faculty in Engineering as having successfully completed the sophomore year of any one of the engineering sequences. Such student's progress would be greatly facilitated, however, if Economics 1a, Commerce 8, and Commerce 9 would have been taken.

COMBINED COURSE IN ENGINEERING AND LAW

A student in Engineering desiring to take the combined course in Engineering and Law may, after completing three quarters of the credits necessary for the B.S. degree in Engineering, elect to take such combination of courses providing he is scholastically eligible to enter the Law School. Such student should have taken at least six credits in social science courses (i.e , economics, sociology, psychology, etc.). Such a student may remain during the senior year in the Engineering College, electing, with the permission of the Dean of Engineering, not more than seven credits in Law. If he wishes to carry more than seven credits, he may transfer to the Combined Course in Engineering and Law and pay the professional fee required of Law students.

COMBINED COURSES IN AGRICULTURAL ENGINEERING AND CIVIL OR MECHANICAL ENGINEERING

The Department of Agricultural Engineering offers a curriculum in Farm Structures and one in Drainage, Irrigation, and Soil Conservation, which lead, at the end of five years of study, to the degrees of Bachelor of Science in Agriculture and Bachelor of Science in Civil Engineering. The curriculum in Farm Power and Machinery leads to the degrees of Bachelor of Science in Agriculture and Bachelor of Science in Mechanical Engineering at the end of five years of study. For descriptions of these curricula, see the bulletin of the College of Agriculture.

COMBINED COURSE IN CIVIL ENGINEERING AND CITY PLANNING

The curriculum is designed to provide professional training in city planning for students neering and City Planning that leads to the degrees of Bachelor of Science (Civil Engineering) and Bachelor of Science (City Planning). A student in Civil Engineering may elect this combined curriculum, which is shown on page 425, at the beginning of his junior year.

The curriculum is designed to provide professional training in city planning for students who are enrolled in the civil engineering course. The courses included in the curriculum will enable students to obtain a broad understanding of the physical, sociological, and economic problems of city planning and sufficient technical skill to qualify them for positions as city planning engineers, municipal engineers, and staff members with planning consultants and agencies.

COMBINED COURSE IN CIVIL ENGINEERING AND LIGHT BUILDING INDUSTRY

The Department of Civil Engineering and the School of Commerce offer a five-year combined course in Civil Engineering and Light Building Industry that leads to the degrees of Bachelor of Science (Civil Engineering) and Bachelor of Science (Light Building Industry). The curriculum, which is shown on page 426, is designed to provide a thorough training for students who are particularly interested in entering the field of building construction or the contracting industry. The course includes all of the required work in Civil Engineering as well as selected subjects in the School of Commerce and other departments which should provide the students with a broad training in the economic, legal, and business aspects of the construction industry.

Attention is also called to the four-year curriculum leading to the degree of Bachelor of Science (Light Building Industry) offered by the School of Commerce.

EXTENSION CENTER PROGRAMS

For students who find it impossible to go directly to Madison from high school, the Extension Division maintains regular university day classes at centers in Green Bay, Kenosha, Manitowoc, Marinette, Menasha, Milwaukee, Racine, Sheboygan and Wausau. The first year of most engineering courses is offered at all centers, and in a few centers the second year is also available. These programs are under the academic supervision and control of the College of Engineering. Further details can be obtained at the various Extension Centers or by writing to the Director of the Extension Division.

ENGINEERING CURRICULA

After a student has selected a given curriculum he should adhere to the sequence of required courses. Postponements of such courses will ordinarily not be approved by advisers. In cases where exceptions must be made it becomes the student's responsibility to take such postponed subjects at the earliest opportunity.

AERONAUTICAL ENGINEERING

The College of Engineering offers no separate curriculum and degree in aeronautical engineering. It is believed that because of the high development of the airplane that specialists well grounded in the recognized fields of engineering can most successfully contribute to its further improvement. Thus the electrical instruments and devices in the airplane are the work of electrical engineers; the skillful design and use of materials a challenge to structural specialists; and the power plant the responsibility of internal combustion engine specialists. Accordingly, any of our students who are interested in the special application of their branch of engineering to aeronautics are encouraged to elect such courses as the following. These are available whenever registration is sufficient.

First Semester	Credits	Second Semester	Credits
Mech. 111—Aerodynamics	3	Mech. 112—Airplane stress analysis	3
M.E. 37—Welding	2	M.E. 171—Gas turbines and jet propulsion	3
M.E. 169—Internal combustion engines	3		

CHEMICAL ENGINEERING CURRICULUM*

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (CHEMICAL ENGINEERING)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Math. 51—Elementary analysis	5	Math. 52—Elementary analysis	5
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
Drawing 12—Engineering drawing	3	Drawing 23—Engineering drawing and descriptive geometry	3
Chem. 4a—General chemistry	5	Chem. 4b—General chemistry and qualitative analysis	5
M.E. 21 or 22—Metal processing	1	M.E. 21 or 22—Metal processing	1
Freshman lectures	0	Physical Education	0
Physical Education	0	Military Training	0
Military Training	0		
	17		17

SOPHOMORE YEAR

Math. 102a—Calculus	4	Math. 102b—Calculus	4
Physics 51—General physics	5	Physics 52—General physics	5
Chem. 120—Organic chemistry	3	Ch.E. 18—Fundamentals of chemical engineering	3
Speech 7—Public speaking	2	Chem. 122—Organic chemistry	3
Chem. 11a—Quantitative analysis	5	Ch.E. 12—Technical analysis	2
Military Training	0	Chem. 121—Organic chemistry laboratory	2
		Military Training	0
	19		19

* Note that the GENERAL REQUIREMENT stated on page 416 must be fulfilled by all students.

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
Ch.E. 99—Engineering reports	3	Ch.E. 111b—Unit operations	4
Ch.E. 111a—Unit operations	4	Chem. 130b—Physical chemistry	3
Chem. 130a—Physical chemistry	3	Chem. 131b—Physical chemistry laboratory	1
Chem. 131a—Physical chemistry laboratory	1	M.E. 65—Heat-power engineering	3
Mech. 4—Statics and dynamics	4	Mech. 5—Mechanics of materials	3
Ch.E. 116—Material and energy balances	3	Mech. 53—Materials of construction	2
		Ch.E. 117—Process measurements and control	3
		Junior inspection trip	0
	18		19

SUMMER SESSION (5 WEEKS)

Ch.E 114—Operations and process laboratory.....5 credits.

SENIOR YEAR

Ch.E. 101—Applied electrochemistry	4	Ch.E. 115—Organic processes	3
Ch.E. 118—Chemical engineering thermodynamics	3	Ch.E. 122—Special problems	3–4
Ch.E. 142—Chemical engineering materials of construction	3	Ch.E. 150—Design of chemical processing equipment	3
E.E. 8—Electrical machinery	3	E.E. 9—Electrical machinery	3
M.E. 76—Heat engine testing	2	Electives	6–5
Electives	4	Senior inspection trip	0
	19		18

CURRICULUM IN BIOCHEMICAL ENGINEERING*

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (BIOCHEMICAL ENGINEERING)

FRESHMAN AND SOPHOMORE YEARS

Same is in Chemical Engineering Curriculum. See page 421.

JUNIOR YEAR

Biochem. 105—Principles of biochemistry; lecture	3	Agr. Bact. 103—General survey of bacteriology	4
Biochem. 106—Principles of biochemistry; laboratory	2	Ch.E. 99—Engineering reports	3
Chem. 130a—Physical chemistry	3	Chem. 130b—Physical chemistry	3
Chem. 131a—Physical chemistry laboratory	1	Chem. 131b—Physical chemistry laboratory	1
Mech. 4—Statics and dynamics	4	Mech. 5—Mechanics of materials	3
Ch.E. 116—Material and energy balances	3	Mech. 53—Materials of construction	2
Electives	2	M.E. 65—Thermodynamics	3
		Junior inspection trip	0
	18		19

SENIOR YEAR

Agr. Bact. 127—Industrial microbiology	4	Biochemistry electives	3–4
Ch.E. 101—Applied electrochemistry	4	Ch.E. 111b—Unit operations	4
Ch.E. 111a—Unit operations	4	E.E. 9—Electrical machinery	3
Ch.E. 142—Chemical engineering materials of construction	3	Ch.E. 117—Process measurements and control	3
M.E. 76—Heat engine testing	2	Electives	4–3
E.E. 8—Electrical machinery	3	Senior inspection trip	0
	20		17

SUMMER SESSION (5 WEEKS)

Ch.E 114—Operations and process laboratory.....5 credits.

FIFTH YEAR

LEADING TO THE M.S. DEGREE IN BIOCHEMICAL ENGINEERING

Agr. Bact. 125—Food bacteriology	4	Agr. Bact. 226—Physiology of bacteria	4
or		Biochemistry electives	3–4
Biochemistry electives in second semester	3–4	or	
Ch.E. 200—Thesis	3	Agr. Bact. 125—Food bacteriology, 4 cr., in first semester	
Chem. 119—Organic analysis	3	Ch.E. 200—Thesis	3
Electives	2–6	Electives	1–5
	12		12

* Note that the GENERAL REQUIREMENT stated on page 416 must be fulfilled by all students.

CIVIL ENGINEERING CURRICULUM*

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (CIVIL ENGINEERING)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Math. 51—Elementary analysis	5	Math. 52—Elementary analysis	5
Drawing 12—Engineering drawing	3	Drawing 23—Engineering drawing and descriptive geometry	3
Chem. 2a—General chemistry	4	Chem. 2b—General chemistry	4
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
C.E. 15—Elementary surveying	2	C.E. 16—Elementary surveying	2
Freshman lectures	0	Physical Education	0
Physical Education	0	Military Training	0
Military Training	0		
	17		17

SOPHOMORE YEAR

Math. 102a—Calculus	4	Math. 102b—Calculus	4
Physics 51—General physics	5	Physics 52—General physics	5
Mech. 1—Statics	3	Mech. 2—Dynamics	3
C.E. 17—Topographical and land surveying	3	C.E. 23—Curves and location	4
Econ. 1a—General economics	4	C.E. 99—Engineering reports	3
Military Training	0	Military Training	0
	19		19

SUMMER CAMP (6 WEEKS)

C.E. 116—Summer survey	4	C.E. 122—Route surveying	2

JUNIOR YEAR

Mech. 3—Mechanics of materials	4	Mech. 52—Materials of construction	2
Mech. 51—Materials of construction	2	C.E. 52—Analysis of simple structures	4
C.E. 72—Elementary hydraulics	4	C.E. 103—Economic selection	2
C.E. 181—Hydrology	2	C.E. 132—Highway engineering	3
Geology 9a—Engineering geology	3	C.E. 155—Reinforced concrete	3
M.E. 67—Thermodynamics and heat power	4	C.E. 191—Sewerage	3
		Electives	2
		Junior trip	0
	19		19

SENIOR YEAR

Mech. 110—Soil mechanics	3	C.E. 54—Structural design	2
C.E. 53—Structural design	3	C.E. 101—Contracts and specifications	2
C.E. 160—Reinforced concrete	3	C.E. 164—Foundations	2
C.E. 195—Water supply	3	E.E. 10—Elementary electrical engineering	3
Thesis	1	E.E. 60—Electrical engineering laboratory	1
Electives	5	Thesis	2–4
Senior trip	0	Electives	6–4
	18		18

Total required for graduation and which *must include* 6 credits for summer camp—152 cr.

*Note that the GENERAL REQUIREMENT stated on page 416 must be fulfilled by all students.

ELECTIVE COURSES

The following groups of elective courses are provided as a guide to students wishing to specialize in one of the recognized branches of civil engineering:

BUILDING CONSTRUCTION

First Semester	Credits	Second Semester	Credits
C.E. 102—Estimates and costs	2	C.E. 161—Advanced reinforced concrete	2
C.E. 159—Design of timber structures	2	Commerce 6—Business communications	3
Mech. 119—Properties and uses of Portland cement concrete	2	Commerce 9—Elements of accounting	4
Commerce 8—Elements of accounting	4	Commerce 109b—Commercial law	3
		Commerce 171—Personnel management	3

CITY PLANNING

C.E. 141[1]—City planning	2	C.E. 142—Advanced city planning	2
C.E. 144—Municipal engineering practice	2	C.E. 145—Traffic control	2
Commerce 179—Urban land economics	3	Commerce 178—Housing problems	3

HIGHWAY ENGINEERING

C.E. 133—Advanced highway design	3	C.E. 134—Bituminous materials testing	3
C.E. 135—Soils and aggregates testing	3	C.E. 136—Highway administration	2
C.E. 141[1]—City planning	2	C.E. 142—Advanced city planning	2
C.E. 144—Municipal engineering practice	2	C.E. 145—Traffic control	2
M.E. 101[1]—Motor vehicle testing and practice	3	C.E. 162—Highway bridges and culverts	2
		Commerce 168—Highway transportation	3

HYDRAULIC ENGINEERING

C.E. 173—Advanced hydraulics	3	C.E. 174—River and irrigation hydraulics	2
C.E. 182—Hydrological investigations	2	C.E. 175—Hydraulic machinery	3
C.E. 184—Water power engineering	2	C.E. 177—Fluid mechanics	3
C.E. 270[2]—Hydraulic engineering seminar	1	C.E. 183—Hydraulic design	2
		C.E. 285—Seminar in river basin planning	2 or 3

MUNICIPAL ENGINEERING

C.E. 139—Airports	2	C.E. 134—Bituminous materials testing	3
C.E. 141[1]—City planning	2	C.E. 142—Advanced city planning	2
C.E. 144—Municipal engineering practice	2	C.E. 145—Traffic control	2
C.E. 192—Sewage treatment	3	C.E. 196—Water treatment	3
C.E. 193—Water and sewage analysis	3	C.E. 197—Industrial waste treatment	2
C.E. 194[2]—Sanitary engineering seminar	1		

SANITARY ENGINEERING

C.E. 192—Sewage treatment	3	C.E. 196—Water treatment	3
C.E. 193—Water and sewage analysis	3	C.E. 197—Industrial waste treatment	2
C.E. 194[2]—Sanitary engineering seminar	1	Agr. Bact. 2 or 103	4

STRUCTURAL ENGINEERING

C.E. 156—Analysis and design of arches	2	C.E. 158—Indeterminate structures	2
C.E. 157—Indeterminate structures	3	C.E. 161—Advanced reinforced concrete	2
C.E. 159—Design of timber structures	2	C.E. 162—Highway bridges and culverts	2
Mech. 101—Advanced statics	2	Mech. 106—Advanced mechanics of materials	3
Mech. 109—Graphics	2		

SURVEYING AND MAPPING

C.E. 114—Advanced surveying	3	C.E. 119—Photogrammetry	3

TRANSPORTATION

C.E. 133—Advanced highway design	3	C.E. 145—Traffic control	2
C.E. 139—Airports	2	Commerce 136—Transportation problems	3
Commerce 135—Economics of transportation	3	Commerce 169—Air transportation	3

GENERAL

C.E. 102—Estimates and costs	2	C.E. 104—Engineering valuation	2

[1] Course may be taken in either first or second semester.
[2] Course is given in both semesters and may be repeated for credit since the content is different.

COMBINED CURRICULUM IN CIVIL ENGINEERING AND CITY PLANNING

LEADING TO THE DEGREES OF BACHELOR OF SCIENCE (CIVIL ENGINEERING) AND BACHELOR OF SCIENCE (CITY PLANNING)*

FRESHMAN YEAR, SOPHOMORE YEAR, AND SUMMER CAMP

Same as in Civil Engineering Curriculum. See page 423.

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
Geology 9a—Engineering geology	3	Mech. 52—Materials of construction	2
Mech. 3—Mechanics of materials	4	C.E. 132—Highway engineering	3
Mech. 51—Materials of construction	2	C.E. 142[1]—Advanced city planning	2
Econ. 117[1]—Outlines of land economics	3	Econ 130[1]—Economics statistics	3
C.E. 72—Elementary hydraulics	4	Econ. 179[1]—Urban land economics	3
C.E. 141[1]—City planning	2	Geography 129[1]—Urban geography	3
		Sociology 171[1]—Planning and social organization	3
	18		19

SENIOR YEAR

M.E. 67—Thermodynamics and heat power	4	C.E. 52—Structural analysis	4
C.E. 144[1]—Municipal engineering practice	2	C.E. 103—Economic selection	2
C.E. 181—Hydrology	2	C.E. 145[1]—Traffic control	2
Art History 131[1]—American architecture	3	C.E. 155—Reinforced concrete	3
Econ. 124a[1]—Public finance	3	C.E. 191—Sewerage	3
Pol. Science 13[1]—Municipal government	3	Pol. Science 163[1]—Local planning administration	3
Sociology 163[1]—Modern population problems	3	Speech 7[1]—Public speaking	2
		Junior trip (C.E.)	0
	20		19

FIFTH YEAR

C.E. 53—Structural design	3	C.E. 54—Structural design	2
C.E. 191[1]—Airports	2	C.E. 101—Contracts and specifications	2
C.E. 143[1]—City planning design	2	C.E. 164—Foundations	2
C.E. 160—Reinforced concrete	3	C.E. 100—Thesis	2
C.E. 195—Water supply	3	E.E. 10—Elementary electrical engineering	3
C.E. 100—Thesis	1	E.E. 60—Electrical engineering laboratory	1
Mech. 110—Soil mechanics	3	Electives	5
Electives	2		
Senior trip (C.E.)	0		17
	19	Total	190

* The degrees will be granted at the end of the fifth year upon completion of requirements.

[1] The requirements for the degree of Bachelor of Science (City Planning) consist of the requirements for the degree of Bachelor of Science (Civil Engineering) and the courses indicated by the superior figure [1] in the combined course curriculum.

COMBINED CURRICULUM IN CIVIL ENGINEERING AND LIGHT BUILDING INDUSTRY

LEADING TO THE DEGREES OF BACHELOR OF SCIENCE (CIVIL ENGINEERING) AND BACHELOR OF SCIENCE (LIGHT BUILDING INDUSTRY)*

FRESHMAN YEAR

Same as in Civil Engineering Curriculum. See page 423.

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
Math. 102a—Calculus	4	Math. 102b—Calculus	4
Physics 51—General physics	5	Physics 52—General physics	5
Mech. 1—Statics	3	Mech. 2—Dynamics	3
Econ. 1a—General economics	4	C.E. 23—Curves and location	4
C.E. 17—Topographic and land surveying	3	Ag. Engr. 1—Surveys and structures (deduct 1 surveying credit)	3
Military Training	0	Military Training	0
	19		19

SUMMER CAMP

C.E. 116—Summer survey	4	C.E. 122—Route surveying	2

JUNIOR YEAR

Mech. 3—Mechanics of materials	4	Mech. 52—Materials of construction	2
Mech. 51—Materials of construction	2	Com. 9—Intermediate accounting	4
Geol. 9a—Engineering geology	3	Com. 29—Home architecture II	3
Com. 8—Elements of accounting	4	Ag. Engr. 18—Architectural drawing	3
C.E. 72—Elementary hydraulics	4	C.E. 52—Analysis of simple structures	4
C.E. 181—Hydrology	2	C.E. 155—Reinforced concrete	3
		Junior trip (C.E.)	0
	19		19

SENIOR YEAR

M.E. 67—Thermodynamics and heat power	4	E.E. 10—Elementary electrical engineering	3
Mech. 110—Soil mechanics	3	E.E. 60—Electrical engineering laboratory	1
Com. 30—Home architecture III	3	Com. 28—Home architecture I	3
Com. 179—Urban land economics	3	C.E. 54—Structural design	2
C.E. 53—Structural design	3	C.E. 101—Contracts and specifications	2
C.E. 160—Reinforced concrete	3	C.E. 103—Economic selection	2
		C.E. 132—Highway engineering	3
		C.E. 191—Sewerage	3
	19		19

FIFTH YEAR

For. Prod. 101—Properties of wood	5	Com. 109b—Commercial law	3
C.E. 99—Engineering reports	3	Com. 112—Marketing methods	3
C.E. 195—Water supply	3	Com. 171—Personnel management or Econ. 122—Labor problems	3
C.E. 100—Thesis	1	Com. 176—Real estate finance	3
Electives	6	C.E. 164—Foundations	2
Senior trip (C.E.)	0	C.E. 100—Thesis	2–4
		Electives	2–0
	18		18
		Total	190

* The degrees will be granted at the end of the fifth year upon completion of requirements.

ELECTRICAL ENGINEERING CURRICULUM*

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (ELECTRICAL ENGINEERING)

(First Four Semesters Same for Both Options)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Math. 51—Elementary analysis	5	Math. 52—Elementary analysis	5
Drawing 12—Engineering drawing	3	Drawing 23—Engineering drawing and descriptive geometry	3
Chem. 2a—General chemistry	4	Chem. 2b—General chemistry	4
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
M.E. 32—Machine practice	2	Speech 8a—Extempore speaking	2
or		or	
Speech 8a—Extempore speaking	2	M.E. 32—Machine practice	2
Freshman lectures	0	Physical Education	0
Physical Education	0	Military Training	0
Military Training	0		
	17		17

SOPHOMORE YEAR

Math. 102a—Calculus	4	Math. 102b—Calculus	4
Physics 53—General physics	5	Physics 54—General physics	5
Econ. 1a—General economics	4	Mech. 54—Statics and dynamics	4
E.E. 20—Electrodynamics	3	E.E. 22—Electrodynamics	3
E.E. 21—Electrodynamics laboratory	1	E.E. 23—Electrodynamics laboratory	2
Military Training	0	Military Training	0
	17		18

PROFESSIONAL OPTION

JUNIOR YEAR

E.E. 30—Alternating-current circuits	4	E.E. 32—Direct-current machinery	3
E.E. 31—Alternating-current circuits laboratory	2	E.E. 33—Direct-current machinery laboratory	1
Mech. 3—Mechanics of materials	4	E.E. 34—Fundamental electronics	4
Mech. 53—Materials of construction	2	E.E. 35—Fundamental electronics laboratory	2
M.E. 64—Thermodynamics and heat power	3	E.E. 36—Advanced circuits and networks	4
M.E. 74—Heat-power laboratory	2	M.E. 45—Machine design	3
Math. 111—Higher mathematics	3	Electives	3
		Junior inspection trip	0
	20		20

SENIOR YEAR

E.E. 40—Alternating-current machinery	4	Physics 107—Atomic physics	3
E.E. 41—Alternating-current machinery laboratory	1	E.E. 99—Professional expression	3
E.E. 42—Electrical measurements	4	E.E. 138[1]—Power system analysis	3
Professional problems	1	C.E. 71[1]—Hydraulics	3
E.E. 127[1]—Electric power systems	3	E.E. 184[2]—Advanced communications engineering	4
E.E. 151[1]—Industrial electronics	3	E.E. 185[2]—Advanced communications engineering laboratory	2
E.E. 182[2]—Communications engineering	4	Electives	6
E.E. 183[2]—Communications engineering laboratory	2		
Electives	3		
Senior inspection trip	0		
	19		18

NOTE: It is recommended that at least 6 of the elective credits be taken in non-professional courses.

---

* Note that the GENERAL REQUIREMENT stated on page 416 must be fulfilled by all students.
[1] Required for Power Major.
[2] Required for Electronics and Communications Major.

GENERAL OPTION

JUNIOR YEAR

First Semester	Credits	Second Semester	Credits
E.E. 30—Alternating-current circuits	4	E.E. 32—Direct-current machinery	3
E.E. 31—Alternating-current circuits laboratory	2	E.E. 33—Direct-current machinery laboratory	1
Mech. 3—Mechanics of materials	4	E.E. 34—Fundamental electronics	4
Mech. 53—Materials of construction	2	E.E. 35—Fundamental electronics laboratory	2
M.E. 64—Thermodynamics and heat power	3	M.E. 45—Machine design	3
M.E. 74—Heat-power laboratory	2	Electives	7
Electives	3	Junior inspection trip	0
	20		20

SENIOR YEAR

E.E. 40—Alternating-current machinery	4	E.E. 99—Professional expression	1
E.E. 41—Alternating-current machinery laboratory	1	E.E. 102—Principles of electrical communication	3
E.E. 42—Electrical measurements	4	C.E. 71—Hydraulics	3
E.E. 127—Electric power systems	3	Technical electives	6
Electives	6	Electives	5
Professional problems	1		
Senior inspection trip	0		
	19		18

NOTE: It is recommended that at least 6 of the elective credits be taken in commerce and/or economics.

SUGGESTED TECHNICAL ELECTIVES:

E.E. 133—Illumination and photometry
E.E. 137—Power distribution
E.E. 151—Industrial electronics
M.E. 12—Principles of industrial engineering
M.E. 115—Industrial plant design
M.E. 116—Motion and time study

SUGGESTED COMMERCE AND ECONOMICS ELECTIVES:

Commerce 109a–b—Commercial law
Commerce 117—Production planning and control
Econ. 142—Public utilities
Commerce 171—Personnel management
Commerce 134—Industrial statistics
Commerce 122—Labor problems
Commerce 173—Job evaluation and merit rating
Commerce 172—Management and labor relations
Commerce 111—Industrial management
Econ. 145—American labor history
Econ. 146—Government and business
Commerce 108a—Accounting principles
Commerce 137—Corporation finance
Commerce 195—Public utility management

MECHANICAL ENGINEERING CURRICULUM*

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (MECHANICAL ENGINEERING)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Math. 51—Elementary analysis	5	Math. 52—Elementary analysis	5
Chem. 2a—General chemistry	4	Chem. 2b—General chemistry	4
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
Drawing 12—Engineering drawing	3	Drawing 23—Engineering drawing and descriptive geometry	3
Speech 9—Extempore speaking	3	M.E. 25—General machine practice	3
or		or	
M.E. 25—General machine practice		Speech 9—Extempore speaking	
Freshman lectures	0	Physical Education	0
Physical Education	0	Military Training	0
Military Training	0		
	18		18

SOPHOMORE YEAR

Math. 102a—Calculus	4	Math. 102b—Calculus	4
Physics 51—General physics	5	Physics 52—General physics	5
Mech. 1—Statics	3	Mech. 2—Dynamics	3
Econ. 1a—General economics	4	Drawing 24—Advanced engineering drawing.	2
M.&M.E. 8—Metallography	2	M.&M.E. 33—Foundry	2
or		or	
M.&M.E. 33—Foundry		M.&M.E. 8—Metallography	
Military Training	0	M.E. 37—Welding	2
		Military Training	0
	18		18

JUNIOR YEAR

M.E. 41—Mechanism	3	M.E. 43—Machine elements	3
M.E. 61—Heat power I	3	M.E. 62—Heat power II	3
Mech. 3—Mechanics of materials	4	M.E. 72—Heat-power laboratory I	2
Mech. 52—Materials of construction	2	E.E. 6—Electrical circuits	4
M.E. 12—Principles of industrial engineering	3	E.E. 56—Electrical circuits laboratory	1
C.E. 71—Hydraulics	3	M.E. 13—Engineering and manufacturing cost analysis	3
		M.E. 99—Technical writing	3
		Junior inspection trip	0
	18		19

SENIOR YEAR

M.E. 44—Advanced machine design	3	M.E. Electives[1]	6
M.E. 52—Machine design laboratory	2	S.S. 120—Human relations for engineers	3
M.E. 63—Heat power III	3	Contemporary trends 103	3
M.E. 73—Heat-power laboratory II	2	Free electives	6
E.E. 7—Electrical machinery	4		
E.E. 57—Electrical machinery laboratory	1		
Professional problems	1		
Free elective	3		
Senior inspection trip	0		
	19		18

MECHANICAL ENGINEERING ELECTIVES

FROM WHICH CHOICES MUST BE MADE

GROUP A (Industrial Engineering)	Credits
M.E. 115—Industrial plant design	3
M.E. 116—Motion and time study	3
M.E. 127—Production processes	3

GROUP B (Machine Design)	
M.E. 141—Dynamic problems in design	3
M.E. 142—Adv. kinematics of machinery	3
M.E. 143—Adv. mechanics of machinery	3

GROUP C (Heat Power)	Credits
M.E. 101—Vehicle testing	3
M.E. 161—Adv. thermodynamics	3
M.E. 162—Refrigeration	3
M.E. 164—Industrial heat transfer	3
M.E. 166—Power plant econ. and design	3
M.E. 167—Heat-power calculations	2
M.E. 168—Heating and ventilating	3
M.E. 169—Internal combustion engines	3
M.E. 170—Air conditioning	3
M.E. 171—Gas turbines & jet propulsion	3
M.E. 172—Flow of compressible fluids	3
M.E. 174—Advanced heat power lab.	1
M.E. 178—Heating & ventilating lab.	2

* Note that the GENERAL REQUIREMENT stated on page 416 must be fulfilled by all students.

[1] These electives must include courses from two of the three groups listed below.

MINING ENGINEERING CURRICULA*

LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (MINING ENGINEERING)

A. MINING ENGINEERING OPTION
B. MINING GEOLOGY OPTION (Metallic Minerals)
C. MINING GEOLOGY OPTION (Petroleum)

In all options the work of the first two years is the same. In anticipation of his senior year's selection of one of the three options, the junior elects the indicated courses in geology and /or hydraulic engineering.

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Math. 51—Elementary analysis	5	Math. 52—Elementary analysis	5
Chem. 2a—General chemistry	4	Chem. 2b—General chemistry	4
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
Drawing 12—Engineering drawing	3	Drawing 23—Engineering drawing and descriptive geometry	3
C.E. 118—Short course in surveying	3	M.&M.E. 12—Mine surveying	2
Freshman lectures	0	Physical Education	0
Physical Education	0	Military Training	0
Military Training	0		
	18		17

SOPHOMORE YEAR

Math. 102a—Calculus	4	Math. 102b—Calculus	4
Physics 51—General physics	4	Physics 52—General physics	4
M.&M.E. 101—Excavation and tunneling	3	Chem. 14—Quantitative analysis	3
Geol. 6—Mineralogy	5	Geol. 6—Mineralogy	5
Geol. 9—Engineering geology	3	Geol. 9—Engineering geology	3
Military Training	0	Military Training	0
	19		18

JUNIOR YEAR

M.&M.E. 102—Mining methods	3	M.&M.E. 103—Mining methods	3
Mech. 4—Statics and dynamics	4	M.&M.E. 121—Assaying	3
Geol. 103[1]—Petrology	5	M.&M.E. 127—Principles of extractive metallurgy	3
or			
Geol. 112[2]—Stratigraphy	3	Mech. 5—Mechanics of materials	3
and		Mech. 53—Materials of construction	2
Geol. 133—Sedimentation	3	Electives[1, 2] in Geology and	
M.&M.E. 99—Engineering expression	3	or	
Electives	2	Hydraulic Engineering	5
	17 or 18		19

SENIOR YEAR

A. MINING ENGINEERING OPTION

M.&M.E. 105—Mine engineering	3	M.&M.E. 104—Mineral valuation	3
M.&M.E. 107—Mineral dressing	3	M.&M.E. 106—Mine engineering	3
M.&M.E. 108—Mineral dressing laboratory	2	M.&M.E. 109—Advanced mineral dressing	3
M.&M.E. 125—Metallurgy of nonferrous metals	3	M.&M.E. 151—Future of the mineral industry	3
E.E. 8—Electrical machinery	3	E.E. 9—Electrical machinery	3
Geol. 114—Structural geology	5	Geol. 115—Metamorphic geology or Electives	4
	19		19

B. GEOLOGY OPTION (METALLIC MINERALS)

M.&M.E. 105—Mine engineering	3	M.&M.E. 104—Mineral valuation	3
M.&M.E. 107—Mineral dressing	3	M.&M.E. 106—Mine engineering	3
M.&M.E. 108—Mineral dressing laboratory	2	M.&M.E. 109—Advanced mineral dressing	3
Geol. 114—Structural geology	5	M.&M.E. 151—Future of mineral industry	3
Geol. 141—Mineragraphy	3	Geol. 115—Metamorphic geology	5
Geol. 151—Principles of economic geology	3	Electives in geology	2
	19		19

C. GEOLOGY OPTION (PETROLEUM)

M.&M.E. 105—Mine engineering	3	M.&M.E. 104—Mineral valuation	3
M.&M.E. 107—Mineral dressing	3	M.&M.E. 106—Mine engineering	3
M.&M.E. 108—Mineral dressing laboratory	2	M.&M.E. 109—Advanced mineral dressing	3
Geol. 114—Structural geology	5	M.&M.E. 151—Future of the mineral industry	3
Geol. 123—Petroleum geology	3	Geol. 123—Petroleum geology	3
Electives in geology	3	Geol. 163—Ground water geology	3
	19		18

NOTE: All electives subject to departmental approval.

* Note that the GENERAL REQUIREMENT stated on page 416 must be fulfilled by all students.
[1] For students who plan to elect the Mining Engineering or the Metallic Minerals Geology Option.
[2] For students who plan to elect the Petroleum Option.
Summer inspection trip required.

METALLURGICAL ENGINEERING CURRICULUM*

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
Chem. 2a—General chemistry	4	Chem. 2b—General chemistry	4
Engl. 1a—Freshman composition	3	Engl. 1b—Freshman composition	3
Drawing 12—Engineering drawing	3	Drawing 23—Engineering drawing and descriptive geometry	3
M.&M.E. 22—Introduction to metallurgy	2	M.E. 32—General industrial machine practice	2
Freshman lectures	0	Physical Education	0
Physical Education	0	Military Training	0
Military Training	0		
	17		17

SOPHOMORE YEAR

Math. 102a—Calculus	4	Math. 102b—Calculus	4
Physics 51—General physics	4	Physics 52—General physics	4
M.&M.E. 121—Assaying	3	M.&M.E. 124—Metallurgy of iron and steel	3
M.&M.E. 122—Principles of metallurgy	3	Chem. 14—Quantitative analysis	4
Econ. 1a—General economics	4	Electives	3
Military Training	0	Military Training	0
	18		18

JUNIOR YEAR

M.&M.E. 128—Metallography of iron and steel	3	M.&M.E. 127—Principles of extractive metallurgy	3
M.&M.E. 131—Foundry metallurgy	3	M.&M.E. 140—Heat treatment of iron and steel	3
M.&M.E. 134—Physical metallurgy	3	Chem. 130b—Physical chemistry	3
Chem. 130a—Physical chemistry	3	Chem. 131b—Physical chemistry laboratory	1
Chem. 131a—Physical chemistry laboratory	1	Mech. 5—Mechanics of materials	3
Mech. 4—Statics and dynamics	4	Mech. 53—Materials of construction	2
M.&M.E. 99—Engineering expression	3	Electives	4
	20		19

SENIOR YEAR

M.&M.E. 107—Mineral dressing	3	M.&M.E. 133—Properties and uses of industrial alloys	3
M.&M.E. 129—Extractive metallurgy processes	3	M.&M.E. 136—Physical metallurgy of surfaces	3
M.&M.E. 125—Metallurgy of nonferrous metals	3	M.&M.E. 147—Alloy structures	3
M.&M.E. 135—Metallurgical calculations	3	M.&M.E. 148—Metallurgical X-ray and spectrographic studies	3
E.E. 8—Electrical machinery	3	M.&M.E. 150—Metallurgical seminar	2
Electives	3	E.E. 9—Electrical machinery	3
		Electives	2
	18		19

NOTE: Elective credits subject to departmental approval.

*Note that the GENERAL REQUIREMENT stated on page 416 must be fulfilled by all students.

DEPARTMENTS OF INSTRUCTION

Abbreviations used in the announcement of courses:

Yr—a continuous course extending through two semesters
Sem—a one-semester course
I—course given during the first semester
II—course given during the second semester
I, II—semester course given each semester
cr—number of credit hours per semester
*cr—credit to be arranged

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

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.

Senior Thesis, Course 100, is available except in Chemical Engineering and Drawing and Descriptive Geometry. Graduate Thesis Research, Course 200, is available except in Drawing and Descriptive Geometry. (See page 418.)

Advanced Independent Study may be elected in all departments except Drawing and Descriptive Geometry. (See page 418.)

For courses required in the engineering curricula but given in the College of Letters and Science, see the bulletin of that college or the General Catalog.

CHEMICAL ENGINEERING

Professors Altpeter, Hougen, *chairman*, Marshall, Neill, Ragatz, Watson; Assistant Professors Kirk, Lightfoot; Instructors D. Johnson, W. C. Johnson, McIrvine; Project Associates Bird, Garver.

12. Technical Analysis. I, II; 2 cr. Examinations of fuels, gases, and water. Prerequisite: Chemistry 11a or 14. Mr. D. Johnson.

18. Fundamentals of Chemical Engineering. I, II; 3 cr. Elementary chemical engineering calculations pertaining to density, composition, pressure, the gas laws, gas-vapor mixtures, material balances. Prerequisites: Chemistry 11a or 14 or concurrent registration, Mathematics 52, Physics 51. Mr. Ragatz.

41. Elementary Chemical Engineering Principles. I; 3 cr. Chemical engineering calculations pertaining to density, pressure, the simple gas laws, gas-vapor mixtures, material balances for chemical processes. Flow of fluids with reference to friction losses, metering devices, pumps and piping. Prerequisites: Physics, general chemistry, junior standing. Not open to students in chemical engineering. Mr. Kirk.

42. Survey of Unit Operations. II; 3 cr. Heat transfer, air conditioning, drying, distillation, gas absorption, solvent extraction, filtration, crushing and grinding, size separation. Prerequisite: Ch.E. 41. Not open to students in chemical engineering. Mr. Kirk.

99. Engineering Reports. Fundamentals of technical writing with special emphasis on reports. Mr. Altpeter, Mr. Watson, Mr. Kirk.

101. Applied Electrochemistry. I, II; 4 cr. The principles of electrolysis and their applications to electroplating, refining of metals, and chemical manufacture. Prerequisite: Physics 52. Mr. Neill.

111. Unit Operations. Yr; 4 cr. The principles and laws governing fluid flow, distillation, filtration, drying, gas absorption, mechanical separation of materials, etc. Prerequisites: Mathematics 102b or concurrent registration, and Ch.E. 18. Mr. Neill, Mr. Kirk, Mr. D. Johnson.

114. Operations and Process Laboratory. Summer; 5 cr. Manufacture of chemicals, recovery of products from waste materials, experiments in unit operations. Prerequisites: Chemistry 14 or 11a, Ch.E. 111b, 116. Mr. Altpeter, Mr. Neill, Mr. Watson.

115. Organic Progress Principles. I, II; 3 cr. A survey of the applications of chemical engineering principles in the organic industries. Prerequisites: Chemistry 122 and Ch.E. 111b. Mr. Kirk.

116. Material and Energy Balances. I, II; 3 cr. Application of physical and chemical principles to the solution of thermal problems in the chemical industries. Prerequisite: Ch.E. 18. Mr. Ragatz, Mr. Lightfoot.

117. Process Measurements and Control. I, II; 3 cr. Measurement and control of temperature, pressure, fluid flow, liquid level, etc. Prerequisite: Physics 52. Mr. Altpeter.

118. Chemical Engineering Thermodynamics. I, II; 3 cr. The principles of thermodynamics and their application to chemical engineering problems and equilibria in chemical and physical processes. Prerequisite: Ch.E. 116. Mr. Ragatz, Mr. Hougen.

121. Chemical Plant Projects. II; 3 cr. Advanced problems in chemical processing, equipment and plant design. Prerequisite: Ch.E. 142, 150 or consent of instructor. Mr. Watson, Mr. Altpeter.

122. Special Problems. I, II; 3 or 4 cr. Research problems involving opportunity for extended independent effort. Prerequisites: Ch.E. 111b, senior standing. Staff.

129. Corrosion. II; 3 cr. The application of the principles of electrochemistry to the corrosion of metals. Prerequisite: Ch.E. 101. Mr. Neill.

130. Heat Transmission. I; 3 cr. Theories of heat transfer and their applications to the design of equipment and to process calculations. Prerequisite: Senior standing. Mr. Altpeter.

140. Technology of Plastics. II; 3 cr. The production, properties and fabrication of the plastic materials of industrial importance. Prerequisites: Chemistry 122, 130b. Mr. Ragatz.

141. Plastics and High Polymer Laboratory. II; 1–3 cr. Laboratory experiments on the polymerization and testing of plastics. Prerequisites: Chemistry 122, 130b, Ch.E. 140, or concurrent registration. Mr. Ragatz.

142. Chemical Engineering Materials. I, II; 3 cr. The properties of metallic and nonmetallic materials used in the construction of chemical processing equipment. Prerequisites: Chemistry 122 and junior standing. Mr. Ragatz.

150. Design of Chemical Processing Equipment. I, II; 3 cr. Application of the principles of chemical engineering and mechanics to the selection and design of equipment for the process industries. Prerequisites: Ch.E. 111b, 116, Mechanics 5. Mr. Watson, Mr. Kirk.

218. Advanced Chemical Engineering Thermodynamics. II; 3 cr. The application of thermodynamic principles to solutions, complex physical and chemical equilibria and to the estimation of thermodynamic properties from molecular constants. Prerequisite: Ch.E. 118 or consent of instructor. Mr. Hougen, Mr. Ragatz.

219. Kinetics and Catalysis. II; 3 cr. The principles of chemical kinetics and catalysis and their application to industrial processes. Prerequisite: Ch.E. 111b, 118, or consent of instructor. Mr. Watson, Mr. Hougen.

220. Distillation. I; 3 cr. The design and analysis of fractionation equipment for binary and complex mixtures. Prerequisite: Ch.E. 111b, 118, or consent of instructor. Mr. Watson.

221. Diffusional Operations. I; 3 cr. The principles of diffusion and their application to heterogeneous chemical processes and to the unit operations of absorption, adsorption, and extraction. Prerequisite: Ch.E. 111b or consent of instructor. Mr. Bird.

223. Hydrocarbon Technology. II; 3 cr. The application of the principles of chemical engineering thermodynamics, kinetics, and unit operations to the design and analysis of processes for the production and utilization of hydrocarbons. Prerequisite: Ch.E. 115, 118, 150, or consent of instructor. Mr. Watson.

224. Advanced Problems in Chemical Engineering. II; 3 cr. Applications of ordinary and partial differential equations to the solution of complex problems of chemical engineering, such as unsteady state processes, and transient phenomena in absorption, adsorption, fluid flow, extraction, and leaching. Prerequisites: Mathematics 111 or 112, Ch.E. 111b, 118. Mr. Marshall, Mr. Bird.

225. Fluid and Particle Motion. II; 3 cr. The principles of fluid mechanics and their application to laminar and turbulent flow, boundary layer theory, flow through packed beds and porous media, particle technology, and industrial rheology. Prerequisites: Ch.E. 224 and Mathematics 111 or 112. Mr. Bird.

230. Research Seminar. I, II; 1 cr. Mr. Watson.

231. Seminar. I, II; 1 cr. A study of various problems in chemical engineering. Staff.

232. Advanced Corrosion. II; 3 cr. Reading course. Mr. Neill.

233. Advanced Unit Operations. I; 3 cr. An advanced treatment of the operations of drying of solids, drying of gases, atomization, mist and dust collection, and particle technology. Prerequisite: Ch.E. 130, Ch.E. 111b, or consent of instructor. Mr. Marshall, Mr. Neill.

CIVIL ENGINEERING

Professors Woodburn, *chairman*, Cottingham, Lenz, Rader, Rohlich; Associate Professors Crandall, Easton, Villemonte, Wagner; Assistant Professor Lawton; Instructors Bof, Davidson, Kallsen, Kolf, Sell; Lecturer Nichols.

15. Elementary Surveying. I, II; 2 cr. Taping; differential leveling; use of compass. Mr. Wagner.

16. Elementary Surveying. I, II; 2 cr. Use and adjustment of transit; computation of latitudes and departures; elementary triangulation; stadia traverse. Prerequisites: Trigonometry and C.E. 15. Mr. Wagner.

17. Topographic and Land Surveying. I, II; 3 cr. Computation of land areas; field astronomy; planimeter; transit-stadia mapping; land surveys and subdivisions. Prerequisite: C.E. 16. Mr. Wagner.

23. Curves and Location. I, II; 4 cr. Principles of route location; surveys, curves, turnouts, earthwork calculations, haul and the mass diagram; economy in grades and curves. Prerequisites: Mathematics 51, Drawing 12, C.E. 16. Mr. Kallsen.

52. Analysis of Simple Structures. I, II; 4 cr. Stresses in simple structures and frameworks. Prerequisite: Mechanics 3.

53. Structural Design. I; 3 cr. Analysis and design of simple members, connections, and roof trusses. Prerequisite: C.E. 52.

54. Structural Design. II; 2 cr. Analysis and design of bridge trusses, plate girders, and building frames. Prerequisite: C.E. 53.

71. Hydraulics. I, II; 3 cr. Elementary principles of engineering hydraulics applied to water and other fluids; theory and use of instruments for hydraulic measurements. For other than civil engineering students. Prerequisite: Mechanics 2.

72. Hydraulics. I, II; 4 cr. Similar to C.E. 71 but having laboratory work. Required of civil engineering students. Prerequisite: Mechanics 2.

99. Engineering Reports. I, II; 3 cr. Practice in preparing technical papers and reports. Prerequisite: English 1b.

101. Contracts and Specifications II; 2 cr. Professional and contractual relationships of the engineer; preparation of contract documents; the engineer's contacts with the laws of mechanics liens, eminent domain, patents, real property, and water rights. Prerequisite: Senior standing. Mr. Woodburn.

102. Estimates and Costs. I; 2 cr. Practice in preparing quantity estimates and costs. Prerequisite: Junior standing.

103. Economic Selection. I, II; 2 cr. Application of economic principles to engineering problems; calculation of costs, present worth, and prospective rates of return; economy of equipment replacement. Prerequisite: Junior standing. Mr. Crandall.

104. Engineering Valuation. II; 2 cr. Concepts of value, mortality studies for physical property, methods of estimating depreciation, construction cost indexes and trends; engineering valuations for taxation, rates, insurance, financing, purchase or sale. Prerequisite: C.E. 103 or consent of instructor. Mr. Crandall.

114. Advanced Surveying. I; 3 cr. Hydrographic surveys; underground surveying; barometric leveling; precise traverse; field astronomy; property surveys. Prerequisite: C.E. 17. Mr. Wagner.

116. Summer Survey. 4 cr. Four weeks in summer camp. Field and office practice in topographic and land surveying, base line measurement and triangulation, hydrographic mapping and stream gaging, and special railway problems. Prerequisite: C.E. 17 or equivalent. Mr. Wagner.

117. Topographic Engineering. II; 3 cr. Theory and practice in surveying for non-engineering students. Use of tape, level, transit, plane table, and compass. Mr. Wagner.

118. Short Course in Surveying. I; 3 cr. Theory and practice of surveying; use of tape, level and transit. For engineering students other than those in civil engineering. Prerequisite: Trigonometry. Mr. Wagner.

119. Photogrammetry. II; 3 cr. Basic principles; training in the use of instruments; map projections and grids; radial line plots; mosaics; ground control; stereoscopic plotting methods. Prerequisite: C.E. 17 or 118 or consent of instructor. Mr. Wagner.

122. Route Surveying. 2 cr. Two weeks in summer camp. Field and office practice in location surveys and plans for highways. Prerequisite: C.E. 23. Mr. Wagner.

132. Highway Engineering. I, II; 3 cr. Principles of highway design; subgrade soils; drainage; construction and maintenance of pavements and road surfaces; economics; finance. Prerequisites: C.E. 23, Mechanics 3. Mr. Rader, Mr. Davidson.

133. Advanced Highway Design. I; 3 cr. Problems of an advanced nature in the design of the modern highway; design of rigid and flexible pavements; culverts. Prerequisite: C.E. 132. Mr. Rader, Mr. Davidson.

134. Bituminous Materials Testing. II; 3 cr. Testing of bituminous road materials; design of bituminous paving mixtures. Prerequisite: C.E. 132. Mr. Rader.

135. Soils and Aggregates Testing. I; 3 cr. Testing of soils and aggregates for highway

purposes; soil classification; subgrade drainage; frost phenomena; soil stabilization; applications to road construction. Prerequisite: C.E. 132. Mr. Rader.

136. HIGHWAY ADMINISTRATION. II; 2 cr. Methods of administration and historical development; organization of highway departments; highway transportation surveys and planning; finance; administration of construction projects; control of maintenance operations. Prerequisite: C.E. 132. Mr. Rader, Mr. Davidson.

139. AIRPORTS. I; 2 cr. Physical requirements of airport sites; design and construction of hangars, landing fields, and runways; airport administration; law of airports. Prerequisite: Mechanics 3. Mr. Davidson.

141. CITY PLANNING.* I, II; 2 cr. History of city planning; classes and use of streets; land subdivisions; transit and transportation systems; parks and playgrounds; public buildings; housing; zoning. Prerequisite: Sophomore standing. Mr. Rader.

142. ADVANCED CITY PLANNING. II; 2 cr. Neighborhood and community planning; housing; redevelopment of blighted areas; decentralization of industry and residence; control of land subdivision; planning for the urban region; selection and design of sites for neighborhood units, public buildings, transportation terminals, airports, motor vehicle parking, parks, and recreational facilities; financing municipal improvements; legislation; administrative problems. Prerequisite: C.E. 141. Mr. Rader.

143. CITY PLANNING DESIGN. I; 2 cr. Field surveys and office designs for subdivision layouts including public improvements and utilities; site plans for buildings and structures; layouts for transportation terminals, motor vehicle parking, parks and recreational facilities. Prerequisite: C.E. 142. Mr. Rader.

144. MUNICIPAL ENGINEERING PRACTICE. I; 2 cr. Width and arrangement of streets; crowns and intersections; sidewalks; curbs and gutters; street surface details; parkways; parks; trees and shrubs. Prerequisite: C.E. 17. Mr. Rader, Mr. Davidson.

145. TRAFFIC CONTROL. II; 2 cr. Causes of accidents and congestion; traffic surveys; physical facilities for controlling highway traffic; signs; signals; parking; traffic laws; administration. Prerequisite: Junior standing. Mr. Rader.

155. REINFORCED CONCRETE. II; 3 cr. Principles of reinforced concrete construction; analysis and problems in design. Prerequisite: Mechanics 3. Mr. Cottingham.

156. ANALYSIS AND DESIGN OF ARCHES. I; 2 cr. Analysis and design of concrete, steel, and wood arches. Prerequisite: C.E. 52. Mr. Cottingham.

157. INDETERMINATE STRUCTURES. I; 3 cr. Principles of virtual work; Williot-Mohr diagrams; stresses in redundant members; analysis of continuous frames. Prerequisite: C.E. 52. Mr. Cottingham.

158. INDETERMINATE STRUCTURES. II; 2 cr. Continuation of C.E. 157 which is prerequisite. Mr. Cottingham.

159. DESIGN OF TIMBER STRUCTURES. I; 2 cr. Elements of joint and truss design in timber; grading; built-up and spaced columns; fasteners and connections. Prerequisite: Mechanics 3. Mr. Crandall.

160. REINFORCED CONCRETE. I; 3 cr. Continuation of C.E. 155 which is prerequisite. Mr. Cottingham.

161. ADVANCED REINFORCED CONCRETE. II; 2 cr. Special problems in reinforced concrete design. Prerequisite: C.E. 155. Mr. Cottingham.

162. HIGHWAY BRIDGES AND CULVERTS. II; 2 cr. Analysis and design of bridges and culverts for highways. Prerequisites: C.E. 53 and 155. Mr. Cottingham, Mr. Crandall.

* Students desiring work in planning and planting of public grounds, parks, and home grounds, see courses in Horticulture, College of Agriculture.

164. FOUNDATIONS. I, II; 2 cr. Principles of foundation design and construction. Prerequisite: C.E. 155, Mechanics 110 or concurrent registration. Mr. Cottingham.

173. ADVANCED HYDRAULICS. I; 3 cr. Static and dynamic forces exerted by fluids; special problems of measurement of fluids and flow in closed conduits. Prerequisite: C.E. 71 or 72. Mr. Woodburn.

174. RIVER AND IRRIGATION HYDRAULICS. II; 2 cr. Uniform and non-uniform flow in natural and artificial open channels; methods of flood control; development of inland waterways; theory of hydraulic model experiments; water requirements and application of water on irrigated lands. Prerequisite: C.E. 71 or 72. Mr. Woodburn.

175. HYDRAULIC MACHINERY. II; 3 cr. Theory, testing, and selection of hydraulic pumps, turbines, transmissions, and servocontrol circuits; application of laboratory techniques to measurement of fluid properties and testing of hydraulic machines with oil and water. Prerequisite: C.E. 71 or 72. Mr. Lenz, Mr. Villemonte.

177. MECHANICS OF FLUIDS. II; 3 cr. Theory of dimensional analysis and dynamic similarity; fundamental characteristics of fluid flow including effects of gravity, viscosity, and surface tension; theory of boundary layer, lift and propulsion. Prerequisite: C.E. 71 or 72. Mr. Villemonte.

181. HYDROLOGY I, II; 2 cr. The water cycle—atmospheric moisture, precipitation, surface runoff, floods, infiltration, ground water, transpiration, and evaporation. Mr. Lenz.

182. HYDROLOGICAL INVESTIGATIONS. I; 2 cr. Investigation of water supply for power, irrigation, soil conservation, or municipal purposes. Prerequisite: C.E. 71 or 72. Mr. Lenz.

183. HYDRAULIC DESIGN. II; 2 cr. Design of hydraulic features of water-power plant based on hydrological investigations of C.E. 182. Prerequisite: C.E. 71 or 72 or consent of instructor. Mr. Lenz.

184. WATER POWER ENGINEERING. I; 2 cr. Theory, investigation and development of water power. Prerequisite: C.E. 71 or 72. Mr. Lenz.

191. SEWERAGE. II; 3 cr. Principles of design and maintenance of sanitary and storm sewer systems; survey of methods of sewage treatment. Prerequisite: C.E. 71 or 72 or concurrent registration. Mr. Rohlich, Mr. Lawton.

192. SEWAGE TREATMENT AND MUNICIPAL WASTE DISPOSAL. I; 3 cr. Development of disposal works and methods of sewage treatment; design of units of various types of treatment plants. Prerequisite: C.E. 191. Mr. Rohlich, Mr. Lawton.

193. WATER AND SEWAGE ANALYSIS. I; 3 cr. Laboratory methods of chemical and bacterial analysis and the interpretation of results for water, sewage and trade wastes. Prerequisites: Chemistry 2a and 2b or equivalent. Mr. Lawton.

194. SANITARY ENGINEERING SEMINAR. I, II; 1 cr. Review of literature on sanitary engineering, sewage, and trade-waste problems. Mr. Nichols.

195. WATER SUPPLY. I; 3 cr. Development of water supplies for residential, industrial, commercial, and public services; methods of water treatment, sources of supply, and distribution systems. Prerequisites: C.E. 71 or 72, 181. Mr. Rohlich, Mr. Nichols.

196. WATER TREATMENT. II; 3 cr. Application of hydraulics, chemistry and bacteriology to the design and operation of units for mixing, flocculation, sedimentation, filtration and sterilization of water supplies; water softening; boiler feed-water treatment. Prerequisite: C.E. 195. Mr. Rohlich.

197. INDUSTRIAL WASTE TREATMENT. II; 2 cr. Characteristics and composition of various industrial wastes; sampling and methods of analysis of industrial wastes and remedial measures for treatment and disposal. Prerequisites: Chemistry 2a and 2b or equivalent, and consent of instructor. Mr. Rohlich.

270. Hydraulic Engineering Seminar. I, II; 1 cr. Theoretical and applied problems in hydraulic engineering, with review of current research and literature.

285. Seminar in River Basin Planning. (Same as Economics 285 and Political Science 285.) II; 2 or 3 cr. Natural potentialities of river basins; control methods available with modern engineering; private and public means of developing these potentialities; studies of political, administrative, and engineering experience on several river basins. Prerequisite: Graduate standing or consent of instructor. Mr. Lenz, Mr. Glaeser, Mr. Clarenbach.

DRAWING AND DESCRIPTIVE GEOMETRY

Professors Orth, *chairman*, Shiels; Associate Professor Livermore; Assistant Professors Doke, Griffith, Leidel, Worsencroft; Instructors Schwebke, Schwehr, Marks.

10. Elements of Drawing. I, II; 3 cr. Elementary architectural drawing, lettering, blueprinting; perspective, house planning and construction. Not open to engineers. Mr. Livermore.

12. Engineering Drawing. I, II; 3 cr. Orthographic projection, sketching, lettering, dimensioning, tracing, isometric drawing, practice of dimensioning. Orth, Doke, and Worsencroft's *Basic Engineering Drawing*. Staff.

23. Engineering Drawing and Descriptive Geometry. I, II; 3 cr. Advanced sectioning, theory and conventional representations, auxiliary views, engineering applications of theory of point, line and plane. Millar and Shiels' *Descriptive Geometry*. Prerequisite: Drawing 12. Staff.

24. Advanced Engineering Drawing. II; 2 cr. Sketching from machine parts, detailing from sketches, assembly from details, design layouts, limit dimensioning, multiple threads, forging drawings, welding drawings, reproduction of drawings. Prerequisite: Drawing 23. Orth, Doke and Worsencroft's *Basic Engineering Drawing*. Staff.

ELECTRICAL ENGINEERING

Professors Peterson, *chairman*, Benedict, Higgins, Koehler, Rideout; Associate Professors Parent, Retherford, Scheibe, Weber; Assistant Professors Davidson, Reitan, Schmitz, Skiles; Instructors Asmuth, Jackson, J. B. Miller, R. F. Miller, Spooner, Swift, Tiedemann.

6. Electric Circuits. I, II; 4 cr. General circuit theory including circuit parameters, direct-current circuits, alternating-current circuits, and magnetic circuits. Primarily for mechanical engineers. Prerequisite: Physics 52. Mr. Reitan.

7. Electric Machinery. I, II; 4 cr. Theory and application of transformers, direct-current motors and generators, alternating-current motors and generators, control systems, and electronic devices. Prerequisite: E.E. 6. Mr. Reitan.

8. Electric Circuits. I; 3 cr. Electric and magnetic circuits; electromagnetics; single-phase and polyphase circuit analysis. With laboratory work. Primarily for mining and chemical engineers. Prerequisite: Physics 52. Staff.

9. Electric Machinery. II; 3 cr. Theory and characteristics of a-c and d-c machinery; basic principles of electron-tube circuits; electrical control. With laboratory work. Primarily for mining and chemical engineers. Prerequisite: E.E. 8. Staff.

10. Elementary Electrical Engineering. II; 3 cr. With laboratory work (E.E. 60). Primarily for civil engineers. Staff.

20. Elementary Electrodynamics. I, II; 3 cr. An introductory course primarily for sophomore electrical engineers. Electric and magnetic circuits. Ohm's and Kirchhoff's laws.

Sources of emf. Open to students of other colleges. Prerequisites: Mathematics 102a and Physics 53, or concurrent registration. Mr. Weber.

22. Elementary Electrodynamics. I, II; 3 cr. A continuation of E.E. 20. Electrostatic and magnetostatic fields. Prerequisite: E.E. 20. Mr. Weber.

30. Alternating-Current Circuit Analysis. I, II; 4 cr. Basic theory of steady-state analysis of single-phase and polyphase a-c circuits. Introduction to transient-state analysis of single-phase a-c circuits. Prerequisite: E.E. 22. Mr. Higgins.

32. Electric Machines and Control. I, II; 3 cr. An introduction to principles of energy conversion and their application to the study of electric machines and control systems. Direct current machines, synchronous machines. Prerequisite: E.E. 30. Mr. Schmitz.

34. Fundamental Electronics. I, II; 4 cr. Fundamental theory and basic application of high-vacuum tubes, gas-filled tubes, cathode-ray tubes, photo tubes, solid-state electronics, rectifiers and amplifiers. Prerequisite: E.E. 30. Mr. Retherford.

36. Circuits and Networks. I; 4 cr. An analytical and experimental study of the steady-state characteristics of network theorems, series and parallel resonant circuits, coupled circuits, transmission lines, the simple transformer and filter circuits. With laboratory work. Prerequisite: E.E. 30. Mr. Koehler.

40. Electric Machines and Control. I, II; 4 cr. A continuation of E.E. 32. Transformers, induction machines, dynamics of electromechanical systems, servomechanisms. Prerequisites: E.E. 32 and E.E. 33. Mr. Schmitz.

42. Electrical Measurements. I; 4 cr. A comprehensive study of the basic principles and pertinent mathematical theory of modern electrical measurements. Associated laboratory work. Prerequisite: E.E. 30. Mr. Parent.

99. Professional Expression. I, II; 3 cr. Designed to give training in effective written and oral expression with special emphasis on the technical report. Prerequisite: Senior standing. Mr. Asmuth.

101. Fundamentals of Electroacoustical Engineering. I; 3 cr. Theory of electromechanical and acoustical vibrating systems; electrical and mechanical analogies; lumped and distributed-constant systems. Prerequisite: Mathematics 111 or equivalent, or consent of instructor. Staff.

102. Principles of Electrical Communication. II; 3 cr. Principles of generation, transmission and reception of electrical signals for communications purposes in both the wire and radio fields. This course is designed for students who are not majoring in electronics and communications. With laboratory work. Prerequisites: E.E. 30 and E.E. 34 or equivalent. Mr. Koehler.

105. Valuation in Engineering. II; 3 cr. Fundamentals of engineering valuation for rate-making, financing, sale, insurance and taxation. Methods of estimating life expectancy for physical property, and cost trends. Prerequisite: Senior standing. Staff.

111. Advanced A-C Machinery. I; 3 cr. An advanced study of a-c machinery with particular emphasis on synchronous machines as complex electrical circuits. The synchronous machine is approached from the standpoint of the ideal synchronous machine. Fundamental flux linkage, reactance constants, and performance relations are developed for balanced and unbalanced operating conditions. Prerequisites: E.E. 40 and Math. 111. Mr. Peterson.

112. Electrical Conduction Through Gases and Vacuum. II; 3 cr. Basic physical theory of gaseous and vacuum tubes and gaseous discharges with typical engineering applications. Theory of sparking, corona, glow- and arc-discharge. Prerequisite: E.E. 34 or consent of instructor. Mr. Benedict.

115. Control Systems. II; 3 cr. A continuation of E.E. 40. An analytical and experimental study of the steady-state and dynamic characteristics of industrial control elements, servomechanisms, and complete control systems. Power amplification with electromagnetic, hydraulic, and electromechanical devices. With laboratory work. Prerequisite: Either E.E. 40 and Mathematics 111, or consent of instructor. Mr. Schmitz.

116. Transients in Electric Circuits. I; 3 cr. An analytical study of electrical transients; d-c and a-c transients in linear circuits; introduction to the study of Laplace Transform Method. With laboratory work. Prerequisite: E.E. 30, Math. 111, or consent of instructor. Mr. Benedict.

120. Dielectrics and High-Voltage Insulation. II; 3 cr. Theory of the dielectric field and of gaseous, liquid and solid dielectrics, and engineering applications. Testing methods with power frequency and impulse voltages. With laboratory work. Prerequisite: E.E. 30. Mr. Benedict.

127. Electric Power Systems. I; 3 cr. Introduction to the electric power industry; technical problems of electric power networks. Prerequisite: E.E. 40 or concurrent registration. Mr. Peterson.

133. Illumination Engineering. I; 3 cr. Illumination terms, modern measuring instruments, physiological and psychological effects, color and shadow, luminaire distribution curves, incandescent and gaseous-vapor light sources, light control, illumination design, flood lighting, maintenance and economics, wiring; project work consisting of report upon an existing installation or review of current technical article. Prerequisite: E.E. 30. Mr. Tiedemann.

137. Power Distribution. I; 3 cr. Symbols, definitions, historical matters, electrical and mechanical properties of metals, distribution of voltages, distribution planning, system costs, line constants, voltage regulation, underground distribution equipment, power-factor correction, fault currents, protective equipment, metering, rate structures, industrial and commercial building wiring. Prerequisite: E.E. 30. Staff.

138. Power-System Analysis. II; 3 cr. Power-system circuit analysis, calculation of transmission line constants; calculation of unbalanced-fault currents by means of symmetrical components; per cent and per unit quantities. Prerequisite: E.E. 40. Mr. Peterson.

140. Electromagnetic Fields in Engineering. I; 3 cr. A unified treatment from the field theory point of view of electrostatics, magnetostatics, and electrodynamics including Maxwell's field equations. An introduction to field mapping is given. Prerequisites: E.E. 36 and Mathematics 111 or equivalent. Mr. Scheibe.

150. Methods and Applications of Analog Computing. I; 3 cr. A study of the more important analog computer methods for solving algebraic equations, ordinary differential equations, and partial differential equations. Includes the use of various electronic and mechanical differential analyzers. Laboratory work is included. Primarily for graduate students other than electrical engineers. Prerequisite: Mathematics 111 or consent of instructor. Staff.

151. Industrial Electronics. I; 3 cr. Study of tubes, circuits, and systems in industrial applications of electron tubes. Ignitrons, phase-controlled rectifiers, polyphase rectifiers, oscillators, induction and dielectric heating. With laboratory work. Prerequisites: E.E. 32 and 34 or consent of instructor. Concurrent registration in E.E. 40 is desirable. Mr. Benedict.

153. Electronics. II; 3 cr. Survey of high-vacuum and gaseous tubes, photo tubes, and other electronic devices, and of their applications in control, instrumentation, and in industry. With laboratory work. Prerequisites: E.E. 6, 8, or consent of instructor. Mr. Benedict.

160. Advanced Communication Engineering Design. I or II; 3 cr. The design of amplifiers, oscillators, receivers, transmitters, measuring equipment, radio broadcasting systems, and point-to-point communication systems. Prerequisite: E.E. 184 or consent of instructor. Mr. Koehler.

175. Electronic Aids to Measurements. II; 4 cr. Fundamentals of electronic circuits (power supplies, amplifiers, oscillators, filters, discriminators, counters); sensors, servos and analog computers; combinations of the above into measuring instruments. 3 hr. lect.; 3 hr. lab. Prerequisites: Graduate standing with previous courses in elementary physics, intermediate electricity, and calculus—or consent of instructor. Mr. Rideout.

182. Electronics and Communications Engineering. I; 4 cr. Fundamental theory of the basic components that are used in electronic and communication systems. This includes an analytical study of vacuum-tube and transistor amplifiers, oscillators, modulators, demodulators and other related topics. Prerequisites: E.E. 34 and E.E. 36. Mr. Rideout.

184. Advanced Electronics and Communications Engineering. II; 4 cr. Applications of basic theory of E.E. 182 to transmitters, receivers, electronic instruments, television systems and radar. Elementary principles of transmission, radiation and propagation of electromagnetic energy. Prerequisites: E.E. 182 and E.E. 183. Mr. Koehler.

186. Principles of Television Systems. II; 3 cr. A study of the basic principles of television systems to include closed industrial systems, commercial black and white, and color systems. With laboratory work and demonstrations. Prerequisite: E.E. 184 or concurrent registration. Mr. Parent.

213. Symmetrical Component Applications. II; 3 cr. Principles of the method of symmetrical components. Behavior of symmetrically wound polyphase induction and synchronous machines under unbalanced conditions of operation. Effects of winding dissymmetry and their analysis. Principles of fault calculations for machines and transmission lines. Prerequisite: E.E. 40. Mr. Schmitz.

214. Advanced Electric Machinery Laboratory. II; 3 cr. Advanced laboratory studies of direct and alternating-current machinery. Prerequisite: E.E. 40. Staff.

215. Servomechanism and Automatic Control Theory. II; 3 cr. Dynamics of feedback control systems; sinusoidal response analysis; synthesis in terms of linear coordinates and logarithmic coordinates. Stability criteria and their application. Optional—associated laboratory work for one hour additional credit as arranged with instructor. Prerequisite: Mathematics 111 or E.E. 116 or equivalent. Mr. Higgins.

216. Advanced Servomechanism and Automatic Control Theory. I; 3 cr. Advanced stability theory of continuous systems; methods of synthesizing continuous systems; interrelationship among frequency and transient responses; optimizing systems; basic theory of relay, sampled data and carrier-frequency servomechanisms; methods of analysis of nonlinear systems; special procedures and aids to design. Prerequisites: E.E. 215 or equivalent knowledge of basic servomechanism and automatic control theory equal to that encompassed in a text such as Brown and Campbell's, Chestnut and Mayer's, or Brown and Thaler's. Mr. Higgins.

217. Operational Methods of Electric Circuit Analysis. I; 3 cr. Determination of the transient and steady-state performance of networks and transmission lines by Laplace transform theory. Brief exposition of the theory of Heaviside's p-operational calculus, Jeffrey's Q-operational method, Waidelich's steady-state operational calculus, and Fourier transform theory. Prerequisite: Mathematics 111 or 112, or E.E. 116, or equivalent. Mr. Higgins.

218. Theory of Nonlinear Electric Circuits. II; 3 cr. Study of the principal methods of solving nonlinear electric circuits. The analytical methods of Kryloff, Van der Pol, and Poincaré; topographical methods; graphical and numerical methods; the general theory of nonlinear resonance, oscillation and stability; application of theory to numerous oscillatory circuits. Prerequisite: Mathematics 111 or 112, or equivalent. Mr. Higgins.

230. Modulation and Information Theory. II; 3 cr. Noise in communication circuits; coding; information measure and its relation to entropy; the sampling theorem interrelationships among signalling rate, bandwidth and signal-to-noise ratio; ideal modulation or

coding systems; amplitude and frequency modulation; pulse code modulation and other kinds of pulse modulation. Prerequisite: E.E. 182 or equivalent. Mr. Rideout.

231. Advanced Power-System Analysis. Yr; 3 cr. An advanced analytical study of power-system design and operation with emphasis on steady-state and transient stability. System overvoltage protection and protective relaying are briefly analyzed. Prerequisites: E.E. 127, E.E. 138, or equivalent, and graduate standing. Mr. Peterson.

232. Advanced Theory of Electric Networks. I; 3 cr. Topological aspects of network theory. The concept of duality and its applications. Analysis of four-terminal networks by matrix methods. Stability of single and multiloop feedback amplifiers. Analysis and synthesis of filter, interstage and compensating networks. Prerequisites: Mathematics 111 and EE. 182, or consent of instructor. Mr. Rideout.

233. Matrix and Tensor Theory of Electric Networks and Electric Machinery. II; 3 cr. Analysis and synthesis of electric networks in terms of matrix and tensor analysis; introduction to tensor theory of electric machinery. Prerequisite: Graduate standing. Mr. Higgins.

234. Advanced Communications Measurements Laboratory. I; 3 cr. An advanced laboratory course with emphasis on methods of measuring impedance, frequency, signal power, noise power, etc., in communication circuits. Prerequisite: E.E. 184 or consent of instructor. Mr. Scheibe.

240. Electromagnetic Theory. I; 3 cr. Review of the fundamental laws of electrostatics, magnetostatics, and electrodynamics. Scalar and vector fields. Derivation of the Maxwell field equations. Application of the field equations to the solutions of specific problems. With special emphasis on engineering applications. Prerequisites: Mathematics 111 and E.E. 30 or equivalent. Mr. Koehler.

241. Electromagnetic Radiation and Transmission. II; 3 cr. Applications of Maxwell's field equations to radiation problems. Transmission, reflection, and absorption of radio waves between points on or near the surface of the earth. Radiation field patterns of antennas. Transmission of energy in wave guides. With special emphasis on engineering applications. Prerequisite: E.E. 240. Mr. Koehler.

242. Seminar in Communication Engineering. Yr; 1 cr. Preparation and presentation of material on various topics selected from the more important phases of communication engineering. Prerequisite: E.E. 184 or equivalent. Mr. Koehler.

245. Theory of Vacuum Tubes. I; 3 cr. A study of electron motions in various vacuum tube structures, space charge effects at low and high frequencies, formation of electron beams, and space charge waves in electron beams. The ideas developed are applied to space charge control tubes, klystrons, electron wave amplifiers, traveling wave amplifiers and magnetrons. Prerequisites: Mathematics 111 and E.E. 184. Mr. Retherford.

246. Solid State Electronics. II; 3 cr. A study of electrical conduction phenomena in metals, semi-conductors, metal-semiconductor junctions, P-N junctions, and thermionic emission. The ideas developed are applied to various transistors, rectifiers and photo devices. The elements of transistor circuitry are treated. Prerequisites: Mathematics 111, E.E. 182 and Physics 107. Mr. Retherford.

250. Analog Computing. II; 3 cr. Mechanical and electronic differential analyzers and their use in the solution of differential equations. Other analog machines for the solution of algebraic equations, Laplace's equation, etc. Prerequisite: Graduate standing or consent of instructor. Mr. Rideout.

252. Electronic Digital Computers. II; 3 cr. The design, construction, and use of high-speed electronic digital computing machines. Overall logical design of computers, detailed study of electronic and other components. Solution of scientific and engineering problems on such machines. Prerequisite: E.E. 182 or consent of instructor. Mr. Davidson.

259. Techniques of Wave Form Generation and Manipulation. II; 3 cr. A study of the application of circuit techniques to the generation of wave forms, both sinusoidal and otherwise, and the manipulation of wave forms to meet specific needs. Prerequisites: E.E. 182 and E.E. 116 or Mathematics 111, or consent of instructor. Mr. Parent.

LABORATORY COURSES

21. Electrodynamics Laboratory. I, II; 1 cr. Elementary circuit experiments and measurements. To accompany E.E. 20. Mr. Weber.

23. Electrodynamics Laboratory. I, II; 2 cr. Elementary electric and magnetic field experiments. To accompany E.E. 22. Mr. Weber.

31. Alternating-Current Circuits Laboratory. I, II; 2 cr. To accompany E.E. 30. Mr. Higgins.

33. Electric Machines and Control Laboratory. I, II; 1 cr. To accompany E.E. 32. Mr. Schmitz.

35. Fundamental Electronics Laboratory. I, II; 2 cr. To accompany E.E. 34. Mr. Retherford.

41. Electric Machines and Control Laboratory. I, II; 1 cr. To accompany E.E. 40. Mr. Schmitz.

56. Electric Circuits Laboratory. 1 cr. Primarily for mechanical engineers. To accompany E.E. 7. Mr. Reitan.

57. Electric Machinery Laboratory. 1 cr. Primarily for mechanical engineers. To accompany E.E. 6. Mr. Reitan.

60. Elementary Electrical Engineering Laboratory. II; 1 cr. To accompany E.E. 10. Staff.

183. Electronics and Communications Engineering Laboratory. I; 2 cr. An experimental study of the basic components treated in E.E. 182. To accompany E.E. 182. Mr. Rideout.

185. Advanced Electronics and Communications Engineering Laboratory. II; 2 cr. An experimental study of the systems treated in E.E. 184. To accompany E.E. 184. Mr. Koehler.

MECHANICAL ENGINEERING

Professors Elliott, *chairman*, Hyland, McNaul, Nelson; Associate Professors Daggett, Easton, Gage, Gilpin, Harker, Myers, Rose, Uyehara; Assistant Professors Adkins, Akerman, Buroker, Engelman, Feiereisen, Fleming, Lindberg, Livermore, Schweitzer; Instructors Bricge, Griswold, Peters, Sell.

12. Principles of Industrial Engineering. I, II; 3 cr. A general survey of the problems involved in organizing, planning, and controlling the use of men, money, materials, and machines for production. Prerequisites: Junior standing in Engineering and M.E. 22, 25, or 32. Mr. Gage, Mr. Gilpin.

13. Engineering and Manufacturing Cost Analysis. I, II; 3 cr. An abbreviated course in the uses of industrial cost finding—procedures used in accounting for material, labor and overhead in manufacturing. For engineers. Prerequisites: M.E. 12 and 22, 25 or 32. Mr. Gage, Mr. Fleming.

21. Welding and Sheet Metal. I, II; 1 cr. Materials, tools and equipment used in sheet metal work, soldering and welding; theory and practice. For chemical engineers. Mr. Gilpin and staff.

22. LATHE AND BENCH WORK. I, II; 1 cr. Theory and practice in filing, drilling, tapping, layout work, general lathe operation, and demonstrations on production machines. For chemical engineers. Mr. Gilpin and staff.

23. MANUFACTURING EQUIPMENT AND MATERIALS. I, II; 2 cr. A general survey course covering, by lecture and demonstration, the materials, processes and equipment used in manufacturing plants. Students perform no actual shop work. Primarily for non-engineering students. Mr. Gilpin and staff.

25. MACHINE SHOP PRACTICE. I, II; 3 cr. A basic course in the study of materials, cutting tools, machine tools, machinability, cutting speeds and feeds, and general machine operations. Demonstrations on production methods, with emphasis on selection of tools, analysis of machine operations and standard times for operation. Mr. Gilpin and staff.

26. TOOL ENGINEERING. II; 3 cr. Theory and practice in the design, production, and application of jigs, fixtures, tools and dies. Emphasis on the selection of materials, design technique, and production practice as related to use and economic considerations. Prerequisite: M.E. 23, 25, or 32. Mr. Gilpin and staff.

32. GENERAL MACHINE SHOP PRACTICE. I, II; 2 cr. A basic course in the use and application of lathes, milling machines, shapers, drill presses and grinders. Combined with theory in cutting speeds and feeds, machinability, materials, and demonstrations on production machines. For electrical engineers. Mr. Gilpin and staff.

36. WELDING. I; 2 cr. Designed for non-engineers and agricultural students interested in welding as a tool in farm fabrication, maintenance and repair. Consists of lectures, demonstrations, and practice in the fundamentals and applications of metallic arc and oxyacetylene welding and cutting, identification and weldability of metals, filler wire, bronze welding, hard-facing and overlay, practical heat treatment and metallurgy, distortion control, and selection and care of welding equipment. Limited to non-engineers. Mr. Adkins.

37. WELDING. I, II; 2 cr. Lectures, demonstrations, and practice in the fundamentals and applications of oxyacetylene welding and cutting, electric arc, electrical resistance, inert-gas shielded arc, automatic submerged-melt, hard surfacing, and methods of testing. Welding metallurgy, joint design, stress relief, metal spraying, electrodes, stud, thermit, and atomic-hydrogen welding. Mr. Adkins, Mr. Lindberg, Mr. Peters and staff.

41. MECHANISM. I, II; 3 cr. The relative motions of machine parts including linkages, cams, toothed gears, beltings, chains and ratchets. Prerequisites: One year of drawing and Mechanics 2 or consent of instructor.

43. MACHINE ELEMENTS. I, II; 3 cr. Study of the application of the principles of mechanics and empirical methods to the design of machine elements. Prerequisites: M.E. 41; Mechanics 3 or consent of instructor. Mr. Buroker, Mr. Fleming, Mr. Livermore.

44. ADVANCED MACHINE DESIGN. I, II; 3 cr. A continuation of M.E. 43 including design problems involving deflections, stresses, fatigue inertia, balancing, and vibration. The design of a complete machine. Prerequisite: M.E. 43. Mr. Harker and staff.

45. MACHINE DESIGN FOR ELECTRICAL ENGINEERS. I, II; 3 cr. A study of the motion and design of basic machine elements. Prerequisite: Mechanics 3.

52. MACHINE DESIGN LABORATORY. I, II; 2 cr. Experimental determination of the strength of machine elements and the efficiency of machines, including actual stress measurements. Prerequisite: M.E. 44 or concurrent registration. Mr. Harker and staff.

61. HEAT POWER I. I, II; 3 cr. Thermodynamics of gases and vapors for power production and utilization. Prerequisites: Physics 51, Mathematics 102b or concurrent registration. Mr. Elliott, Mr. Engelman, Mr. Myers, Mr. Nelson and staff.

62. HEAT POWER II. I, II; 3 cr. Continuation of M.E. 61 including cycles. Prerequisite: M.E. 61. Mr. Engelman, Mr. Myers, Mr. Nelson and staff.

63. HEAT POWER III. I, II; 3 cr. Continuation of M.E. 62 including fuels, combustion, and the apparatus used in power production and utilization. Prerequisite: M.E. 62. Mr. Akerman, Mr. Engelman, Mr. Myers, Mr. Nelson and staff.

64. HEAT POWER. I, II; 3 cr. Thermodynamics of gases and vapors and the apparatus used in power production and utilization. For electrical engineers. Prerequisites: Physics 54, Mathematics 102b or concurrent registration. Mr. Rose, Mr. Schweitzer and staff.

65. HEAT POWER. I, II; 3 cr. Thermodynamics of gases and vapors and the apparatus used in power production and utilization. For chemical engineers. Prerequisites: Physics 51, Mathematics 102b or concurrent registration. Mr. Rose, Mr. Schweitzer and staff.

67. HEAT POWER. I; 4 cr. Thermodynamics of gases and vapors and the apparatus used in power production and utilization. Includes laboratory work. For civil engineers. Prerequisites: Physics 51, Mathematics 102b or concurrent registration. Mr. Akerman and staff.

68. HEATING AND VENTILATING FOR SMALL BUILDINGS. II; 2 cr. A study of the principles and practice of heating and ventilating for residence and small commercial and industrial buildings. For non-engineers. Prerequisites: Physics 1a and 1b or equivalent. Mr. Akerman.

72. HEAT-POWER LABORATORY I. I, II; 2 cr. Instrumentation and testing of heat power apparatus. For mechanical engineers. Prerequisite: M.E. 62 or concurrent registration. Mr. Feiereisen and staff.

73. HEAT-POWER LABORATORY II. I, II; 2 cr. Continuation of M.E. 72. For mechanical engineers. Prerequisites: M.E. 63 or concurrent registration, and M.E. 72. Mr. Feiereisen and staff.

74. HEAT-POWER LABORATORY. I, II; 2 cr. Instrumentation and testing of heat-power apparatus. For electrical engineers. Prerequisite: M.E. 64 or concurrent registration. Mr. Feiereisen and staff.

76. HEAT-POWER LABORATORY. I, II; 2 cr. Instrumentation and testing of heat-power apparatus. For chemical engineers. Prerequisite: M.E. 65 or concurrent registration. Mr. Feiereisen and staff.

99. TECHNICAL WRITING. I, II; 3 cr. Study and practice in writing. Planning and preparation of reports. The short and long report. Surveys, observation, mechanics of style. Rough drafts and revision. Clearness of expression and accuracy of fact. Letters of application, acceptance and transmittal. The scientific paper. Mr. Hyland and staff.

101. VEHICLE TESTING. II; 3 cr. Measurement of vehicle characteristics including acceleration, braking and steering. Prerequisites: Mechanics 2 and M.E. 61, 64, 65 or 67. Mr. Easton and staff.

115. INDUSTRIAL PLANT DESIGN. I, II; 3 cr. Semester report covering complete design of an industrial plant, including market survey, manufacturing planning, plant layout, organization, and financial analysis. Prerequisites: M.E. 12 or Commerce 111, and M.E. 23, 25, or 32. Mr. Daggett.

116. MOTION AND TIME STUDY. I, II; 3 cr. Principles and practice, including motion economy, operation analysis, methods, micromotion study, stop-watch time study, analysis and synthesis of data, and formula construction. Prerequisites: Junior standing in engineering, M.E. 12 and M.E. 23, 25, or 32. Mr. Gage.

117. PLASTICS AND PLASTIC MOLDING. I, II; 3 cr. Survey of important plastic families; basic molding practices, mold design, and other fabrication methods; equipment selection and engineering application. Prerequisite: Senior standing. Mr. Daggett.

118. METHODS ANALYSIS AND MOTION TIME STANDARDS. II; 3 cr. A study of basic indus-

trial motions and the time required to make them. The Methods-Time-Measurement Procedure will be used to evaluate various alternate designs of jigs and fixtures, work place layouts, and methods of doing work. Prerequisite: Basic course in Motion and Time Study. Mr. Gage.

120. MATERIALS HANDLING. I, II; 3 cr. Basic principles of material handling; equipment characteristics, economic selection and application; survey methods and procedures. Prerequisite: M.E. 12 or Commerce 111. Mr. Daggett.

121. INDUSTRIAL ENGINEERING PRACTICE. 3 cr. Analysis of a comprehensive industrial engineering problem on a class-group basis in the field of production planning, materials handling, time study, industrial organization, or plant layout. Prerequisites: M.E. 12 and consent of instructor. Mr. Daggett.

122. INDUSTRIAL INSPECTION AND QUALITY CONTROL. I, II; 3 cr. A basic course in industrial inspection methods and quality control in industry, consisting of organization for quality control, sampling plans, control charts, gage design, and application of gaging technique using the gages and instruments in the U. S. Ordnance Gage Laboratory. Prerequisite: M.E. 23, 25, or 32. Mr. Gilpin and staff.

127. PRODUCTION PROCESSES. I; 3 cr. An advanced course in production processes with emphasis on the selection of equipment and tools. The course includes a study of production machine features, tools and accessories, tool setups and layouts for a given job, and laboratory applications. Prerequisites: M.E. 25, junior standing in engineering and M.E. 12 or concurrent registration. Mr. Gilpin.

141. DYNAMIC PROBLEMS IN DESIGN. II; 3 cr. Application of analytical methods to design, with particular reference to the torque and force excitations in an engine, and the related vibratory and balancing problems. Prerequisite: M.E. 44 or equivalent. Mr. Harker.

142. ADVANCED KINEMATICS OF MACHINERY. I; 3 cr. Special problems in velocity and acceleration analysis. Studies of actual industrial machines from dynamic standpoint. Special problems in energy analysis. Prerequisite: M.E. 41.

143. ADVANCED MECHANICS OF MACHINERY. II; 3 cr. A study of the forces acting on the various members of a complete machine. Complicated loadings and combined stresses. The design of a complete machine with attention to function, production and economic factors. Prerequisite: M.E. 44.

151, 152, 153. MECHANICAL ENGINEERING PROJECTS. I, II; 1–3 cr. each. Individual laboratory projects under staff supervision. Prerequisite: Approval of mechanical engineering course committee.

161. ADVANCED THERMODYNAMICS FOR MECHANICAL ENGINEERS. I; 3 cr. A rigorous, detailed study of the first and second laws of thermodynamics, and of ideal and actual thermodynamic processes. Prerequisite: M.E. 63 or concurrent registration. Mr. Myers.

162. REFRIGERATION. II; 3 cr. Design and performance of compression and absorption refrigeration systems; properties of refrigerants; heat exchangers and automatic controls. Prerequisite: M.E. 63 or concurrent registration or M.E. 64, 65 or 67. Mr. Akerman, Mr. Nelson.

164. INDUSTRIAL HEAT TRANSFER. I; 3 cr. Heat transfer principles and apparatus applied to power production and utilization. Prerequisite: M.E. 63 or concurrent registration or M.E. 64, 65 or 67.

166. POWER PLANT ECONOMICS AND DESIGN. I, II; 3 cr. Design of a small steam power plant as to cycles, layout, costs and equipment selection. Prerequisite: M.E. 63 or concurrent registration or M.E. 64, 65 or 67. Mr. Livermore.

167. Heat Power Calculations. I, II; 2 cr. Problems in the economic selection of equipment, such as engines, boilers, condensers, heat exchangers and cooling towers. Prerequisite: M.E. 63 or concurrent registration, or M.E. 64, 65 or 67. Mr. Elliott, Mr. Rose.

168. Heating and Ventilating. I; 3 cr. The principles and practices of heating, ventilating and air conditioning of buildings. Prerequisite: M.E. 63 or concurrent registration, or M.E. 64, 65 or 67. Mr. Nelson, Mr. Akerman.

169. Internal Combustion Engines. I; 3 cr. Fundamental principles of internal combustion engine design and application. Prerequisite: M.E. 63 or concurrent registration, or M.E. 64, 65 or 67. Mr. Engelman, Mr. Feiereisen.

170. Advanced Air Conditioning. II; 3 cr. Calculations, design and specifications for complete systems for human comfort and industrial processes. Prerequisite: M.E. 168. Mr. Nelson, Mr. Akerman.

171. Gas Turbines and Jet Propulsion. II; 3 cr. An analysis of gas turbine principles related to industrial and aeronautical applications. Prerequisite: M.E. 63 or concurrent registration, or M.E. 64, 65 or 67. Mr. Engelman.

172. Flow of Compressible Fluids. II; 3 cr. The thermodynamic and fluid mechanics principles applicable to the flow of compressible fluids. Prerequisites: M.E. 63 or concurrent registration, or M.E. 64, 65 or 67.

174. Heat-Power Laboratory. I, II; 1 cr. Instrumentation and testing of components of various types of internal combustion engines. Prerequisite: M.E. 169 or concurrent registration. Mr. Feiereisen and staff.

178. Heating and Ventilating Laboratory. II; 2 cr. The testing of apparatus used in heating, ventilating and air conditioning such as boilers, furnaces, firing devices, controls, unit heaters, fans and vacuum pumps. Prerequisite: M.E. 72, 74 or 76. Mr. Akerman, Mr. Nelson.

202. Engine Combustion. I, II; 3 cr. A study of the theoretical and experimentally determined facts underlying combustion in various types of internal combustion engines. Prerequisites: Course in advanced thermodynamics, such as M.E. 161 and consent of instructor. Mr. Myers, Mr. Uyehara.

203. Graduate Seminar. I, II; *cr.

212. Advanced Principles of Industrial Engineering. II; 3 cr. An objective analysis of industrial organization patterns and principles, planning and development of product programs, market analysis and sales forecasting techniques, management approaches to location, facilities and production planning and the industrial and public relations programs of today's industrial enterprise. Prerequisites: Graduate standing, M.E. 12 or Commerce 111 and M.E. 115. Mr. Daggett.

217. Engine Instrumentation. I, II; 3 cr. The theory and design of instruments for transient physical phenomena especially related to internal combustion engines. Prerequisites: Basic course in elctronics and consent of instructor. Mr. Myers, Mr. Uyehara.

244. Elastic Problems in Design. II; 3 cr. Application of elastic energy methods in the determination of loads, stresses, and deflections in machine elements such as shafts, springs, frames, bolts and shells. Prerequisites: Graduate standing in engineering, and M.E. 44, or equivalent. Mr. Harker.

264. Advanced Heat Transfer. II of alternate years; 3 cr. A study of the general partial differential equations and dimensional methods applicable to heat transfer by conduction, convection and radiation. The use and value of electrical, magnetic and optical analogy are discussed. Prerequisites: Mathematics 111 and M.E. 164 or equivalent.

S.S. 120. Social Studies—Human Relations for Engineers. I, II; 3 cr. Analysis of human relations problems characteristic of the engineering profession. Policies and procedures. Prerequisites: Senior standing and registration in the College of Engineering.

DEPARTMENT OF MECHANICS

Professors Washa, *chairman*, Pickett, Roark, Wendt (also Dean); Associate Professor Fluck; Assistant Professor Williams; Instructors Buer, Cutler, Haft, Mann, Saemann, Sherrer, Young.

1. Statics. I, II; 3 cr. Treated, as are all of the following courses, with special reference to the requirements of engineers. Prerequisites: Physics 51 or concurrent registration; Mathematics 102a or concurrent registration.

2. Dynamics. I, II; 3 cr. Prerequisites: Mechanics 1; Mathematics 102b or concurrent registration.

3. Mechanics of Materials. I, II; 4 cr. Prerequisites: Mechanics 1 or 4; Mathematics 102b or concurrent registration.

4. Statics and Dynamics. I, II; 4 cr. Prerequisites: Physics 51 or 53; Mathematics 102b or concurrent registration. For chemical, electrical, and mining engineers.

5. Mechanics of Materials. I, II; 3 cr. Prerequisites: Mechanics 1 or 4; Mathematics 102b or concurrent registration. For chemical and mining engineers.

The next three courses are principally laboratory work, assigned readings and reports, and preparation and manufacture of materials.

51. Materials of Construction. I; 2 cr. Prerequisite: Mechanics 3 or concurrent registration. For civil engineers.

52. Materials of Construction. II; 2 cr. Prerequisite: Mechanics 51.

53. Materials of Construction. I, II; 2 cr. Prerequisite: Mechanics 3 or 5 or concurrent registration. For chemical, electrical, mechanical, and mining engineers.

101. Advanced Statics. I; 2 cr. Continuation of Mechanics 1. Advanced problems in equilibrium and in composition and resolution of forces; virtual work, 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, elastic foundations, etc.) and analyses not included in Mechanics 3. Prerequisites: Mechanics 2 and 3. Mr. Pickett or Mr. Washa.

107. Mechanical Vibrations. I, II; 3 cr. General theory; vibration instruments; absorbers; stabilizers; critical speeds; balancing. Prerequisite: Mechanics 2, Mechanics 3 or concurrent registration. Mr. Pickett or Mr. Haft.

109. Graphics. I; 2 cr. The principles of graphical computation, the construction of graphic charts, and the fitting of equations to plotted points. Application is made to various engineering problems. Prerequisite: Mechanics 3.

110. Soil Mechanics. I, II; 3 cr. Soil as an engineering material. Earth pressures, bearing capacity, settlement, consolidation, stability, and permeability applied to earth dams, foundations, and highways. Prerequisite: Mechanics 52 or consent of instructor. Mr. Williams.

111. Aerodynamics. I; 3 cr. The wind tunnel, properties of airfoils; airplane controls

and propellers; stability and performance. Demonstrations with miniature wind tunnel and water channel. Prerequisite: Mechanics 2. Mr. Roark.

112. AIRPLANE STRESS ANALYSIS. II; 3 cr. Stress analysis of airplane structures with special reference to governmental requirements. Prerequisites: Mechanics 3 and 111. Mr. Roark.

117. VIBRATION LABORATORY. II; 2 cr. Instruction in the techniques of making vibration measurements. Analysis of vibration data. Theory and use of vibration measuring instruments and associated equipment. Calibration of vibration measuring devices. Prerequisite: Mechanics 107 or concurrent registration. Mr. Pickett or Mr. Haft.

118. FATIGUE OF ENGINEERING MATERIALS. II; 3 cr. Influence of repeated stress in engineering design, fatigue testing machines and procedures, factors influencing fatigue properties, and the theory of fatigue failure. Prerequisite: Mechanics 3 or 5, or consent of instructor. Mr. Fluck.

119. PROPERTIES AND USES OF PORTLAND CEMENT CONCRETE. I or II; 2 cr. An advanced course in Portland cement concrete, including a study of proportioning methods, theories of hardening and setting, properties, prefabricated concrete, precast concrete, construction methods, lightweight aggregates and concrete, causes of disintegration, protective treatments, specifications, and cost estimates. Prereqquisite: Mechanics 52, or consent of instructor. Mr. Washa.

120. EXPERIMENTAL STRESS ANALYSIS. I or II; 3 cr. A brief review of basic stress-strain relations, followed by a description and demonstration of the more important experimental methods of determining stresses and strains, such as the use of mechanical strain gages, electric strain gages, optical strain gages, photoelastic equipment, brittle lacquers, and models. Prerequisites: Mechanics 2, Mechanics 3 or 5, Mechanics 51 or 53. Mr. Roark and Mr. Young.

121. ADVANCED SOIL MECHANICS. II; 3 cr. Soil mineralogy, base exchange, soil moisture relationships. Geophysical exploration methods. Advanced treatment of soil strength, rate of consolidation, bearing capacity, and lateral wall pressures. Flow nets and stability of earth dams. Pressures on underground conduits. Prerequisite: Mechanics 110. Mr. Williams.

201. ELASTIC STABILITY. II; 3 cr. Bending of bars under simultaneous action of axial and lateral loads; buckling of compressed bars, rings and tubes; lateral buckling of beams; torsion of I-beams; buckling of thin plates. Prerequisites: Mechanics 3; Mathematics 111 or 112 or 120a. Mr. Pickett.

202. BENDING OF PLATES. II; 3 cr. Bending of thin elastic plates; rectangular and circular plates under various distributions of loading and different combinations of free, simply supported, and fixed edges; airport pavements. Prerequisite: Mechanics 215 or concurrent registration. Mr. Pickett.

203. THEORY OF PLASTICITY. II, alternate years; 3 cr. Inelastic behavior of metallic and non-metallic structural materials; performances of various structural shapes of pure plastic materials and of strain-hardening materials when loaded beyond the elastic limit. Prerequisites: Mechanics 106; Mathematics 111 or equivalent. Mr. Pickett.

215. APPLIED ELASTICITY. I; 3 cr. Introduction to theory of elasticity, analysis of stress and strain, theory of bending and torsion, flat plate theory, elastic stability, vibration of elastic structures. Prerequisites: Mechanics 2, 3; Mathematics 110 or 112. Mr. Pickett.

216. ENGINEERING APPLICATIONS OF OPERATIONAL METHODS. II; 3 cr. Introduction to the methods of Laplace transformation as applied to problems of mechanical vibrations under prescribed force or displacement. Prerequisites: Mechanics 107; Mathematics 283 or equivalent. Mr. Pickett.

MINING AND METALLURGICAL ENGINEERING

PROFESSORS BARKER, ROSENTHAL, SHOREY, *chairman;* ASSOCIATE PROFESSORS HEINE, MACK, RUNDLE; ASSISTANT PROFESSOR HARRIS; INSTRUCTORS SARTELL, WEART.

8. METALLOGRAPHY FOR MECHANICAL ENGINEERS. I, II; 2 cr. The microstructure and properties of steels and metals used in machine construction.

12. MINE SURVEYING. II; 2 cr. Methods of mine surveying, followed by a week's survey of a nearby zinc, iron, or coal mine. Prerequisite: C.E. 118. Mr. Rundle.

22. INTRODUCTION TO METALLURGY. I; 2 cr. An introductory study of metallurgical operations designed to acquaint the student with the various fields of interest in the career he has selected.

33. FOUNDRY. I, II; 2 cr. The principles and practices governing the production of metal castings. Sand control, cupola operation, nonferrous casting, core making, molding practice, casting cleaning, and hazards. Mr. Heine.

99. ENGINEERING EXPRESSION. 3 cr. Written and oral reporting on engineering projects. Reports, proposals, correspondence. Mr. Mack.

101. EXCAVATION AND TUNNELING. I; 3 cr. Methods of excavation and tunneling. Earth and rock excavation, explosives, excavating equipment. Methods of earth, rock, and subaqueous tunneling. Prerequisite: Chemistry 2b. Mr. Rundle.

102. MINING METHODS. I; 3 cr. Prospecting, exploring, developing, and operating mines. Prerequisites: M.&M.E. 101; Geology 9. Mr. Rundle.

103. MINING DEVELOPMENT. II; 3 cr. Classroom and drafting room design of a method of mining a selected orebody. Prerequisites: M.&M.E. 101; Geology 9. Mr. Rundle.

104. VALUATION OF MINERAL PROPERTIES. II; 3 cr. The methods of evaluating metal, coal, oil, and other mineral properties. Mineral valuation for taxation purposes. Prerequisites: M.&M.E. 103; Geology 6, 114. Mr. Shorey.

105. MINE ENGINEERING. I; 3 cr. The mechanical aspects of mine engineering. Mine safety, mine transport, hoisting, mine drainage. Prerequisites: M.&M.E. 102, 103; Mechanics 4, 5. Mr. Shorey.

106. MINE ENGINEERING. II; 3 cr. Head frames and ore bins, ventilation, signaling and power systems. Prerequisites: M.&M.E. 102, 103; Mechanics 4, 5. Mr. Rundle.

107. MINERAL DRESSING. I; 3 cr. Study of the principles of mineral dressing. Includes crushing, grinding, screening and classification; gravity and magnetic concentration. Prerequisite: Senior standing. Mr. Harris.

108. MINERAL DRESSING LABORATORY. I; 2 cr. Laboratory practice in the application of principles developed in M.&M.E. 107. Prerequisite: M.&M.E. 107 or concurrent registration. Mr. Harris.

109. ADVANCED MINERAL DRESSING. II; 3 cr. Classroom and laboratory studies of flotation and heavy media processes of concentration. Prerequisites: M.&M.E. 107, 108. Mr. Harris.

116. PROBLEMS IN DESIGN. I or II; 3 cr. Drafting-room design of mining or milling plant and equipment to extract or treat specific ores. Prerequisites: M.&M.E. 103, 105 and 107. Mr. Shorey.

121. ASSAYING. I, II; 3 cr. The assays of ores with special reference to slag calculations and slag properties. Prerequisites: Chemistry 2b. Mr. Rundle.

122. PRINCIPLES OF ADAPTIVE METALLURGY. I; 3 cr. A study of the fundamental principles of metallurgy. Physical properties of metals and alloys. Simple equilibrium diagrams. Prerequisites: Chemistry 2a and Physics 51.

124. METALLURGY OF IRON AND STEEL. I; 3 cr. The reduction of iron ores and processes of steel making, control of operations, rolling mills and shaping, specifications. Prerequisites: Chemistry 2a; Physics 51. Mr. Barker.

125. METALLURGY OF NONFERROUS METALS. I; 3 cr. A study of the methods used in the recovery of nonferrous metals. Prerequisite: Junior standing.

127. PRINCIPLES OF EXTRACTIVE METALLURGY. II; 3 cr. Principles of recovering metals from their ores. Chemical principles, fuels, refractories, hydrometallurgy, pyrometallurgy, and electrometallurgy. Prerequisite: Junior standing.

128. METALLOGRAPHY OF IRON AND STEEL. I; 3 cr. An introduction to metallography and its application to iron and steel products. The effect of heat treatment and mechanical treatment on the microstructure of steel, cast irons and tool steels. Prerequisite: M.&M.E. 122 and 124. Mr. Mack.

129. EXTRACTIVE METALLURGICAL PROCESSES. I; 3 cr. The extraction of the principal metals from ores with special reference to copper, lead and zinc. Prerequisites: M.&M.E. 125, 127.

131. FOUNDRY METALLURGY. I; 3 cr. Foundry materials and furnaces. The manufacture and properties of gray iron, malleable iron, steel, and nonferrous castings. Prerequisites: Chemistry 2b; Physics 52. Mr. Heine.

133. PROPERTIES AND USES OF INDUSTRIAL ALLOYS. II; 3 cr. The processing, properties and uses of important industrial alloys such as alloys for high-temperature service, corrosion-resistant alloys, copper, magnesium, and aluminum-base alloys, powdered metal compacts and other special alloys. Prerequisites: M.&M.E. 8 or M.&M.E. 134 and 140. Mr. Heine.

134. PHYSICAL METALLURGY. I; 3 cr. The underlying principles of physical metallurgy. Development of binary diagrams. Physical properties of metals and alloys. Prerequisites: Chemistry 2b; Physics 52; M.&.M.E. 122. Mr. Rosenthal.

135. METALLURGICAL CALCULATIONS I; 3 cr. The calculation of heat balances and charges for iron and steel and nonferrous metallurgical processes. The control of mineral dressing operations. Prerequisites: Chemistry 2b; Physics 52; M.&M.E. 122. Mr. Shorey.

136. PHYSICAL METALLURGY OF SURFACES. II; 3 cr. Surface adsorption, surface tension, diffusion of gases, corrosion, surface treatments. Prerequisites: M.&M.E. 134; senior standing. Mr. Rosenthal.

137. ADVANCED METAL CASTING. I or II; 3 cr. An advanced study of the metallurgical and engineering principles applied in the foundry and related industries. This course expands the offerings of the elementary course M.&M.E. 33 or 131, and is primarily for those students interested in foundry engineering. Prerequisite: M.&M.E. 33 or 131. Mr. Heine.

140. HEAT TREATMENT OF IRON AND STEEL. II; 3 cr. A study of the heat treatment of carbon and low-alloy steels. Commercial heat treatment. Prerequisites: Chemistry 2b; Physics 52; M.&M.E. 128 or M.&M.E. 8. Mr. Mack.

147. ALLOY STRUCTURES. II; 3 cr. Lectures and laboratory practice illustrating the application of fundamental principles to alloy systems. Ternary alloys, metastable systems. Prerequisites: M.&M.E. 128, 134, 140. Mr. Rosenthal.

148. METALLURGICAL X-RAY AND SPECTROGRAPHIC STUDIES. II; 3 cr. or more. The application of X-ray equipment and methods to the identification of materials and the study of lattice patterns using diffraction, back-reflection and powder cameras. The use of radiographic equipment for the inspection of castings. Spectrographic analysis of metals and alloys. Mr. Barker.

150. METALLURGICAL SEMINAR. II; 2 cr. Required of all seniors in metallurgical engineering. Mr. Mack.

151. THE FUTURE OF THE MINERAL INDUSTRY. II; 3 cr. The study of distribution and control of the world's mineral resources. Subsidies and tariffs, governmental regulations, taxation, relationships between mineral industry and national security. Prerequisite: Senior standing. Mr. Shorey.

203. ADVANCED STUDIES IN MINING METHODS. I; 3 cr. Analyses of recently developed methods of prospecting, developing and exploitation of mineral deposits. Prerequisites: Graduate standing and M.&M.E. 102, 103 or their equivalent. Mr. Shorey.

204. MINERAL ECONOMICS. II; 3 cr. A study of domestic and foreign sources of minerals. The impact of foreign and domestic regulations on imports and exports. Exploitation and conservation of domestic mineral deposits, tariffs and subsidies. Prerequisites: Graduate standing and M.&M.E. 104, 151. Mr. Shorey.

205. ADVANCED MINE ENGINEERING. I; 3 cr. Advanced studies of various types of haulage, hoisting and ventilating systems in mining engineering. Air conditioning of mines and tunnels. Prerequisites: M.&M.E. 105, 106 or their equivalent and graduate standing. Mr. Shorey.

210. ADVANCED MINERAL DRESSING. I, II; 2–5 cr. Application of the flotation process to the treatment of metallic and nonmetallic ores; or detailed laboratory research to discover a method of treating a selected ore. The particular application of principles covered in outline by M.&M.E. 107. Mr. Shorey.

225. METALLURGICAL LABORATORY. I, II; 2–5 cr. Detailed research problems covering selected metallurgical processes. The particular application of one or more of the metallurgical principles outlined by courses 131, 133, 147.

230. ADVANCED PHYSICAL CHEMISTRY OF THE METALS. I, II; 3 cr. An advanced treatment of the principles of physical metallurgy, and the direct application of these principles to metallurgical practice.

233. HEAT TREATMENT OF STEELS. I, II; 3 cr. Fundamental principles of transformations, heat transfer and mechanical properties applied to metallurgical design.

240. LABORATORY RESEARCH IN NONFERROUS METALLURGY. I, II; 2–5 cr. An advanced study of methods of reduction of the metals covered in outline by courses 125, 129. Investigation of processes, selection of equipment, plant design. Economics of smelting. Individual problems.

245. PHASE RULE. I, II; 3 cr. Application of the phase rule to metallurgical reactions.

246. THERMODYNAMICAL STUDIES. I, II; 3 cr. The treatment of recent developments in metallurgical practice from the thermodynamic viewpoint.

247. ADVANCED NONFERROUS METALLURGY. I, II; 3 cr. The application of recent fundamental developments in the field of nonferrous alloys. Special emphasis is placed upon the choice of alloys for specific industrial applications.

249. ADVANCED FOUNDRY METALLURGY. I, II; 3 cr. This course covers advanced developments in various phases of the foundry industry. The application of scientific and engineering principles to the solution of metal refining and metal casting problems is stressed.

PROFESSIONAL PROBLEMS COURSE

PROFESSIONAL PROBLEMS. I; 1 cr. Designed to provide information concerning the responsibilities of engineers to society, to colleagues and to the profession; interviewing procedures and effective use of placement services; examinations and registration procedures for certification as Professional Engineer; opportunities, divisions of work and requirements for engineers in many fields of endeavor. Mr. Goehring.

SCHOOL OF HOME ECONOMICS

FRANCES ZUILL, *Associate Dean*

FACULTY

ALLEN, HELEN LOUISE, *M.A.*, Professor of Home Economics (Related Art)

BEACH, KATHRYN RICE, *M.S.*, Associate Professor of Home Economics (Home Management and Family Living)

COOPER, MARGARET MOORE, *Ph.D.*, Associate Professor of Home Economics (Clothing and Textiles)

COWLES, MAY LOUISE, *Ph.D.*, Professor of Home Economics (Home Management and Family Living)

CRAMER, HELEN MAXINE, *M.A.*, Assistant Professor of Home Economics (Home Management and Family Living)

DALRYMPLE, JULIA, *Ph.D.*, Associate Professor of Home Economics Education

DAVIS, RUTH FLORENCE, *M.S.*, Professor of Home Economics (Related Art)

DAWE, HELEN CLEVELAND, *Ph.D.*, Professor of Home Economics (Chairman, Home Management and Family Living)

DENNETT, LINNEA C., *M.S.*, Associate Professor of Home Economics (Foods and Nutrition)

DONALDSON, BEATRICE, *Ph.D.*, Associate Professor of Home Economics (Foods and Nutrition)

FISKER, DONNA, *B.S.*, Instructor of Home Economics (Home Management and Family Living)

GAHRSEN, MILDRED ARLENE, *M.A.*, Instructor of Home Economics (Related Art)

HANNING, FLORA MAY, *Ph.D.*, Professor of Home Economics (Foods and Nutrition)

HENDERSON, RUTH ADELE, *M.A.*, Professor of Home Economics Education

HERRICK, ORPHA, *M.S.*, Instructor of Home Economics (Clothing and Textiles)

HOESLY, OLGA MARIE, *M.A.*, Assistant Professor of Home Economics (Foods and Nutrition)

HOFFMAN, GERTRUDE MAGDALINE, *M.S.*, Associate Professor of Home Economics (Related Art)

HUNT, VIOLA MAY, *M.S.*, Associate Professor of Home Economics (Home Management and Family Living)

HUSSEMANN, DOROTHY LILLIAN, *Ph.D.*, Professor of Home Economics (Chairman, Foods and Nutrition)

IVERSON, ALICE K., *M.S.*, Assistant Professor of Home Economics (Related Art)

JONES, MRS. NELLIE KEDZIE, *M.S., LL.D.*, Emeritus Professor of Home Economics

JORDRE, EMMA MABEL, *M.S.*, Associate Professor of Home Economics (Chairman, Clothing and Textiles)

JUAIRE, MARION ABBIE, *M.S.*, Professor of Home Economics (Clothing and Textiles)

LARSON, NAOMI, *M.S.*, Teacher in Home Economics, University High School

LEINDORFF, AGNES OLSON, *M.S.*, Associate Professor of Home Economics (Chairman, Related Art)

MANNING, HAZEL, *M.S.*, Emeritus Professor of Home Economics (Clothing and Textiles)

MCCORDIC, MARGARET PIPER, *M.S.*, Associate Professor of Home Economics (Home Management and Family Living)

MCDIVITT, MAXINE ESTELLE, *Ph.D.*, Associate Professor of Home Economics (Foods and Nutrition)

MELOCHE, GLADYS LOUISE, *M.S.*, Professor of Home Economics (Clothing and Textiles)

MENDENHALL, DOROTHY REED, *M.D.*, Emeritus Lecturer in Home Economics (Home Management and Family Living)

MORTIMER, IVA RANKIN, *Ph.D.*, Associate Professor of Home Economics (Foods and Nutrition)

MYRLAND, RUTH HENRIETTA, *B.A.*, Assistant Professor of Home Economics, Assistant to the Associate Dean

PARSONS, HELEN TRACY, *Ph.D.*, Professor of Home Economics (Foods and Nutrition)

PASCHALL, HAZEL BROWNE, *M.A.*, Associate Professor of Home Economics (Clothing and Textiles)

PATTON, STELLA TROUT, *M.S.*, Emeritus Assistant Professor of Home Economics (Foods and Nutrition)

PEARSON, HELEN, *M.A.*, Associate Professor of Home Economics (Clothing and Textiles)

POLLOCK, JOSEPHINE H., *M.A.*, Professor of Home Economics (Assistant State Leader of Home Economics Extension)

REYNOLDS, MAY STATLER, *Ph.D.*, Professor of Home Economics (Foods and Nutrition)

STEFFEN, MARGARET MARY, *M.S.*, Instructor in Home Economics (Home Management and Family Living)

STILLMAN, GLADYS SARAH, *M.S.*, Emeritus Associate Professor of Home Economics (Foods and Nutrition)

SUTICH, KATHRYN, *M.A.*, Assistant Professor of Home Economics (Related Art)

THORNTON, MADELINE JOSEPHINE, *M.D.*, Associate Professor of Obstetrics and Gynecology, Lecturer in Home Economics (Home Management and Family Living)

THVEDT, ARDIS, *M.S.*, Instructor of Home Economics (Related Art)

VANDENBERGH, MATHILDA ELSIE, *M.S.*, Assistant Professor of Home Economics (Related Art)

YOUNG, LOUISE ARAMINTA, *M.S.*, Professor of Home Economics (Home Management and Family Living)

ZUILL, FRANCES LOUISE, *M.A.*, Professor of Home Economics; Associate Dean, College of Agriculture for Home Economics

FACILITIES FOR INSTRUCTION

The School of Home Economics is located in the Home Economics Building on Linden Drive midway between Bascom Hall and Agricultural Hall. Laboratories, class and lecture rooms, and offices are provided here for related art, textiles and clothing, foods and nutrition, home management and family living and research.

Adjacent to the Home Economics Building is the Home Management House. The house is planned so that successive groups of eight senior girls living in the house for limited periods of time may acquire practical experience in all phases of home management including successful group living, income division, account keeping, management of time and energy, use of labor-saving devices, marketing, preparing and serving food, and entertaining.

The University Nursery School, located on the west end of Linden Drive (Temporary 17) opposite Babcock Hall, serves as a laboratory where junior students in nutrition and dietetics gain experience in child nutrition and where all senior students in home economics study and observe the behavior and guidance of young children. Child development majors have an opportunity to serve as student teachers in the nursery school.

ORGANIZATION OF THE SCHOOL

The School of Home Economics is organized into four departments: Clothing and Textiles, Foods and Nutrition, Home Management and Family Living, and Related Art. These departments are concerned with both the general and professional education of young women. At the undergraduate level the primary objectives are education for personal development and family living, effective citizenship, and training for a professional career. The principal areas of study within the field are family relations, family economics, home management, child development, textiles and clothing, foods and nutrition, and related art. The types of professional work growing out of home economics are sufficiently varied so that young women can find positions adapted to their interests and abilities.

To insure a well-rounded education for all home economics students the curricula have been designed to include English, social sciences, psychology, physical and biological sciences

and a liberal choice of electives from other schools and colleges within the University.

A common core of home economics subjects which are valuable in the preparation for home and family life is required in all majors. Not only are curricula planned for those whose major interest is in homemaking, but also for:

1. Undergraduates who wish to prepare for teaching home economics in secondary and vocational schools and for the extension service.

2. Undergraduates who desire to make a study of home economics in preparation for professional careers in hospital dietetics or institution management or for business positions.

3. Undergraduates who wish to prepare for vocations that combine home economics with journalism, nursing, recreation or bacteriology.

4. Undergraduates who wish to prepare for research or graduate work in the various phases of home economics.

MAJORS IN HOME ECONOMICS

In addition to the core requirements for all students the curriculum for each major includes courses planned to meet the specific needs of the different vocations. A major in home economics may not have less than 26 nor more than 48 credits in home economics courses. The courses in home economics education are not counted as home economics.

By the beginning of the junior year a student must choose a major from one of the following: Home economics and education; general professional; foods and nutrition; clothing and textiles; related art; home economics and journalism; child development; home economics and nursing (five years); applied bacteriology; nonprofessional major in home economics; community leadership in recreation and home economics.

ADMISSION

Requirements for admission will be found in the General Information bulletin. Special note should be taken of the mathematics requirement for the School of Home Economics.

Admission with Advanced Standing. Students from accredited colleges and universities who have pursued college courses equivalent to those of the University of Wisconsin with grades of at least a *C* and who have been granted honorable dismissal may be admitted to this school subject to current policy on nonresident students.

Advanced Standing Credit. A student given partial credit in a required course taken at another institution may substitute electives to make up the deficiency with the approval of the adviser.

Applications for Admission. All freshmen should send applications for admission to the University Admissions Office, Bascom Hall. Advanced standing students should send applications to the Office of the Associate Dean, 119 Home Economics Building, together with official transcripts of college records.

STUDENT ADVISERS

Each student is assigned an adviser from the home economics faculty when she enters the University. Usually the same faculty member serves as the adviser during the freshman and sophomore years. At the beginning of the junior year she may be assigned a new adviser in the field of her specialization. The adviser will assist the student in planning her program of work and will counsel with her on problems relating to her college life.

HOUSING

Women students live in the following types of houses: University Residence Halls, privately operated and university approved dormitories and houses, sororities, private home rooms, co-operative house, parents' homes and apartments.

Undergraduate women who do not live in university owned and operated Residence Halls, with parents, guardians, or relatives are required to live in approved dormitories, rooming houses or sorority houses. Lists of approved houses are available at the Housing Bureau.

PART-TIME STUDENT EMPLOYMENT

The University Student Employment Bureau is maintained to assist students who are partly or wholly self-supporting. Many students depend upon themselves for part or all of their resources.

A student should not expect to secure a definite job before she arrives in Madison. The employer usually requires a personal interview.

GENERAL INFORMATION

For information regarding living costs, tuition and fees, student life, student personnel services, student health service, a student should consult the General Information bulletin.

REQUIREMENTS FOR GRADUATION

General Requirements. The degree of Bachelor of Science (Home Economics) or Bachelor of Science (Home Economics and Education) is conferred upon those who complete a major in Home Economics. A total of at least 124 credits and 248 grade-points is required for graduation. An average of two grade-points per credit must be earned during the two semesters of the senior year in order to be recommended for a degree. All students must carry at least 12 credits and not more than 17 credits each semester, unless given permission by the Executive Committee to do otherwise. A student requesting more than a 17-credit program should have earned a 3.0 average on a normal load the preceding semester.

Residence Requirements. At least 30 credits and 60 grade-points must be earned in residence at Madison to be recommended for a degree. The senior year must be in residence. Permission of the Executive Committee must be secured in advance if a student desires to take any portion of her senior year at another institution. In special cases the Executive Committee may permit a senior to take not to exceed 6 credits by correspondence to complete the requirements for her degree.

Classification. A student in home economics must have at least 25 credits and 50 grade-points to be classified as a sophomore, at least 58 credits and 116 grade-points as a junior, and at least 88 credits and 196 grade-points as a senior.

Mathematical Preparation. Mathematical preparation is required for home economics. Students who do not present one unit of algebra and one unit of plane geometry may be admitted. Since the University does not offer residence courses in elementary mathematics the deficiency must be removed by passing an entrance examination, by completing the required units in mathematics at an accredited school, or by taking correspondence courses through the University Extension Division. This must be done before the junior year.

English Attainment. A student will be absolved from taking a full year of freshman English if successful in passing the exemption examination. (See Letters and Science bulletin.) Students earning a grade of *A* in English 1a are excused from further work in freshman English. Students who do not pass the placement test must make up the deficiency. (See page 47, Letters and Science bulletin.) Foreign students should note requirements in English proficiency.

History Requirement. Home economics students may complete the history requirement either by a year course in American history chosen from the following: History 4, 112, 113, 117, 121, 122; or by a three-credit course in American history and a semester course in Political Science 7 or 165, or Economics 1a, or a course in American history numbered above

100. Prior to the beginning of her junior year a student may absolve the requirement by passing an attainment examination.

Physical Education. Two years of physical education are required of all women students.

Language Requirements. Certain foreign language requirements must be met by students in applied bacteriology, the nonprofessional major including the major in community leadership in recreation and home economics, and the general professional major. There are no language requirements in clothing and textiles, foods and nutrition, related art, home economics-journalism, home economics and nursing, child development, or for those students who are registered in home economics and education.

A total of 16 credits in a single foreign language must be earned in those majors which require foreign language, except for students who enter with 4 high-school units in one language or a total of 5 units in two. Students entering with 2 or more units of a foreign language may fulfill the requirements by completing 8 credits of second-year college language. (See Placement Tests in Letters and Science bulletin.) Students who desire to change to a different language or who enter with less than 2 units are required to take 16 credits in one foreign language, 8 of which are counted as electives. Students who choose majors for which foreign language is required are given an opportunity to take the intermediate attainment test which, if passed, will absolve the student from further language requirements.

Chemistry Requirement. Students who have had one unit of high-school chemistry must take Chemistry 5.

Freshman Orientation. Home Economics 1 is required of all students entering as freshmen and may be elected for credit by first-semester sophomores.

Home Economics Attainment Examinations. A student who desires to take an attainment examination in a required course in home economics and thus absolve the requirement in the course may do so by providing evidence that she is prepared to take such an examination. This examination must be taken during the first two weeks of the semester. Success in passing such an examination entitles the student to take an advanced course but does not reduce the total number of credits required for graduation. A placement test is required in Home Economics 5, Introduction to clothing study, and students are placed in sections according to their ability.

Regulations in regard to placement and attainment examinations in academic subjects will be found on page 40 of the Letters and Science bulletin.

Course Regulations and Restrictions. (1) Freshman and sophomore students are not permitted to take courses numbered 100 or above offered in the College of Agriculture. (2) Students are permitted to elect courses numbered 100 or above outside the College of Agriculture if the prerequisites are fulfilled; undergraduates may not take courses numbered 200 or above. (3) Undergraduates below the rank of senior are not permitted to carry special problems. (4) Undergraduates may not receive credit for more than two semesters of seminar in a single department. (5) Only 4 credits in courses numbered 180 may be counted toward the Bachelor of Science degree in home economics and the Bachelor of Science degree in home economics and education except by special action of the Executive Committee. (6) Students who are required to take Home Economics 109 may not take Sociology 60.

Home Management. Students who are required to take Home Economics 112, Home management, must make a reservation for residence with the instructor in their junior year. This must be confirmed during the registration period of the senior year. Priority is given to those students who will graduate in June by carrying no more than the normal program.

Thesis Requirement. Candidates for a degree are given the privilege of presenting a thesis. A thesis must represent original work which has been approved by the major professor. Students with good scholastic records are encouraged to take advantage of this opportunity. If a thesis is elected, a total of 4 credits must be taken.

Change of Schedule. Any change in the student's schedule, however small or seemingly insignificant, must be requested by the student and approved by the adviser on the proper forms and presented to the associate dean's office. The Executive Committee acts upon the request. Any course dropped without permission of the Executive Committee will be recorded as a "fail," which must be removed in the same manner as any other failure.

Examinations. Each course terminates in a two-hour written final examination at the close of the semester; these final examinations are regularly scheduled and the time may not be changed without authorization of the associate dean for home economics.

Senior Summary. At the beginning of their senior year, students are given senior summaries at the associate dean's office before making their study schedules so that they may check their requirements for graduation.

Senior-Graduate. Seniors who are within 6 credits of having completed all the requirements for graduation and who have the minimum required grade-point average of 2.75 may be admitted to the Graduate School and earn residence credit to apply toward an advanced degree at the same time they are completing their requirements for the bachelor's degree.

Grade-point Average. To remain in good scholastic standing a student is expected to maintain a minimum average of *C* (2.0) in all the subjects she is taking. Grade-point averages are calculated on the basis of 4 grade-points per credit of *A*, 3 grade-points per credit of *B*, 2 grade-points per credit of *C*, and 1 grade-point for *D*.

Failure. Unless excused by the Executive Committee, any student who receives a grade of "fail," must remove the failure by repeating the course as soon as the subject is again offered while the student is in residence. A course that has been failed takes precedence over other courses. A failure cannot be removed by correspondence study or by repeating the subject at another college.

Incompletes. A student who receives an "incomplete," shown as *INC*, must complete the subject not later than the close of the semester in which it is again offered during the student's residence. If not so completed, the grade for the subject will lapse into a failure unless the time for completion has been extended by the Executive Committee.

HONORS IN SCHOLARSHIP

Sophomore Honors and Sophomore High Honors are awarded on the basis of a minimum of two full years of work, not less than 60 credits, completed in residence or at the Extension Centers. A student who earns, during these two years, 195 grade-points plus two and one-half grade-points for each credit above 60, will be awarded Sophomore Honors. A student earning 225 grade-points, plus 3 grade-points for each credit above 60, during these two years, will be awarded Sophomore High Honors.

Senior Honors and Senior High Honors are awarded on the basis of a minimum of two full years of work, not less than 60 credits, completed in residence, for the second half of the four-year course. The remaining prerequisites for Honors and High Honors for seniors are the same as for respective honors for sophomores as explained above.

SCHOLARSHIPS, FELLOWSHIPS AND LOAN FUNDS

Undergraduate students should consult the bulletin issued by the University Committee on Loans and Scholarships for a list of scholarships, fellowships and loan funds. Many of these funds are available for students in all colleges while others are limited to specific groups. Attention is directed especially to the funds established for students in home economics, such as the Abby Marlatt Memorial award, the Bess Tyrrell Burns award, the Borden home economics scholarship, the Catherine Oertel scholarships, the Christine Margaretha Steenbock fellowship, the Dorothy Roberts Memorial fellowship, the Kroger Company scholarships, the Marie Ovitz Memorial scholarship, the Mary Lesh Baldwin scholarship, the Peter Young fund, the Phi Omega Pi scholarship, the Sears-Roebuck

Foundation scholarships, the Hazel Manning loan fund, and the Nellie Crawford scholarship loan fund.

Graduate students in home economics should consult the bulletin of the Graduate school for detailed information relative to scholarships, fellowships and assistantships.

HOME ECONOMICS ORGANIZATIONS

The Euthenics Club is open to all students in home economics and is affiliated with the College Club department of the American Home Economics Association and the Wisconsin Home Economics Association.

A chapter of the national honor society, Omicron Nu, is maintained by faculty and student members. Junior, senior and graduate students with high scholastic records are eligible for election.

A chapter of the national professional home economics sorority, Phi Upsilon Omicron, has an active membership among senior, junior and sophomore students. Students are elected on the basis of scholarship, leadership and personal characteristics.

The Related Art Club is open to students interested in that area.

CURRICULA

HOME ECONOMICS AND EDUCATION

This major is planned primarily for students who are preparing for teaching in secondary or vocational schools.

For the teaching major in home economics a total of 124 credits and 248 grade-points is required for the degree of Bachelor of Science (Home Economics and Education), including a minimum of 18 to 20 credits in education. Students qualifying for this degree will be entitled to receive the University Teachers' Certificate upon recommendation of the School of Home Economics. See the following pages for specific regulations.

SUGGESTED SEQUENCE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman composition	3	English 1b—Freshman composition	3
Chemistry 1a or 5—General chemistry	5–3	Biochemistry 3 ##	4
Home Econ. 1—Orientation	1	Home Econ. 5—Introduction to clothing study	3
Home Econ. 2—Introduction to related art	3	Elective	4–5
Sociology 1a—Man, culture and society	3	Physical Education	0
Elective	0–3		
Physical Education	0		
	15–16		14–15

SOPHOMORE YEAR

Home Econ. 3—Introduction to food study	3	Home Econ. 20—Costume design	2
Home Econ. 8—House planning and furnishing	3	Home Econ. 11—Applied dress design	3
Physiology 1—Elements of physiology	4	Bacteriology 1—General survey	4
American history	3	Psychology 1—Introduction to psychology	4
Speech** or elective	3	Elective	2
Physical Education	0	Physical Education	0
	16		16

JUNIOR YEAR

Home Econ. 4—Problems of food supply	3	Home Econ. 50—Textile chemistry	3
Home Econ. 6—Nutrition and dietetics	4	Home Econ. 7—Housing	2
Economics 1a—General economics	4	Home Econ. 110—Family economics	3
Education 73*—The child: his nature and his needs	3	Education 74*—The school and society	3
Electives	2	Education 75*—The nature and direction of learning	5
	16		16

SENIOR YEAR

Home Econ. 109—Humanics	2	Home Econ. 119—Development of the young child in home and nursery school	2
Home Econ. 112—Home management	2	Education (methods in academic minors)*	2
Education 52*#Teaching of home economics	5	Electives	11–12
Electives	6–7		
	15–16		15–16

* Required for the University Teachers' Certificate and the Bachelor of Science degree in Home Economics and Education.
** Speech 1, 2, 3, 6, 7, 105, 110, or certification by the Speech Examination Committee.
Students minoring in chemistry must take Chemistry 1, 8–10 credits. If this minor is selected, Chemistry 1b is required.
*# Candidates for the University Teachers' Certificate who take Education 156 for 4 credits to qualify for vocational schools will take Education 52 for 3 credits only.

TEACHING HOME ECONOMICS IN SECONDARY SCHOOLS AND VOCATIONAL SCHOOLS

Students who are planning to teach home economics and to qualify for the University Teachers' Certificate must also register in the School of Education at the beginning of the junior year. To register in the School of Education as a candidate for the University Teachers' Certificate students must have a grade-point average of 2.6 for the first two years. Compliance with the regulations in regard to proficiency in speech is required.

ACADEMIC MINOR. The certification regulations of the Wisconsin Department of Public Instruction provide that majors in Home Economics shall have one academic teaching minor. This academic teaching minor requirement may be met by one of the following plans:

1. The completion of an academic teaching minor as described by an academic department. A two-credit course in the teaching of the academic minor is required. Chemistry, general science, history, and English have proved to be satisfactory academic minors in combination with a Home Economics major. A minor in chemistry for Home Economics students includes: Chemistry 1, 10 credits; Biochemistry 10 or 3, 4 credits; Textile Chemistry (Home Economics 50), 3 credits; Education 97, 2 credits.

2. The completion of an academic teaching minor consisting of 15 credits of college courses in an academic subject area recognized as a teaching field in the secondary school. The student may elect to take a two-credit methods course in the minor or a two-credit elective in Education (the recognized academic teaching fields in the secondary school are those described in the School of Education bulletin).

In order to be certified to teach science, students must take Geography 128.

Home economics students with a major in foods and nutrition or in clothing and textiles should include a minor in another phase of home economics.

(1) A teaching minor in foods and nutrition. A minimum of 20 credits in home economics including Home Economics 3, 4 and 6.

(2) A teaching minor in textiles and clothing. A minimum of 20 credits in home economics including Home Economics 2, 5, 11, and 97.

(3) A teaching minor in related art. A minimum of 20 credits in home economics including Home Economics 2, 8, 18, 20, and 194.

Education 75 may be taken only by students registered for a B.S. degree in home economics and education. Credits in Education 75 are not counted toward the graduation requirements for the B.S. degree in home economics except for majors in foods and nutrition who are planning to meet the requirements of the American Dietetic Association who may take Education 75 for 3 credits.

CERTIFICATION FOR VOCATIONAL SCHOOLS. To be certified to the State Board of Vocational Education as an instructor in vocational homemaking a student must complete the requirements for the University Teachers' Certificate and in addition the required courses in vocational education.

Students who wish to qualify for teaching in a city vocational school are required to take basic courses in the philosophy of vocational and adult education, vocational guidance and the teaching of homemaking in schools and vocational and adult education.

HOME ECONOMICS EXTENSION SERVICE. A student preparing for extension work in home economics is advised to take the major in home economics and education for rural vocational high schools electing in addition such courses as rural sociology, agricultural journalism, extension work in home economics and agriculture and adult programs in home economics.

GENERAL PROFESSIONAL MAJOR

This major may be taken for general education or may be directed toward positions as home economists in business, and other professional work which requires general training in foods and nutrition, clothing and textiles, related art, family economics, home management and other phases of home economics as basic preparation. Such courses as Home Economics 114, 126, 135, 141, 145, 151 and courses in psychology, commerce, economics and journalism are recommended as electives.

SUGGESTED SEQUENCE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman composition	3	English 1b—Freshman composition	3
Chemistry 1a or 5—General chemistry	5–3	Biochemistry 3	4
Home Econ. 1—Orientation	1	Home Econ. 5—Introduction to clothing study	3
Home Econ. 2—Introduction to related art	3	Foreign language*	4
Foreign language*	4	Sociology 1a—Man, culture and society	3
Physical Education	0	Physical Education	0
	14–16		17

SOPHOMORE YEAR

	Credits
Home Econ. 3—Introduction to food study	3
Home Econ 8—House planning and furnishing	3
Physiology 1—Elements of physiology	4
American history	3
Electives	3
Physical Education	0
	16

	Credits
Home Econ. 11—Applied dress design	3
Bacteriology 1—General survey	4
Psychology 1—Introduction to psychology	4
Electives	5
Physical Education	0
	16

JUNIOR YEAR

	Credits
Home Econ. 4—Problems of food supply	3
Home Econ. 6—Nutrition and dietetics	4
Home Econ. 7—Housing	2
Economics 1a—General economics	4
Electives	2–3
	15–16

	Credits
Home Econ. 50—Textile chemistry	3
Home Econ. 20—Costume design	2
Home Econ 110—Family economics	3
Electives	7–8
	15–16

SENIOR YEAR

	Credits
Home Econ. 109—Humanics	2
Home Econ. 112—Home management	2
Electives	11–12
	15–16

	Credits
Home Econ. 119—Development of the young child in home and nursery school	2
Electives	13–14
	15–16

* See page 457.

MAJOR IN FOODS AND NUTRITION

There are three curricula in the major in Foods and Nutrition. These are planned to meet the demands for trained dietitians; for institution managers in university commons, tearooms and school cafeterias; for nutritionists in public health services and social welfare organizations; and for home economists in food industries. This major also provides basic training for research workers in foods and nutrition.

HOSPITAL DIETETICS

SUGGESTED SEQUENCE

FRESHMAN YEAR

First Semester	Credits
English 1a—Freshman composition	3
Chemistry 1a or 5—General chemistry	5–3
Home Econ. 1—Orientation	1
Home Econ. 2—Introduction to related art	3
Electives	4–6
Physical Education	0
	16

Second Semester	Credits
English 1b—Freshman composition	3
Bacteriology 1—General survey	4
Home Econ. 5—Introduction to clothing study	3
Electives	5
Physical Education	0
	15

SOPHOMORE YEAR

	Credits
Home Econ. 3—Introduction to food study	3
Chemistry 120—Organic chemistry**	3
Physiology 1—Elements of physiology	4
Electives	6
Physical Education	0
	16

	Credits
Home Econ. 4—Problems of food supply	3
Psychology 1—Introduction to psychology	4
American history	3
Electives	5
Physical Education	0
	15

JUNIOR YEAR

	Credits
Home Econ. 7—Housing	2
Economics 1a—General economics	4
Biochemistry 10	4
Electives	3
Education 75**—The nature and direction of learning	3
	16

	Credits
Home Econ. 6—Nutrition and dietetics	4
Home Econ. 110—Family economics	3
Home Econ. 22**—Marketing and large quantity cookery	2
Electives	6
	15

SENIOR YEAR

First Semester	Credits	Second Semester	Credits
Home Econ. 109—Humanics	2	Home Econ. 119—Development of the young child in home and nursery school	2
Home Econ. 112—Home management	2	Home Econ. 133**—Practice in institution management	3
Home Econ. 125—Diet therapy	3	Electives	10
Home Econ. 122**—Organization and administration of institutions	3		
Electives	6		
	16		15

** Required by the American Dietetic Association for admission as student dietitians in approved hospitals but not required for the B.S. degree. A minimum of 12 credits in chemistry is required.

INSTITUTION MANAGEMENT

SUGGESTED SEQUENCE

FRESHMAN YEAR

English 1a—Freshman composition	3	English 1b—Freshman composition	3
Chemistry 1a or 5—General chemistry	5–3	Bacteriology 1—General survey	4
Home Econ. 1—Orientation	1	Home Econ. 5—Introduction to clothing study	3
Home Econ. 2—Introduction to related art	3	Electives	5
Electives	4	Physical Education	0
Physical Education	0		
	14–16		15

SOPHOMORE YEAR

Home Econ. 3—Introduction to food study	3	Psychology 1—Introduction to psychology	4
Chemistry 120—Organic chemistry**	3	Home Econ. 4—Problems of food supply	3
Physiology 1—Elements of physiology	4	American history	3
Electives	6	Electives	5
Physical Education	0	Physical Education	0
	16		15

JUNIOR YEAR

Home Econ. 7—Housing	2	Home Econ. 6—Nutrition and dietetics	4
Economics 1a—General economics	4	Home Econ. 22—Marketing and large quantity cookery	2
Biochemistry 10	4	Home Econ. 110—Family economics	3
Education 75**—The nature and direction of learning	3	Electives	6
Electives	3		
	16		15

SENIOR YEAR

Home Econ. 109—Humanics	2	Home Econ. 119—Development of the young child in home and nursery school	2
Home Econ. 112—Home management	2	Home Econ. 133—Practice in institution management	3
Home Econ. 122—Organization and administration of institution	3	Additional nutrition**	3
Electives	9	Electives	8
	16		15

** Required by the American Dietetic Association for students preparing to take graduate training courses in administration.

EXPERIMENTAL FOODS

SUGGESTED SEQUENCE

FRESHMAN YEAR

English 1a—Freshman composition	3	English 1b—Freshman composition	3
Chemistry 1a or 5—General chemistry	5–3	Bacteriology 1—General survey	4
Home Econ. 1—Orientation	1	Home Econ. 5—Introduction to clothing study	3
Home Econ. 2—Introduction to related art	3	Electives	5
Electives	4	Physical Education	0
Physical Education	0		
	14–16		15

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
Home Econ. 3—Introduction to food study	3	Home Econ. 7—Housing, or Home Econ. 8—House planning and furnishing	2–3
Speech 1—Fundamentals of speech, or Speech 7—Public speaking	2–3	Home Econ. 4—Problems of food supply	3
Physiology 1—Elements of physiology	4	Chemistry 120—Organic chemistry	3
American history	3	Psychology 1—Introduction to psychology	4
Electives	4	Electives	2
Physical Education	0	Physical Education	0
	16–17		15

JUNIOR YEAR

Home Econ. 119—Development of the young child in home and nursery school	2	Home Econ. 6—Nutrition and dietetics	4
Biochemistry 10	4	Home Econ. 110—Family economics	3
Physics 65**	3	Physics 65 or 61**	5–5
Economics 1a—General economics	4	Animal Husbandry 50 or 105	1–2
Electives	2–3	Electives	3–4
	15–16		15–16

SENIOR YEAR

Home Econ. 109—Humanics	2	Home Econ. 145—Experimental food study	2
Home Econ. 135—Comparative studies in foods	3	Home Econ. 126—Adult programs in home economics	2
Home Econ. 112—Home management	2	Related professional or technical courses (See below)	5–6
Related professional or technical courses (See below)	6	Electives	6–7
Electives	2–3		
	15–16		15–16

** Physics 61 offered second semester only.

A further requirement for an experimental foods major is experience in foods work which should be undertaken at the end of the junior year. This requirement is to be absolved by summer-time or part-time work in food service where there is trained supervision. The plan for this assignment must be approved before its initiation. A final report must be accepted.

Related professional or technical courses are: Bacteriology 125; Agricultural Journalism 112; Biochemistry 105; Chemistry 11 or 12, 146, 147; Commerce 115; Dairy and Food Industry 124; Education 155; English 2a, 2b; Home Economics 100, 133, 180, 194; Journalism 10, 105a, 105b; Speech 110, 115.

MAJOR IN CLOTHING AND TEXTILES

The curriculum in textiles and clothing is planned primarily to meet the needs of students who are interested in positions in business dealing with retailing problems. Courses in journalism and commerce are advised as electives. With additional training in chemistry students may prepare for positions in textile testing laboratories. Students who plan to teach must include the required courses in education and also a minor in foods.

SUGGESTED SEQUENCE

FRESHMAN YEAR

English 1a—Freshman composition	3	English 1b—Freshman composition	3
Chemistry 1a or 5—General chemistry	5–3	Chemistry 1b—General chemistry, or Biochemistry 3**	5–4
Home Econ. 1—Orientation	1	Home Econ. 5—Introduction to clothing study	3
Home Econ. 2—Introduction to related art	3	Electives	4
Electives	4	Physical Education	0
Physical Education	0		
	14–16		14–15

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
Home Econ. 3—Introduction to food study	3	Home Econ. 8—House planning and furnishing	3
Physiology 1—Elements of physiology	4	Home Econ. 50—Textile chemistry	3
Sociology 1a—Man, culture, and society	3	Bacteriology 1—General survey	4
American history	3	Electives	5
Electives	3	Physical Education	0
Physical Education	0		
	16		15

JUNIOR YEAR

Home Econ. 7—Housing	2	Home Econ. 11—Applied dress design	3
Psychology 1—Introduction to psychology	4	Home Econ. 20—Costume design†	2
Economics 1a—General economics	4	Home Econ. 110—Family economics	3
Electives	6	Electives	7
	16		15

SENIOR YEAR

Home Econ. 109—Humanics	2	Home Econ. 197†—Advanced applied dress design	3
Home Econ. 112—Home management	2	Home Econ. 119—Development of the young child in home and nursery school	2
Home Econ. 140—Clothing economics	2	Electives	11
Electives	10		
	16		16

** Textile majors who take organic chemistry should take Biochemistry 10 first semester of junior year.
† Students preparing for positions in textile chemistry may substitute Chemistry 120 and 121 for Home Economics 20 and 197.

MAJOR IN RELATED ART

The Related Art major gives preliminary training for commercial positions as advisers in home furnishing departments, as costume designers and interior designers. Students preparing for costume designing should elect courses in clothing, art history and art education; and those preparing for work in interior design and house furnishing should elect Home Economics 114 as well as courses in art history and art education. All students in this major should complete 3 credits in art education, 3 in mechanical drawing and 4 in art history.

SUGGESTED SEQUENCE

FRESHMAN YEAR

English 1a—Freshman composition	3	English 1b—Freshman composition	3
Chemistry 1a or 5—General chemistry	5–3	Chemistry 1b—General chemistry, or Biochemistry 3	5–4
Home Econ. 1—Orientation	1	Home Econ. 5—Introduction to clothing study	3
Home Econ. 2—Introduction to related art	3	Electives	5
Sociology 1a—Man, culture, and society	3	Physical Education	0
Electives	0–3		
Physical Education	0		
	15–16		15–16

SOPHOMORE YEAR

Physical or Biological Science	4–5	Home Econ. 8—House planning and furnishing	3
Physiology 1—Elements of physiology	4	Home Econ. 50—Textile chemistry	3
Home Econ. 3—Introduction to food study	3	Psychology 1—Introduction to psychology	4
Home Econ. 20—Costume design	2	Electives	6–7
American history	3	Physical Education	0
Physical Education	0		
	16–17		16–17

JUNIOR YEAR

Home Econ. 7—Housing	2	Home Econ. 18—Interior design	2
Home Econ. 95—Weaving	2	Home Econ. 94—Decorative textiles	3
Economics 1a—General economics	4	Home Econ. 110—Family economics	3
Electives	8	Home Econ. 117—Survey of nutrition principles	2
		Electives	5
	16		15

SENIOR YEAR

First Semester	Credits	Second Semester	Credits
Home Econ. 109—Humanics	2	Home Econ. 119—Development of the young child in home and nursery school	2
Home Econ. 112—Home management	2	Electives	13
Electives	11		
	15		15

MAJOR IN HOME ECONOMICS JOURNALISM

A major in Home Economics Journalism is arranged for those who wish to prepare for positions in journalism that are concerned with the special interests of women.

SUGGESTED SEQUENCE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman composition	3	English 1b—Freshman composition	3
Chemistry 1a or 5—General chemistry	5–3	Biochemistry 3	4
Home Econ. 1—Orientation	1	Home Econ. 5—Introduction to clothing study	3
Home Econ. 2—Introduction to related art	3	Electives	5
Sociology 1a—Man, culture, and society	3	Physical Education	0
Electives	0–2		
Physical Education	0		
	15		15

SOPHOMORE YEAR

Agr. Journ. 8—Home economics news writing	3	Home Econ. 50—Textile chemistry	3
Home Econ. 3—Introduction to food study	3	Home Econ. 20—Costume design	2
Physiology 1—Elements of physiology	4	Bacteriology 1—General survey	4
American history	3	Psychology 1—Introduction to psychology	4
Electives	3	Electives	3
Physical Education	0	Physical Education	0
	16		16

JUNIOR YEAR

Journalism 2a—Newspaper reporting	3	Agr. Journ. 112—Advanced home economics writing	2–3
Home Econ. 4—Problems of food supply	3	Home Econ. 7—Housing	2
Home Econ. 6—Nutrition and dietetics **	4	Home Econ. 8—House planning and furnishing	3
Economics 1a—General economics	4	Home Econ. 110—Family economics	3
Electives	2	Electives	5–6
	16		16

SENIOR YEAR

Journalism 3—Newspaper editing	4	Home Econ. 109—Humanics	2
Journalism 4—Newspaper typography†	2	Home Econ. 119—Development of the young child in home and nursery school	2
Home Econ. 112—Home management	2	Agr. Journ. 103—Publicity media and methods	2
Home Econ. 140—Clothing economics	2	Electives	9
Electives	5		
	15		15

** May substitute Home Economics 117.
† Students may enroll in Journalism 4 prior to or concurrently with Journalism 3.

MAJOR IN CHILD DEVELOPMENT

Students in Child Development majoring in Home Economics may prepare for positions in the group care of young children such as in nursery schools or other types of child care centers, for work in child nutrition, or in other related phases of home economics depending upon the student's special interest. Since a minimum of 26 credits in home economics is required for a degree of Bachelor of Science in Home Economics, child development majors

must complete at least 14 credits in home economics in addition to those listed in the core curriculum. Among the courses suggested are Home Economics 2, 3, 5, 109, 110, and 112.

SUGGESTED SEQUENCE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
Zoology 1—Animal biology	5	Science elective*	4–5
English 1a—Freshman composition	3	English 1b—Freshman composition	3
Home Econ. 1—Orientation	1	Sociology 1a—Man, culture, and society	3
Electives	6	Electives	5–6
Physical Education	0	Physical Education	0
	15		16

SOPHOMORE YEAR

Physiology 1—Elements of physiology	4	Psychology 1—Introduction to psychology	4
Zoology 6—Heredity	3	English 2a—Intermediate composition or literature course	3
American history	3	American history or Economics 1a	3–4
Electives	5	Electives	5–6
Physical Education	0	Physical Education	0
	15		16

JUNIOR YEAR

Education 119—Human development, or Psychology 147—Child psychology	3	Education 120—Human development (Adolescence), or Psychology 148—Psychology of adolescence	3
Education 125—The exceptional child	3	Home Econ. 119—Development of the young child in home and nursery school	2
Education 170—School and community health problems	3	Home Econ. 117—Survey of nutrition principles	3
Sociology 139a—Introduction to social psychology: personality	3	Electives	7
Electives	4		
	16		15

SENIOR YEAR

Education 112, Sociology 32, or Psychology 130—Statistics	3	Social Work 162—Child welfare***	3
Education 123—Early childhood education	3	Education 122—Diagnosis and treatment of pupil adjustment difficulties, or Psychology 141—Psychological testing	3
Home Econ. 179**—Field work	3	Home Econ. 179**—Field work	3
Electives	6	Electives	6–7
	15–16		15–16

*Since Chemistry 1a or 5 is a prerequisite for Home Economics 3 it is recommended.
**First semester's work must precede that of second semester.
***Social Work 145 is a prerequisite.

COMBINED MAJOR IN HOME ECONOMICS AND NURSING

The combined course in Home Economics and Nursing leads to the degree of Bachelor of Science (Home Economics) and to the certificate of Graduate Nurse. The following specific requirements must be satisfactorily met:

SUGGESTED SEQUENCE

FRESHMAN YEAR

English 1a—Freshman composition	3	English 1b—Freshman composition	3
Chemistry 1a or 5—General chemistry	5–3	Chemistry 1b—General chemistry	5
Home Econ. 1—Orientation	1	Home Econ. 5—Introduction to clothing study	3
Home Econ. 2—Introduction to related art	3	Science elective	4
Sociology 1a—Man, culture, and society	3	Physical Education	0
Electives	0–2		
Physical Education	0		
	15		15

SOPHOMORE YEAR

First Semester	Credits	Second Semester	Credits
Home Econ. 3—Introduction to food study	3	Biochemistry 3	4
Economics 1a—General economics	4	Microbiology 4—Bacteriology for nurses	3
Physiology 4**—Physiology for nurses	4	Psychology 1—Introduction to psychology	4
American history	3	English or Speech	3
Electives	2	Electives	2
Physical Education	0	Physical Education	0
	16		16

JUNIOR YEAR

Nursing 1a	5	Nursing 1b	5
Home Econ. 4—Problems of food supply	3	Home Econ. 119—Development of the young child in home and nursery school	2
Home Econ. 110—Family economics	3	Home Econ. 6†—Nutrition and dietetics	4
Electives	5	Home Econ. electives	2
		Electives	3
	16		16

** If Physiology 1 is taken, Physiology 4 must be taken later for 1 cr.
† May substitute Home Economics 117.

A total of 127 credits and 254 grade-points is required for graduation. This includes 94 required by the School of Home Economics and 32 earned during the twenty-seven months of resident professional instruction in nursing.

The resident professional instruction includes 27 months of ward practice and four semesters of nursing courses amounting to 32 credits as follows: Nursing 2, 3, 4, 5, 10, 11, 12, 13, 14, 15....25 credits; Psychology 105....3 credits; Electives....4 credits.

MAJOR IN APPLIED BACTERIOLOGY

After their sophomore year students may take advanced courses in bacteriology which will prepare them for graduate work or for a limited number of positions in this field. A master's degree will usually be prerequisite for the bacteriological positions in commercial and public health laboratories. Students who wish to specialize should consult the Department of Bacteriology.

SUGGESTED SEQUENCE

FRESHMAN YEAR

English 1a—Freshman composition	3	English 1b—Freshman composition	3
Foreign language*	4	Foreign language*	4
Chemistry 1a or 5—General chemistry	5–3	Chemistry 1b—General chemistry	5
Home Econ. 1—Orientation	1	Home Econ. 5—Introduction to clothing study	3
Home Econ. 2—Introduction to related art	3	Physical Education	0
Physical Education	0		
	14–16		15

SOPHOMORE YEAR

Home Econ. 3—Introduction to food study	3	Home Econ. 50—Textile chemistry	3
Physics 65**	3	Physics 65**	3
Biochemistry 10	4	Bacteriology 1—General survey	4
Economics 1a—General economics	4	Electives	5
Electives	2	Physical Education	0
Physical Education	0		
	16		15

JUNIOR YEAR

Home Econ. 4—Problems of food supply	3	Home Econ. 6—Nutrition and dietetics	4
Home Econ. 7—Housing	2	Home Econ. 110—Family economics	3
American history	3	Psychology 1—Introduction to psychology	4
Physiology 1—Elements of physiology	4	Electives	5
Electives	4		
	16		16

SENIOR YEAR

First Semester	Credits	Second Semester	Credits
Home Econ. 109—Humanics	2	Home Econ. 119—Development of the young child in home and nursery school	2
Home Econ. 112—Home management	2	Electives	13
Electives	11		
	15		15

* See page 457.
** Physics 61, 5 cr., may be substituted.

In this major 15 credits in bacteriology must be elected from the following:

First Semester	Credits	Second Semester	Credits
Bacteriology 100—Thesis	2	Bacteriology 100—Thesis	2
Bacteriology 123—Soil bacteriology	4	Bacteriology 121—Dairy bacteriology	4
Bacteriology 125—Food bacteriology	4	Bacteriology 128—Infection and immunity, or Microbiology 104—Immunology	4
Bacteriology 131—Proseminar	1	Bacteriology 131—Proseminar	1
Med. Microbiology 102—Medical microbiology	5	Bacteriology 129—Presentation of bacteriological reports	2
Bacteriology 120—Advanced general	3		
Bacteriology 127—Industrial microbiology	4		

NONPROFESSIONAL MAJOR IN HOME ECONOMICS

This curriculum is planned for students who wish to major in Home Economics as a part of a general education for marriage and homemaking. It allows a liberal choice of electives and is less technical in nature than the professional curricula. Not more than 22 credits in home economics may be elected. Early in the sophomore year a student should plan a logical sequence of courses with her adviser. This is not a teaching major.

SUGGESTED SEQUENCE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman composition	3	English 1b—Freshman composition	3
Foreign language*	4	Foreign language*	4
Chemistry 1a or 5—General chemistry	5–3	Chemistry 1b—General chemistry, or Biochemistry 3	5–4
Home Econ. 1—Orientation	1	Home Econ. 5—Introduction to clothing study	3
Home Econ. 2—Introduction to related art	3	Physical Education	0
Physical Education	0		
	14–16		14–15

SOPHOMORE YEAR

Home Econ. 3—Introduction to food study	3	Home Econ. 50—Textile chemistry	3
Bacteriology 1 or Physiology 1	4	—or—Biochemistry 3, or Physics 61 or 65	4–6
English 30, 32, 33, or 40—Literature	3	Electives	7
Sociology 1a—Man, culture, and society	3	Physical Education	0
Electives	3		
Physical Education	0		
	16		14–16

JUNIOR YEAR

Home Econ. 7—Housing	2	Home Econ. 110—Family economics	3
Economics 1a—General economics	4	Psychology 1—Introduction to psychology	4
American history	3	Electives	9
Electives	6		
	15		16

SENIOR YEAR

Home Econ. 109—Humanics	2	Home Econ. 119—Development of the young child in home and nursery school	2
Home Econ. 112—Home management	2	Electives	14
Electives†	12		
	16		16

* See page 457.
† Two of these credits must be in home economics to meet the minimum requirements for a major in home economics.

MAJOR IN COMMUNITY LEADERSHIP IN RECREATION AND HOME ECONOMICS

A student may complete the requirements for a major in Community Leadership in Recreation and the nonprofessional course in home economics. The resource courses must include three areas such as arts and crafts, speech, music, sports and games in addition to home economics.

SUGGESTED SEQUENCE

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman composition	3	English 1b—Freshman composition	3
Foreign language*	4	Foreign language*	4
Chemistry 1a or 5—General chemistry	5–3	Chemistry 1b—General chemistry, or	
Home Econ. 1—Orientation	1	Biochemistry 3	5–4
Home Econ. 2—Introduction to related art	3	Home Econ. 5—Introduction to clothing study	3
Physical Education	0	Physical Education	0
	16		14–15

SOPHOMORE YEAR

Home Econ. 3—Introduction to food study	3	Rural Sociology 27—Rural organization	2
Physiology 1, Bacteriology 1, Physics 61 or 65	4–6	American history	3
English 30, 32, 33, or 40—Literature	3	Psychology 1—Introduction to psychology	4
Sociology 1a—Man, culture, and society	3	Home Econ. 7—Housing	2
Education 14—Introduction to recreation	2	Recreation resource course	3
Physical Education	0	Physical Education 16†—First aid and safety	1–2
		Physical Education	0
	15–17		14–15

JUNIOR YEAR

Home Econ. 117—Survey of nutrition principles	3	Education 169—Health education for teachers	3
Economics 1a—General economics	4	Home Econ. 110—Family economics	3
Recreation resource course	3	Psychology 105—Human adjustment	3
Education 73—The child, his nature and his needs	3	Recreation resource courses	5
Rural Sociology 25—Rural life	3	Home Econ. elective	2
	16		16

SENIOR YEAR

Home Econ. 109—Humanics	2	Home Econ. 119—Development of the young child in home and nursery school	2
Home Econ. 112—Home management	2	Rural Sociology 127—Community organization	2
Education 113—Group leadership	3	Education 113—Group leadership	3
Social Science electives	3	Education 114—Recreation planning	3
Recreation resource course	3	Recreation resource courses	6
Education 155—Adult education	3		
	16		16

* See page 457.
† A first aid certificate may be substituted.
Speech proficiency is required.

MINORS IN HOME ECONOMICS FOR STUDENTS IN ACADEMIC FIELDS

A minor for students who plan to teach home economics in combination with their academic major in small high schools of Wisconsin must include 20 credits in Home Economics 2, 3, 5, 7, 8, 50, 109 or 119, 117, or equivalent, and Education 52 (2 cr.).

GRADUATE WORK IN HOME ECONOMICS

Students who wish to enroll in the Graduate School for graduate study in home economics leading to a master of science or a doctor of philosophy degree should consult the bulletin of the Graduate School.

Write to the Associate Dean of the School of Home Economics for information in regard to individual problems or for detailed plans for the requirements for the doctor of philosophy degree.

SUMMER SESSION

Information concerning the summer session is given in the Summer Session bulletin. For information in regard to courses offered only in the summer session and not included in this bulletin, write to Associate Dean Frances Zuill, School of Home Economics.

DEPARTMENTS OF INSTRUCTION

Abbreviations used in the announcement of courses:
Yr—Course continues throughout the year; I—given during the first semester; II—given during the second semester; I and II—repeat each semester; cr—credits, i.e. hours of credit per semester; *—credits to be arranged.

COURSE RESTRICTIONS. See page 457.

Senior thesis, special problems and graduate research may be elected by qualified students under course numbers 100, 180 and 200 respectively.

FOODS AND NUTRITION

PROFESSORS HANNING, HUSSEMANN, *chairman*, PARSONS, REYNOLDS; ASSOCIATE PROFESSORS DONALDSON, MCDIVITT, MORTIMER; ASSISTANT PROFESSORS BURNS, HOESLY; INSTRUCTOR TUTHILL.

3. INTRODUCTION TO FOOD STUDY. I, II; 3 cr. Lectures and discussions give emphasis to scientific basis for food selection and food preparation practices. Laboratory work illustrates principles of food preparation. Prerequisite: Chemistry 1a or 5. Miss Hussemann, Miss Hoesly, Miss McDivitt.

4. PROBLEMS OF FOOD SUPPLY. I, II; 3 cr. Economic approach to food study. Includes problems of food preservation, food buying, and meal planning and preparation. Prerequisites: Home Economics 3 and bacteriology. Mrs. Mortimer, Miss Hoesly.

6. NUTRITION AND DIETETICS. I, II; 4 cr. Principles of nutrition and their application to feeding the family. Laboratory work includes the study of an adequate diet for individual and family needs, and the use of laboratory animals. Prerequisites: Home Economics 3, Physiology 1 and Biochemistry 3 or 10. Mrs. Reynolds, Mrs. Mortimer, Mrs. Tuthill.

117. SURVEY OF NUTRITION PRINCIPLES. I, II; 2–3 cr. Requirements of human nutrition and problems of feeding the family. Effect of food processing on nutritive values. Laboratory practice in dietary planning. Prerequisite: Junior standing. Not open to students in majors requiring Home Economics 6. Miss McDivitt, Mrs. Tuthill.

125. DIET THERAPY. I, II; 3 cr. Basic material for hospital dietetics or teaching nutrition. Abnormalities of metabolism, use of therapeutic diets and adaptations in normal nutrition. Prerequisites: Biochemistry 10 and Home Economics 6. Miss Parsons, Mrs. Tuthill.

127. PROBLEMS IN HUMAN NUTRITION. I; 2 cr. Correlation of nutritional status of populations and individuals with food intakes as determined by surveys and controlled studies; recommended allowances. Miss Parsons.

135. COMPARATIVE STUDIES IN FOODS. I; 3 cr. Physical and chemical basis of food preparation and processing. Group experiments illustrating results of variations in ingredients and manipulative practices. Prerequisites: Home Economics 3 and one course in organic chemistry or biochemistry. Miss Hanning.

145. EXPERIMENTAL FOOD STUDY. II; 2 cr. Readings and reports of the scientific literature in experimental foods. Development of an individual laboratory problem. Prerequisite: Home Economics 135 or consent of instructor. Miss Hussemann, Miss Hanning.

147. CHILD NUTRITION. II; 2 cr. Nutrition problems in maternal and child feeding. Open to seniors and graduate students. Prerequisites: An elementary course in nutrition and consent of instructor. Mrs. Reynolds.

200. Research in Foods and Nutrition. I, II; *cr. Prerequisites: Graduate standing and consent of instructor. Miss Donaldson, Miss Hanning, Miss Hussemann, Miss Parsons, Mrs. Reynolds, Miss McDivitt.

235. Seminar in Experimental Foods. Yr; 1 cr. Prerequisite: Home Economics 135 or consent of instructor. Miss Hanning, Miss McDivitt.

245. Research Methods in Experimental Foods. II; 2–4 cr. Lectures and a series of laboratory projects demonstrating objective and subjective methods. Prerequisites: Home Economics 135 and consent of instructor. Miss Hussemann.

255. Histology and Chemistry of Foods as Related to Quality. II; 2 cr. Lectures and reading on the flavor and color constituents, histological structure and colloidal behavior of foods. Prerequisites: Home Economics 135 and consent of instructor. Miss Hanning.

280. Seminar in Nutrition. Yr; 1 cr. Prerequisite: Consent of instructor. Miss Parsons, Mrs. Reynolds.

INSTITUTION MANAGEMENT

22. Marketing and Large Quantity Cookery. I, II; 2 cr. Study of food purchasing and preparation for large quantity food service. Field trips. Prerequisite: Home Economics 4 or concurrent registration. Miss Donaldson.

122. Organization and Administration of Institutions. I; 3 cr. A study of organization for institutions; personnel and business administration. Planning and equipment of food units. Prerequisites: Food major and senior standing. Miss Donaldson.

133. Practice in Institution Management. I, II; 3–4 cr. Study of organization and operation of dining services. Institution food service practice including experience in University Hospital and Memorial Union. Field trips. Prerequisites: Home Economics 6 and 22 or concurrent registration. Miss Donaldson, Mrs. Tuthill.

222. Laboratory and Research Work. I, II; 2–4 cr. Detailed study of accounting and organization and labor problems as an intern in the University Commons. Miss Donaldson, Mr. Burns.

HOME MANAGEMENT AND FAMILY LIVING

Professors Cowles, Dawe, *chairman,* Zuill; Associate Professor Beach; Assistant Professor Cramer; Lecturers Pollock, Thornton; Instructors Adams, Fisker, Steffen.

1. Orientation in Home Economics. I; 1 cr. Series of lectures to acquaint freshmen with the home economics program and opportunities in the field; problems in personal adjustment. Includes weekly conference with adviser. Required of all home economics freshmen; may be elected for credit by first-semester sophomores. Miss Zuill.

7. Housing. I, II; 2 cr. Housing standards and conditions; home ownership; financing, house design from consumer viewpoint; government housing. Prerequisite: Home Economics 2. Miss Cowles.

72. Home Nursing. I, II; 1 cr. A two-hour laboratory course in first aid and home nursing. Miss Adams.

109. Humanics. I, II; 2 cr. A study of the family in contemporary society. Prenatal and natal care; family relationships; and the interaction of the family with social agencies and the community. Prerequisite: Senior standing. Mrs. Beach, Miss Cramer, Dr. Thornton.

110. Family Economics. 1, II; 3 cr. Family's income; income distribution; earning homemakers; standards of living; market devices; spending influenced by income, family size; budgeting; scientific management in household; consumer buying problems. Prerequisites: Economics 1a and junior standing. Miss Cowles, Mrs. Beach.

112. Home Management. I, II; 2 cr. Considers personal development of the individuals and their group relationships in the house. Provides experience in various phases of scientific management applied to the home. Each student will pay $3.25 to cover part of the cost of food during residence in Home Management House. Prerequisite: Home Economics 110. Miss Cramer.

119. Development of the Young Child in the Home and the Nursery School. I, II; 2 cr. Emphasis on principles and problems of guidance. Observation at the nursery school. Prerequisites: Psychology 1 and junior standing. Miss Dawe.

179. Field Work in Home Economics. Yr; 3 cr. Prerequisite: Senior or graduate standing. Mrs. Fisker, Miss Steffen.

199. Advanced Study of the Young Child. 2 or 3 cr. Study of research literature and current theories pertaining to the care and development of preschool children. Opportunity for students to pursue areas of individual interest. Prerequisites: Senior or graduate standing and consent of instructor. Miss Dawe.

220. Consumer Problems. II; 2 cr. Consumer in economic system; effects of income and market characteristics on consumption; evaluation of consumer movement. Prerequisite: Economics 1a. Miss Cowles.

223. Seminar in Housing Problems. I; 2 cr. Analysis of housing problems; economics of home ownership; government developments in housing. Prerequisites: Economics 1a and an elementary course in housing. Miss Cowles.

CLOTHING AND TEXTILES

Professor Juaire; Associate Professors Cooper, Jordre, Paschall, *chairman*; Instructor Herrick.

5. Introduction to Clothing Study. I, II; 3 cr. Study of textile fibers, the identification and selection of fabrics. Basic clothing construction. Placement tests given. Class sectioned according to ability and experience. Miss Jordre, Mrs. Herrick.

11. Applied Dress Design. I, II; 3 cr. Application of art principles to the selection and construction of costumes suitable for each individual. Prerequisite: Home Economics 5. Miss Juaire, Miss Jordre.

15. Problems in Textiles and Clothing for Occupational Therapy. I, II; 2 cr. A service course for occupational therapists only, emphasizing designs, materials, and technical skills commonly used in the construction of various types of articles in curative workshops. Mrs. Herrick.

50. Textile Chemistry. I, II; 3 cr. Miscroscopic, physical, and chemical study of the fibers and fabrics. Prerequisites: Chemistry 1b or Biochemistry 10 or 3; Home Economics 5 or consent of instructor. Miss Cooper, Mrs. Herrick.

106. History of Costume. I; 3 cr. A study of the development of costume from ancient times to the present day. Prerequisite: Senior standing. Miss Juaire.

140. Clothing Economics. I; 2 cr. Consumer problems in textiles and clothing; standardization, labeling, selling devices, factors affecting price; style. Problems in textile and clothing industry as they affect the buyer. Prerequisite: Economics 1a. Mrs. Paschall.

141. Textiles in Merchandising. II; 3 cr. Present problems in merchandising of textile fabrics and ready-to-wear clothing; retail distribution methods; personnel training. Prerequisites: Economics 1a and senior standing. Mrs. Paschall.

151. Advanced Textile Chemistry. II; 2 cr. Laboratory study of chemical processes in the manufacture of some man-made fibers, qualitative and quantitative analysis of fabrics,

methods and theories of dyeing textiles. Prerequisites: Chemistry 120, 3 cr.; and 121, 2 cr.; Home Economics 50 and senior standing. Miss Cooper.

197. Advanced Applied Dress Design. I, II; 3 cr. Use of original designs in the draping of costumes. Independent work; students required to complete problems outside. Prerequisites: Home Economics 11 and senior standing. Mrs. Paschall.

200. Research in Textiles and Clothing. I, II; *cr. Prerequisites: Graduate standing and consent of instructor. Staff.

250. Seminar in Textiles and Clothing. I; 2 cr. Survey of recent developments in textile chemistry; chemistry of man-made fibers including manufacture, identification, dyeing, study of the newer finishes for textiles. Prerequisite: Home Economics 50 or consent of instructor. Miss Cooper.

RELATED ART

Professors Allen, Leindorff, *chairman;* Associate Professor Davis; Assistant Professor Vandenbergh; Instructors Gahrsen, Thvedt.

2. Introduction to Related Art. I, II; 3 cr. Basic course in color and design as foundation for courses in related art. Lectures, discussions; laboratory work. Mrs. Davis, Miss Gahrsen, Miss Thvedt, Miss Vandenbergh.

8. House Planning and Furnishing. I, II; 3 cr. Study of space relationships and furnishings for family living. Laboratory includes analysis, criticism, and drawing of house plans. Prerequisites: Course in design and sophomore standing. Mrs. Leindorff, Miss Vandenbergh, Miss Gahrsen.

18. Interior Design. I, II; 2 cr. Problems in color, scale, and texture considering different cost levels in furniture, textiles and accessories. Lectures and laboratory. Prerequisite: Home Economics 2 or a course in design. Miss Vandenbergh, Miss Gahrsen.

20. Costume Design. I, II; 2 cr. Application of line, color and style to dress. Original designing; informal sketching of the figure, costume and accessories; wardrobe planning. Prerequisites: A course in design and sophomore standing. Mrs. Sutich.

28. Home Architecture. I, II; 3 cr. This course undertakes to develop an appreciation of the problems of architectural design both with respect to exterior and interior space planning. Prerequisite: Sophomore standing. Not open to students who take Home Economics 8. Mrs. Leindorff.

85. Weaving for Occupational Therapy. I, II; 3 cr. Designing and planning for various types of weaving; chain and sectional warping; practice in the use of hospital type looms; techniques for weaving without a loom. Open only to students in occupational therapy or recreation. Miss Allen.

94. Decorative Textiles. II; 3 cr. Application of design to textiles. A study of traditional textile arts and modern developments. Lecture and laboratory. Prerequisites: Course in design and sophomore standing. Occupational Therapy majors take course for 2 cr. Miss Allen.

95. Weaving. I, II; 2 cr. History of hand loomed fabrics. Designing of textiles and their execution on the hand loom. Lectures and laboratory. Prerequisite: Course in design. Miss Allen.

114. The Technique of Interior Design. II; 2 cr. Problems of selection and costs in interior design. Shop practice and field trips. Prerequisites: Senior standing, Home Economics 18 and Home Economics 115 or 116. Mrs. Leindorff.

115. Traditional Interiors. I; 2 cr. Furniture, textiles and accessories. Prerequisite: Junior standing. Miss Allen.

116. Contemporary Interiors. II; 2 cr. Colonial to contemporary interiors. Prerequisite: Junior standing. Mrs. Davis.

121. Advanced Costume Design. II; 2 cr. Problems to develop originality and techniques in costume design and illustration. Prerequisite: Course in costume design or consent of instructor. Mrs. Sutich.

194. Advanced Studies in Related Art. I; 2 cr. Display techniques, use of design in all fields of home economics. Prerequisite: Home Economics 2 or an equivalent course in design. Mrs. Davis.

216. Seminar in Related Art. II; 2 cr. Prerequisites: Graduate standing and consent of instructor. Miss Allen, Mrs. Leindorff.

COURSES IN HOME ECONOMICS EDUCATION

52. (Education) Teaching of Home Economics. I, II; 3 or 5 cr. Study of problems of home economics teacher, including lesson plans, courses of study, equipment, reference and illustrative material. Observation and practice are afforded. Prerequisites: Senior standing, professional teaching major and Education 75. Open also to seniors minoring in home economics. Miss Henderson, Miss Larson.

75. (Education) Nature and Direction of Learning. II; 3 cr. For majors in hospital dietetics. Miss Dalrymple.

101. Extension Work in Agriculture and Home Economics. I; 3 cr. Relationships and legal status of the various services for agriculture and home economics. Methods of organization and instruction used with adults and boys and girls.

126. Adult Programs in Home Economics. II; 2 cr. Organization and administration of home economics work for adults in urban and rural centers. Planning of demonstrations, exhibits, radio programs and popular publications. Prerequisite: Consent of instructor. Miss Pollock.

156. (Education) The Teaching of Homemaking in Schools of Vocational and Adult Education. Yr; 4 cr. (lect. 2 cr. I; off-campus teaching 2 cr. II). For teaching in George-Barden and city vocational schools. Building homemaking curricula for rural and urban centers; organization of adult homemaking programs; methods and materials. Prerequisites: Senior standing and Education 75. Miss Dalrymple.

288. (Education) Seminar in Home Economics Education. II; 2 cr. Recent studies and research in home economics education. Changing philosophy in home economics; curriculum planning; evaluation studies; individual problems. Prerequisites: Graduate standing and experience in teaching. Miss Dalrymple, Miss Zuill.

ADDITIONAL OFFERINGS

Additional elective courses are offered in the summer session, a description of which may be found in the Graduate School bulletin and the Summer Session bulletin. See courses Home Economics 103, Recent food studies; 111, Seminar in clothing and textiles; 113, Studies in home management; 118, Home furnishings; 120, Current problems in family economics; 137, Community leadership in nutrition; 150, Textiles in home furnishings; 161, Recent developments in textiles; 177, Modern viewpoints in foods and nutrition; 195, Studies in decorative textiles; Education 154, Problems in home economics in vocational programs, and 188, Curriculum studies in home economics education.

LAW SCHOOL

FACULTY

FRED, EDWIN BROUN, *D.Sc., LL.D.*, President of the University
RITCHIE, JOHN, *B.S., LL.B., J.S.D.*, Dean and Professor of Law
RUNDELL, OLIVER SAMUEL, *LL.B*, Emeritus Dean and Professor of Law
RUNGE, CARLISLE PIEHL, *Ph.B., LL.B.*, Assistant Dean and Associate Professor of Law

---

AUERBACH, CARL A., *B.A., LL.B.*, Professor of Law
BEUSCHER, JACOB HENRY, *B.A., LL B., J.S.D.*, Professor of Law
BOESEL, FRANK TILDEN, *Ph.B., LL.B.*, Emeritus Lecturer in Law
BRODIE, ABNER, *LL.B.*, Associate Professor of Law
BROWN, RAY ANDREWS, *A.B., LL.B., S.J.D*, Jackson Professor of Law
BUNN, CHARLES, *A.B., LL.B.*, Professor of Law
CAMPBELL, RICHARD VALENTINE, *A.B., LL.B., J.S.D.*, Professor of Law
CONWAY, JOHN EDWARD, *B.A., LL.B.*, Professor of Law
DODGE, EMILY POMEROY, *M.A., LL.B.*, Law Reference Librarian and Assistant Professor of Law
ECKHARDT, AUGUST GOTTLIEB, *B.A., LL B., LL.M., S.J.D.*, Associate Professor of Law and Agricultural Economics and Co-ordinator of Extension Services in Law
EFFLAND, RICHARD WAYNE, *B.A., LL.B., LL.M.*, Professor of Law
FEINSINGER, NATHAN PAUL, *A.B., J.D.*, Professor of Law
FOSTER, GEORGE WILLIAM, JR., *B.S , LL.B., LL.M.*, Assistant Professor of Law
HALL, HOWARD LEWIS, *A.B., LL.B.*, Professor of Law
HURST, JAMES WILLARD, *A.B., LL.B.*, Professor of Law
MACDONALD, JAMES BOGUE, *B.A., LL.B.*, Assistant Professor of Law
MAYDA, JARO, *J U.D.*, Assistant Professor of Law
MERMIN, SAMUEL, *B.A., LL.B.*, Professor of Law
REMINGTON, FRANK JOHN, *B.S., LL.B.*, Professor of Law
RICE, WILLIAM GORHAM, JR., *A.M., LL.B., S.J D.*, Professor of Law
SKILTON, ROBERT HENRY, *M.A., Ph.D., LL.B.*, Associate Professor of Law
STEDMAN, JOHN CLOES, *B.A., LL.B., LL.M.*, Professor of Law
YOUNG, GEORGE HOOPER, *B.A., LL.B.*, Professor of Law

BAERTSCHY, VERNA ELIZABETH, *Ph.B.*, Librarian
BECKER, RENEE SCHANTZ, *B.S., B.L.S.*, Assistant Librarian
SCHLOUGH, HELEN MAE, *B.S.*, Documents Librarian
DAVIDSON, NELLIE ELIZABETH, Administrative Assistant

PARTICIPATING FACULTY MEMBERS FROM OTHER SCHOOLS OR COLLEGES

BAKKEN, HENRY HARRISON, *M.A*, Associate Professor of Agricultural Economics
BRANDEIS, ELIZABETH (MRS. P. A. RAUSHENBUSH), *Ph.D.*, Lecturer in Economics (Associate Professor)
CENTER, CHARLES CONVERSE, *Ph.D.*, Professor of Commerce
CLODIUS, ROBERT LEROY, *Ph.D.*, Associate Professor of Agricultural Economics

EARLEY, JAMES STANIFORTH, *Ph.D.*, Professor of Economics
FELLMAN, DAVID, *Ph.D.*, Professor of Political Science
GIBSON, JOHN CURRIE, *B.A., C.P.A.*, Professor of Accounting
GROVES, HAROLD MARTIN, *Ph.D.*, Professor of Economics
PERLMAN, SELIG, *Ph.D.*, Professor of Economics
ROTWEIN, EUGENE, *Ph.D.*, Associate Professor of Economics
SCHUCK, HARRY MICHAEL, *M.A., LL.B.*, Associate Professor of Commerce
THOMSON, JOHN SEABURY, *Ph.D.*, Assistant Professor of Political Science
TRIPP, L. REED, *Ph.D.*, Professor of Economics
WILSON, CHARLES, Superintendent of State Crime Laboratory
WITTE, EDWIN EMIL, *Ph.D.*, Professor of Economics
YOUNG, EDWIN, *Ph.D.*, Associate Professor of Economics

ADMISSION

I. CANDIDATES FOR THE DEGREE

Candidates for the degree of Bachelor of Laws are required to have completed satisfactorily, before their admission to the Law School, three full years of college work equivalent to the first three years of either of the General Courses (B.A. or B.S.) in the College of Letters and Science of the University of Wisconsin, or the first three years of the course in the School of Commerce of this University leading to the degree of Bachelor of Business Administration. (As to students in engineering, see below under heading: Combined Course: Engineering and Law.)

The requirement of three years of college work may be satisfied by work done either in the University of Wisconsin or in any college or university officially recognized by the University of Wisconsin. An applicant for admission to the Law School from a college or university other than the University of Wisconsin should obtain an application blank from the Office of Admissions, Bascom Hall, University of Wisconsin. Applicants should have a transcript of their college work sent for evaluation to that office.

In addition, applicants for admission must have either:

(a) A grade-point average of at least 2.5 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 2.0 (or, in the case of a student entering the Law School from another institution, its equivalent).

For the information of students desiring to enter the Law School from institutions other than the University of Wisconsin, a 2.5 grade-point average in the University represents grades in an equal proportion of B credits to C credits.

Students may enter the Law School at the beginning of the first or second semester or the summer session.

II. SPECIAL STUDENTS

Applicants for admission who are not candidates for a law degree may be admitted as special students provided they have had college work or have passed an examination showing the possession of educational experience equivalent, in either case, 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 afforded other students. An opportunity is thus given to prepare for bar examinations in this and other states. In Wisconsin, under the rules of the supreme court, special students with only two years of prelaw preparation must take four years of law in order to be eligible to take the bar examination. A four-year law course for such students can be arranged. A special student who, after entering the Law School, chooses to complete the prelaw 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 prelaw work has not been taken in this University should send a transcript of their credits to the Office of Admissions (see Section I above).

III. ADVANCED STANDING

Applicants who are qualified to enter the Law School as candidates for a degree, and who have satisfactorily completed resident work in a law school of good standing having a three-year course, will be given equivalent rank in this school upon presenting properly authenticated certificates of such work. The right is reserved to give credit only if the student's work in the school is satisfactory; and, in the case of students whose last year only, or whose last year and one-third, is spent in this Law School, a weighted average of at least 80 in all of his work at this school will be required for graduation. All persons who intend to apply for advanced standing under the above rule should, at least two weeks before the opening of the particular session which they desire to attend, forward a transcript of their prelaw and law credits to the Office of Admissions (see Section I above).

COMBINED COURSES

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, have earned at least 90 credits, and are scholastically eligible to enter the Law School may, in their senior year, elect subjects in the Law School and credit this work to the extent of 30 credits toward both the Letters and Science and the Law degrees.

COMMERCE AND LAW

Students in the School of Commerce who are scholastically eligible to enter the Law School and who have completed 96 credits toward the Bachelor of Business Administration degree may elect law subjects and apply them to the extent of 30 credits to both the Business Administration and Law degrees.

Students registered in the Law School who are carrying a minimum of six credits in that school are permitted to elect as a part of their Law studies and to apply toward the degree of Bachelor of Laws in lieu of accounting courses offered in the Law School, a total of not to exceed five credits from among the following courses offered in the School of Commerce:

COMMERCE 183—Income Tax and Consolidation, 2 cr.
COMMERCE 184—Auditing, 3 cr.
COMMERCE 186—Systems, 2 cr.
COMMERCE 187—Governmental Accounting, 2 cr.

ENGINEERING AND LAW

Students in the College of Engineering who are scholastically eligible to enter the Law School and who have completed three quarters of the credits necessary for their respective Bachelor of Science degrees in Engineering may elect Law courses and apply the credits earned to both a Law degree and an Engineering degree. For the details of this plan, students should consult the bulletin of the College of Engineering.

The Law School offers a course in Patent Law. This course should be of particular interest to students with Engineering training.

PRELAW STUDIES

The Law Faculty does not believe in the desirability of a rigidly defined prelaw curriculum. Facility in language, written and spoken, clarity of reasoning and analysis, including the ability to make valid comparisons and differentiations, a perception of the social, political and economic factors in human relations, and a sense of moral values, are some of the objectives which should be sought by the student in his choice of undergraduate studies.

The Law Faculty specifically recommends that prelaw students attain a knowledge of elementary accounting principles before entering the Law School whenever possible.

The College of Letters and Science at the University of Wisconsin offers broad training in the principal social studies through the major in American Institutions (for which see the Letters and Science bulletin).

STUDIES OUTSIDE THE LAW SCHOOL

Students in the Law School may pursue, without additional fees, studies in other schools or colleges of the University.

FEES AND EXPENSES

See section entitled Student Expense, page 13.

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 90 credits (64 of the 90 credits are the required courses of the first and second years and the course in Evidence of the third year) with a weighted average of 77. This requirement is effective with the law class entering in the summer of 1954.

(2) Residence of at least three years in law schools of good standing, the last year 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.

(3) An apprenticeship in a law office of not less than six months except as provided below. This apprenticeship, which may be completed in periods of not less than two months, may be served within or without Wisconsin, but only at a time when the candidate is not in residence at the University, and only after he shall have received credit for not less than twenty semester hours in this or another law school. Each apprentice must comply 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 begins; (b) a like certificate showing the date of completion of the clerkship must be filed at the completion of the period; and (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 be filed.

The apprenticeship requirement may be absolved by spending in residence a summer session in addition to the six semesters residence required of all students and taking the summer course in Legal Problems.

The University of Wisconsin Law School Certificate in Law is awarded upon completion of the resident work required for the degree of Bachelor of Laws, conditions (1) and (2) above.

ADMISSION TO THE BAR

The statutes of the State provide in effect that any graduate of the Law School who is twenty-one years of age and of good moral character, a citizen of the United States, and a resident of the State 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. (Wis. Stat. 256.28 (1953))

Under this statute and rules of the Supreme Court it is customary for the qualified members of the graduating class, on motion of the Dean of the Law School, to be admitted to the Supreme Court of the State. This admits them to the bar of any court of record of the State of Wisconsin and qualifies them for admission to the United States District Courts.

GRADUATE LAW DEGREES

IN GENERAL

The Law School offers advanced students the opportunity to pursue programs looking toward either a Master of Laws (LL.M.) or a Doctor of Juridical Science (S.J.D.) degree. It is considered proper that considerable flexibility be left for the shaping of individual programs; therefore, students who can satisfy the general requirements set forth below are invited to consult or correspond with the Research Committee of the Law Faculty on the particular form of programs which they might follow. Address inquiries to Dean of the Law School, Attention: Research Council.

In general, the Law School expects that (1) a candidate for the LL.M. will elect more course work than a student seeking the S.J.D., and (2) an LL.M. program will contemplate a research project of a scope and character likely to produce an article suitable for publication in a professional journal, whereas the principal emphasis of an S.J.D. program will be upon a research project of a scope and character likely to produce a monograph or book.

LL.M. DEGREE

(1) Admission Requirements. Candidates shall have completed the requirements for a Certificate in Law from the University of Wisconsin Law School or the equivalent thereof from another law school having comparable requirements, and shall be approved by the Dean of the Law School. Normally candidates must rank within the upper 20 per cent of their graduating class.

(2) Graduation Requirements. Candidates shall satisfactorily complete an approved program of study and research and spend one academic year in residence.

S.J.D. DEGREE

The degree of Doctor of Juridical Science is offered primarily for the advancement of legal research. This research may be conducted by the student under faculty supervision or may be satisfied by part-time service in an agency of the state government.

(1) Admission Requirements. Candidates shall possess the requirements for admission to the LL.M. degree and, in addition, must have done promising work in law school, normally of quality sufficient to place him in the upper 10 per cent of his class. The school accepts only candidates who have a serious, well-informed research interest and some demonstrated competence for independent inquiry.

(2) Graduation Requirements. Candidates must (a) spend at least an academic year in residence; (b) satisfactorily complete such course work as the Research Committee specifies (consistent with the research emphasis of the S.J.D. program, a minimum of course work is required); (c) accomplish an original, independent research project approved by the committee; and (d) submit at least the outline of a thesis, together with proof of substantial progress toward its completion during the period of residency. The degree will be granted upon the submission and approval of the thesis not earlier than the end of the first semester after the year in residency.

GRADUATE SCHOOL

MASTER'S DEGREE IN LEGAL INSTITUTIONS

The Graduate School offers a program of study leading to the Master of Arts or the Master of Science Degree in Legal Institutions for those American and foreign students who desire a general nonprofessional knowledge of American legal institutions. The conditions for admission to candidacy and the requirements for the Master's Degree in Legal Institutions are set forth in the section on the Graduate School.

MINORS IN LAW

Subject to the rules of the Graduate School and the department or departments concerned, work in the Law School may be offered as a minor toward a degree in the Graduate School. The Law School encourages graduate minors in law, not only in the belief that some professional training in handling legal materials can enrich related social science research, but also because of the stimulation which such students bring to the law faculty and the regular body of law students.

SUMMER SESSION

The Law School offers a ten-week summer session during which credit for one-third of a year of residence can be obtained.

LAW CURRICULUM

FIRST LAW SCHOOL YEAR (REQUIRED)

Orientation Period for entering students: 3 days, Thursday, Friday and Saturday preceding the opening of classes.

First Semester	Credits	Second Semester	Credits
Torts (a)	2	Torts (b)	4
Contracts (a)	3	Contracts (b)	3
Property (a)	2	Property (b)	3
Law in Society	3	Restitution	2
Civil Procedure (a)	4	Civil Procedure (b)	2
Legal Writing	1	Legal Writing (including Moot Court)	1
	15		15

SECOND LAW SCHOOL YEAR (REQUIRED)[1]

First Semester	Credits	Second Semester	Credits
Constitutional Law[2]	4	Taxation I	3
Trusts and Estates	4	Business Organizations[3]	4
Bills and Notes	2	Criminal Law (b)	2
Criminal Law (a)	2	One of:	
Real Estate Transactions I	3	Creditors Rights Secured Transactions Sales of Chattels	3
		One of:	
		Trade Regulation Public Utilities Legislation Labor Relations Law Protective Labor Legislation	3
	15		15

[1] This second-year program becomes effective 1955–56

[2] The constitutional law requirement does not apply to students who exhibit a satisfactory record in Political Science 112 (a) *and* (b) at this University, or in substantially equivalent work elsewhere. Such students may elect other law school courses to fill out their programs.

[3] Ability to understand a corporate balance sheet and income statement is requisite to the course in Business Organizations. That ability may be demonstrated by either (a) a record of satisfactory course work in accounting at this University or elsewhere, or (b) the return, at the opening of the student's second law school year, of adequate solutions of written problems issued at the close of the previous semester, and a satisfactory showing on an attainment examination to be given during the first week of the second year.

THIRD LAW SCHOOL YEAR REQUIRED WORK

First Semester	Credits	Second Semester	Credits
Evidence (a)	2	Evidence (b)	2

The balance of the third year is elective. Alternatives among the required courses, not taken by the student as part of his required work, may be elected. The number of seminars which a student may elect is limited, in the absence of special permission of the Dean, to one a semester, and a total of not more than two as part of his undergraduate program.

COURSE DESCRIPTIONS

REQUIRED COURSES

First Year

Civil Procedure. (a) 4 cr. The elements of a modern civil action; background of the modern action; pleading, discovery and pre-trial devices; the trial.

(b) 2 cr. Jurisdiction of courts; effect of judgments; parties to civil actions; appeals.

Contracts. (a) 3 cr. Formation, mutual assent, consideration, significance of seals, promissory estoppel, significance of writing.

(b) 3 cr. Performance, and other forms of discharge. Rights of non-parties.

Law in Society. 3 cr. The nature, sources and developments of law; the structure and functions of courts and other agencies; the interests served by law and the conflicts which

mark the growth and administration of law; and the relation of law to other social sciences and other agencies of social control. The course is woven about an illustrative study of the law of industrial accidents.

LEGAL WRITING. (a) 1 cr. This course has a two-fold aim: (1) to acquaint students with law books and their use, and (2) to provide all entering students with experience similar to that of a practicing lawyer when a client brings his troubles to him: i.e., determination and analysis of the legal problems involved, complete research into the applicable law, and the organization and lucid presentation of this material in legal opinions and written memoranda. The course also includes some objective exercises in the use of law books. There is one lecture a week and personal conferences are held with students on their written projects.

(b) (including Moot Court) 1 cr. A continuation of the first-semester course and consists of three or four written projects, including an appellate brief, which will be argued in Moot Court.

PROPERTY. (a) 2 cr. Original acquisition, findings, gifts, bailments, liens, fixtures.

(b) 3 cr. Historical introduction, estates in land—fee simple, fee tail, life estates, terms for years and other non-freehold estates, future estates and interests, co-tenancies.

RESTITUTION. 2 cr. Relief at law and in equity for misrepresentation, mistake and duress.

TORTS. (a) 2 cr. Intentional harms to persons and property; invasion of interests in reputation, and privacy.

(b) 4 cr. Unintentional harms to persons and property.

Second Year

BILLS AND NOTES. 2 cr. The general principles governing bills of exchange, promissory notes, checks and other commercial paper, and the interpretation of Uniform Commercial Acts; rules relating to deposit and collection of commercial paper.

BUSINESS ORGANIZATIONS. 4 cr. An introduction to the law of business corporations and the fundamentals of agency and partnership.

CONSTITUTIONAL LAW. 4 cr. The federal system; procedural and substantive rights of persons.

CREDITORS RIGHTS. 3 cr. Judgments, executions, attachments, garnishments, assignments for the benefit of creditors, and bankruptcy.

CRIMINAL LAW. (a) 2 cr., (b) 2 cr. The criminal law as a means for the prevention or control of crime, including: substantive definition of criminal behavior; concepts utilized in the treatment of criminals; administrative problems including constitutional limitations and criminal procedure.

LABOR RELATIONS LAW. (Union Management Relations.) 3 cr. Collective bargaining and arbitration; negotiating and interpreting the labor agreement; illegal employer and union practices and remedies; including proceedings under the National Labor Relations Act and analogous state acts.

LEGISLATION. 3 cr. The use of statutes and legislative materials in litigation and decision; problems of the lawyer in the drafting and interpretation of statutes, in representation of the client before legislative bodies, and in the presentation and argument of statutory authorities to a court.

PROTECTIVE LABOR LEGISLATION. (Minimum standards of employment through legislation rather than collective bargaining.) 3 cr. Legal protection of individual workers through Workmen's Compensation, Fair Labor Standards, Unemployment Compensation, Social Security and similar legislation.

PUBLIC UTILITIES. Presents the various aspects of the regulation of public utilities—the legal controls over price, supply and service—in the context of the problems of a related group of utilities—the rail, motor, water and air transport industries. The course will emphasize the interaction between the legislature, the administrative agencies and the courts in the development of regulatory policy and the relationship between the regulatory and antitrust policies.

REAL ESTATE TRANSACTIONS I. 3 cr. Basic legal elements of real estate transfer and finance: the real estate recording system, land description, requirements as to writing, and elementary contract and mortgage law.

SALES OF CHATTELS. 3 cr. Contracts resulting in the transfer of title to personal property and the special rights and remedies of buyer and seller.

SECURED TRANSACTIONS 3 cr. The law concerning security in all kinds of personal property.

TAXATION I. 3 cr. The general principles of property, inheritance and income taxation.

TRADE REGULATION. 3 cr. The law concerning methods of competition in business, with considerable reference to the responsibilities of administrative agencies in the field. Trademarks, unfair competition, price maintenance, price discrimination.

TRUSTS AND ESTATES. 4 cr. Intestate succession, substitutes for wills, substantive aspects of wills and trusts, types of future interests, powers of appointment, construction of typical limitations, illegal limitations, the rule against perpetuities and associated rules.

Third Year

EVIDENCE. (a) 2 cr., (b) 2 cr. The general nature of a trial of an issue of fact, of evidence, and of the legal rules of evidence, and a particular study of judicial notice, burden of proof and presumptions, problems of remoteness and of undue prejudice, the examination of witnesses, illegally obtained evidence, opinion, hearsay, the parol evidence rule and interpretation, and the functions of judge and jury.

ELECTIVE COURSES

The following program of courses will become effective as third-year electives for students entering Law School in June 1954 and thereafter. It is subject to change.

ACCOUNTING AND LAW. 3 cr. Principles of accounting with which lawyers should be familiar, more intensive than elementary accounting courses.

ADMINISTRATIVE LAW. 3 cr. The function and procedure of administrative board and commissions; judicial relief from their decisions and orders.

APPELLATE ADVOCACY. 2 cr. The problems involved in the preparation of briefs and oral arguments in state and federal appellate courts. Practice in writing briefs and presenting oral argument in different types of cases; critical study of alternative types of argumentative strategy. Consideration is on a more intensive basis than is possible in the freshman Moot Court program.

AUTOMOBILE ACCIDENTS. 3 cr. Liability and compensation for automobile accidents. Wisconsin law is stressed.

BUSINESS ORGANIZATIONS II. 3 cr. Advanced work in the law relating to business organizations with emphasis on the financing, regulation, reorganization and management problems of business corporations.

COMPARATIVE LAW. 3 cr. Scope and value of the comparative method explained. Some technical skill in handling foreign law situations is aimed at, but the ultimate emphasis is on the search for the common values in as well as the differences between the American and the civil law systems.

CONFLICT OF LAWS. 3 cr. The rules applied by courts in recognizing and enforcing rights involving fact elements which occurred in a sister state or foreign country.

DOMESTIC RELATIONS. 2 cr. The law relating to the family: husband and wife, parent and child, infancy, marriage and divorce.

FEDERAL JURISDICTION AND PROCEDURE. 2 cr. Jurisdiction, venue, and procedure in civil and criminal actions in federal court. Appeals in the federal system.

FIDUCIARY ADMINISTRATION. 2 cr. The administration of trusts and decedents' estates.

INCOME TAX ACCOUNTING. 2 cr. Specialized work in income taxation accounting. Prerequisite: Accounting and Law or its equivalent.

INSURANCE AND SURETYSHIP. 4 cr. Common and statutory law of fire, life, liability and other forms of insurance, including Wisconsin policy forms and statutes and regulation of insurance companies; obligations and recourse of sureties, including subrogation and principles of risk-shifting and risk-sharing.

INTERNATIONAL LAW. 3 cr. The new legal, political, socio-economic and organizational concepts of the contemporary international and world law.

INVESTMENT SECURITIES AND BANK PAPER. 2 cr. Deals with the transfer and negotiation of investment securities, and with bank deposits and collections. Supplements the required course in Bills and Notes dealing primarily with bills, checks and drafts.

JURISPRUDENCE. 3 cr. The philosophies of law; an analysis of the nature of law and its basic concepts; law as a science and its relation to social science; the judicial, legislative and administrative processes.

LAND USE CONTROLS. 3 cr. Legal tools and devices for carrying out private and public land use plans—including restrictive covenants, official maps, subdivision regulation, zoning, etc.

MILITARY LAW. 2 cr. Important aspects of the law relating to Military Justice, military government, and legal status of military personnel and property.

MODERN AMERICAN LEGAL HISTORY. 3 cr. The relation of law to some main currents in political, social and economic thought in the United States; appraisal of the social function of constitution-making processes, the legislature, the courts, the bar, and the executive branch in United States society.

MUNICIPAL CORPORATIONS. 4 cr. The general nature and rights and liabilities of public corporations (counties, cities and towns).

OFFICE PRACTICE. 2 cr. Instruction and practical work in drafting offers to purchase, deeds, mortgages, land contracts, wills, leases, bills of sale and chattel mortgages; examining abstracts; clearing title defects; closing a real estate transaction; probating estates; terminating joint tenancies; termination of tenancies and unlawful detainer; filing mechanics liens; and the procedure in attachment, garnishment, execution and supplementary proceedings. Not recommended for students having less than 50 credits or planning to take the summer session course in Legal Problems. No credit given to those who *have taken* the course in Legal Problems.

PATENT AND COPYRIGHT LAW. 3 cr. Substantive and procedural law of patents and copyright; the nature and scope of the respective grants and rights flowing from them; relation to the antitrust and other trade regulation laws.

REAL ESTATE TRANSACTIONS II. 3 cr. Advanced aspects of real estate transfer and finance; treatment of specific land contract, mortgage and conveyancing problems.

SURETYSHIP. 2 cr. Rights and obligations among principle debtor, his creditor and his surety.

TAXATION II. 2 cr. Advanced problems in federal income taxation including the taxation of the income of individuals, corporations, partnerships, trusts and estates; federal income tax procedure. Prerequisite: Taxation I or its equivalent.

TRIAL COURT. 1 cr. The drafting of pleadings, making of motions and trial of hypothetical cases before a faculty member as judge and a six-man student jury. Other law students ordinarily act as witnesses. Students are paired in teams of two.

SEMINARS

(Since seminars have a limited enrollment, election in each instance is subject to the consent of the instructor.)

CIVIL LIBERTIES AND RIGHTS. 2 cr. The current state of the law protecting the civil liberties and rights of the people, emphasizing the problems in this field which have been made acute by the increasing tension in the relations between nations and attempting to evaluate the proposed solutions.

COLLECTIVE BARGAINING. 4 cr. Joint seminar with the Department of Economics. Basic problems in collective bargaining, and modern developments. Emphasis is placed on correlating the factual approach with legal and economic theory, in the negotiation and interpretation of collective bargaining agreements. Prerequisite: Labor Relations Law or its equivalent.

COOPERATIVES, LEGAL-ECONOMIC ASPECTS. 2 cr. Joint seminar with the Department of Agricultural Economics. The cooperative form of business enterprise, both in the marketing of agricultural products and in other situations.

ESTATE PLANNING. 2 cr. Legal aspects of property arrangements, inter vivos and testamentary, to effectuate the owner's desires for family protection; development of typical estate plans with due consideration for tax consequences, insurance, administration, and drafting necessary legal documents. Prerequisite: Fiduciary Administration, unless waived by instructor.

IMPERFECT COMPETITION AND THE LAW. 2 cr. Joint seminar with the Department of Economics. The antitrust laws and economic theories relating to competition, monopoly and imperfect competition, including examination of the causes and extent of concentration and control in American industry.

INTERNATIONAL ORGANIZATIONS. 2 cr. Joint seminar with the Department of Political Science. The constitutional law of the United Nations, World Court and other international organizations; their legal relations to each other and to their member states; their activities in developing world law and in settling disputes by legal process.

JUDICIAL PROCEDURE. 2 cr. A study of the goals of the judicial action, and of the elements common to the various kinds of actions, civil and criminal. Each group will study intensively one procedural area; individual papers will point out present problems, and indicate needed corrections.

SCIENTIFIC EVIDENCE. 2 cr. Given with the cooperation of the Wisconsin State Crime Laboratory. The ways and means by which modern scientific knowledge and techniques can or should be applied in the trial of issues of fact before courts and administrative tribunals.

U. S. SUPREME COURT. 2 cr. The Court's work during the current term.

SUMMER WORK IN LEGAL PROBLEMS. Instruction and practical work in drafting options, offers to purchase, deeds, mortgages, land contracts, wills, leases, bills of sale and chattel mortgages; examining abstracts; clearing title defects; checking records in county offices; estate planning; probating estates; adoption; guardianship; name change; foreclosing

mortgages; filing and foreclosing mechanics liens; justice court practice; attachment; garnishment; replevin; termination of tenancies and unlawful detainer; criminal procedure; bankruptcy; law office management; divorce; preparation of estate and income tax returns; and practice before administrative agencies in workmen's compensation and other matters. Judges, governmental officials and practicing attorneys act as guest lecturers. Trials and hearings are conducted before actual judges and examiners of the various governmental agencies. Prerequisite: 50 or more credits. This course is an alternative to office apprenticeship.

MEDICAL SCHOOL

JOHN Z. BOWERS, *M.D.*, Dean
WALTER J. MEEK, *Ph.D.*, Emeritus Dean
OTTO A. MORTENSEN, *M.D.*, Associate Dean

EXECUTIVE COMMITTEE OF THE MEDICAL SCHOOL

J. Z. BOWERS, *M.D.*, Chairman
E. H. ACKERKNECHT, *M.D.*
D. M. ANGEVINE, *M D.*
R. E. CAMPBELL, *M.D.*
P. P. COHEN, *M.D.*
H. M. COON, *M.D.*
A. P. CROSLEY, *M.D.*
O. O. MEYER, *M.D.*
O. S. ORTH, *M.D.*
O. A. MORTENSEN, *M.D.*
E. A. POHLE, *M.D.*
H. H. REESE, *M.D.*
E. R. SCHMIDT, *M.D.*
C. V. SEASTONE, *M.D.*
F. E. SHIDEMAN, *M.D.*
W. D. STOVALL, *M.D.*
W. B. YOUMANS, *M.D.*

ACADEMIC STAFF

ACKERKNECHT, ERWIN HENRY, *M.D.*, Professor of History of Medicine
AKERT, KONRAD, *M.D.*, Associate Professor of Physiology
ALBRIGHT, EDWIN CARTER, *M.D.*, Associate Professor of Medicine
ALLIN, ROBIN N., *M.D.*, Assistant Clinical Professor of Medicine (VA)
ANDERSON, JEANNE, *M.D.*, Assistant Professor of Anesthesiology
ANDREA, JOHN JACOB, *B.S.*, Instructor in Medical Electronics
ANGEVINE, DANIEL MURRAY, *M.D.*, Professor of Pathology
ANTONIUS, LESLIE EARL, *D.D S.*, Assistant in Dental Surgery
ANTONIUS, LESTER MERLE, *D.D.S.*, Assistant in Dental Surgery
BAMFORTH, BETTY JANE, *M.D.*, Associate Professor of Anesthesiology
BAST, THEODORE HEIRONYMUS, *Ph.D.*, Professor of Anatomy
BENNETT, ELEANOR MAXINE, *M.D.*, Associate Professor of Otolaryngology
BENTLEY, JOHN EDWARD, *M.D.*, Associate Professor of Clinical Medicine and Associate Director of Student Health
BERGER, JOHN VAN EMAN, JR., *M.D.*, Assistant Clinical Professor of Ophthalmology
BERNARD, FRANK DONALD, *D.D.S.*, *M.D.*, Associate Clinical Professor of Plastic Surgery
BORING, WILLIAM DAVID, *Ph.D.*, Instructor in Medical Microbiology
BOUMAN, HARRY DAN, *M.D.*, Professor of Physical Medicine
BOUTWELL, ROSWELL KNIGHT, *Ph.D.*, Associate Professor of Oncology
BRADLEY, HAROLD CORNELIUS, *Ph.D.*, Emeritus Professor of Physiological Chemistry
BRIGGS, DOROTHY IRENE, *M S.*, Assistant Professor of Physical Medicine
BRINDLEY, BENJAMIN I., *M.D* , Associate Clinical Professor of Otolaryngology (VA)
BROWN, RAYMOND R., *Ph.D.*, Assistant Professor of Oncology
BRYCE, MARGARET EVELYN, *B.S.*, Assistant Professor of Physical Medicine
BUNTING, CHARLES HENRY, *M.D.*, Emeritus Professor of Pathology
BURNS, ROBERT EMMETT, *M.D.*, Professor of Orthopedic Surgery
CAMPBELL, RALPH EMERSON, *M.D.*, Professor of Obstetrics and Gynecology
CLARK, PAUL FRANKLIN, *Ph.D.*, Emeritus Professor of Medical Microbiology
COHEN, PHILIP PACY, *M.D.*, Professor of Physiological Chemistry
COON, HAROLD MACOMBER, *M.D.*, Professor of Hospital Administration and Superintendent of Hospitals
COOPER, GARRETT ARTHUR, *M.D.*, Assistant Professor of Dermatology
CRAWFORD, HELEN, *M.A.*, Associate Professor, Medical Library
CREPEA, SEYMOUR BERNARD, *M.D.*, Assistant Professor of Medicine

Crosley, Archer Phleger, *M.D.*, Associate Professor of Medicine and Director Student Health
Crumpton, Charles Whitmarsh, *M.D.*, Assistant Professor of Medicine
Curreri, Anthony Rudolph, *M.D.*, Professor of Surgery; Director, Tumor Clinic
Curtis, John Kimberly, *M.D.*, Clinical Professor of Medicine (VA)
Davis, Frederick Allison, *M.D.*, Emeritus Professor of Ophthalmology
Davis, Frederick Jefferson, *M.D.*, Assistant Clinical Professor of Ophthalmology (Military leave)
Davis, Vernam Terrell, *M.D.*, Associate Clinical Professor of Psychiatry
Dawe, Albert R., *Ph.D.*, Assistant Professor of Physiology
Deutsch, Harold Francis, *Ph.D.*, Associate Professor of Physiological Chemistry
Dickie, Helen Aird, *M.D.*, Professor of Medicine and Preventive Medicine
Duehr, Peter Alexander, *M.D.*, Clinical Professor of Ophthalmology
Eichman, Peter L., *M.D.*, Research Associate, Neuropsychiatry
Enos, Francis A., *Ph.D.*, Clinical Instructor in Neuropsychiatry
Erickson, Theodore Charles, *M.D., Ph.D.*, Professor of Surgery
Evans, Alfred Spring, *M.D.*, Associate Professor of Preventive Medicine
Eyster, John Augustine English, *M.D.*, Emeritus Professor of Physiology
Fey, William Frederick, *Ph.D.*, Assistant Professor of Clinical Psychology
Foerster, Otto Hottinger, *M.D.*, Emeritus Professor of Dermatology
Foster, Mark A., *Ph.D., M.D.*, Assistant Clinical Professor of Medicine (VA)
Gale, Joseph Wasson, *M.D.*, Professor of Surgery
Gane, Sally Louise, *M.A.*, Assistant Professor of Social Work
Geist, Frederick Denkmar, *M.D.*, Associate Professor of Anatomy
Gillespie, Noel Alexander, *M.D.*, Associate in Anesthesiology
Gilson, Warren Ellsworth, *M.D.*, Assistant Professor of Medical Electronics
Glover, Benjamin Howell, Jr., *M.D.*, Assistant Professor of Neuropsychiatry
Gonce, John Eugene, Jr., *M.D.*, Professor of Pediatrics
Gordon, Edgar Stillwell, *M.D.*, Professor of Medicine
Greenfield, Norman Samuel, *Ph.D.*, Assistant Professor of Preventive Medicine and Clinical Psychology
Harper, Carl Samuel, *M.D.*, Associate Clinical Professor of Obstetrics and Gynecology
Hartmann, Henrik A., *M.D.*, Assistant Professor of Pathology
Heidelberger, Charles, *Ph.D.*, Associate Professor of Oncology
Herrin, Raymond Clyde, *Ph.D., M.D.*, Professor of Physiology
Hibma, Otto V., *M.D.*, Instructor in Anatomy
Holford, Frances Elizabeth, *Ph.D.*, Associate Professor of Medical Microbiology
Jaeschke, Walter Henry, *M.D.*, Professor of Clinical Pathology
Javid, Manucher, *M.D.*, Assistant Professor of Neurosurgery
Joachim, Frederick George, *M.D.*, Assistant Clinical Professor of Surgery (VA) and Instructor in Anatomy
Johnson, Sture, *A.M., M.D.*, Professor of Dermatology and Syphilology
Jorris, Edwin Hall, *M.D.*, Lecturer in Public Health and Preventive Medicine
Juhl, John H., *M.D.*, Associate Professor of Radiology
Kant, Fritz, *M.D.*, Professor of Neuropsychiatry
Kitze, Lois Katherine, *M.S.*, Assistant Professor of Medical Microbiology
Kohli, Margaret Ann, *B.S.*, Associate Professor of Physical Medicine
Korst, Donald Richardson, *M.D.*, Instructor in Medicine
Kozelka, Frank Ludwig, *Ph.D.*, Professor of Clinical Pathology
Kundert, Palmer Rudolph, *M.D.*, Associate Clinical Professor of Urology (VA)
Kurtz, Chester Mott, *M.D.*, Professor of Clinical Medicine
Lalich, Joseph John, *M.D.*, Professor of Pathology
Larsen, Eleanor Marie, *Ph.D.*, Assistant Professor of Physiology
Larson, Frank Clark, *M.D.*, Assistant Clinical Professor of Medicine (VA)
Lemmer, Kenneth Elery, *M.D.*, Professor of Surgery

LePAGE, GERALD ALVIN, *Ph.D*, Professor of Oncology
LEWIS, WILLIAM C., *M.D.*, Assistant Clinical Professor of Neuropsychiatry (VA)
LORENZ, THOMAS HOLT, *M.D.*, Assistant Professor of Medicine
LORENZ, WILLIAM FREDERICK, *M.D.*, Emeritus Professor of Neuropsychiatry
LYSENKO, MICHAEL GEORGE, *Ph.D.*, Associate Professor of Medical Microbiology (also Zoology)
MANNERING, GILBERT JAMES, *M.D., Ph.D.*, Assistant Professor of Pharmacology and Toxicology
MATHIAS, RUDOLF, *M A.*, Instructor in Neuropsychiatry
MAXWELL, GEORGE M., *M.D.*, Assistant Professor of Pediatrics
McDONOUGH, KENNETH BERNARD, *M.D.*, Associate Professor of Pediatrics
McGILVERY, ROBERT WARREN, *Ph.D.*, Associate Professor of Physiological Chemistry
McIVER, FORDE A., *M.D.*, Assistant Professor of Surgery
MEEK, WALTER JOSEPH, *Ph.D.*, Emeritus Professor of Physiology
MENDENHALL, JOHN TALCOTT, *M.D.*, Assistant Clinical Professor of Surgery (VA)
MEYER, OVID OTTO, *M.D.*, Professor of Medicine
MIDDLETON, WILLIAM SHAINLINE, *M.D.*, Professor of Medicine (on leave)
MILES, MERYL MAE, *M.S*, Associate Professor of Anatomy
MILLER, JACK W., *Ph.D.*, Instructor in Pharmacology
MILLER, ELIZABETH CAVERT, *Ph.D.*, Associate Professor of Oncology
MILLER, JAMES ALEXANDER, *Ph.D.*, Professor of Oncology
MOHS, FREDERIC EDWARD, *M.D.*, Associate Professor of Chemosurgery
MORRISON, PETER REED, *Ph.D.*, Associate Professor of Physiology
MORTENSEN, OTTO AXEL, *M D.*, Professor of Anatomy and Associate Dean of Medical School
MOSSMAN, HARLAND WINFIELD, *Ph D.*, Professor of Anatomy
MUELLER, GERALD CONRAD, *M.D., Ph.D.*, Associate Professor of Oncology
MURPHY, ROBERT C., *M.S.*, Instructor in Anatomy
MURPHY, QUILLIAN RUFUS, JR., *M.D., Ph.D.*, Associate Professor of Physiology
MUSSER, MARC JAMES, *M.D.*, Professor of Medicine
NESBIT, MARK EDWIN, *M D.*, Instructor of Otolaryngology
NEUPERT, CARL NICHOLAS, *M.D.*, Lecturer in Public Health and Preventive Medicine
NICHOLS, MERLE STARR, *Ph.D.*, Professor of Sanitary Chemistry
NOLL, DAVID, *M.D.*, Instructor of Anesthesiology
OKAGAKI, HENRY ICHIRO, *M.D.*, Instructor in Orthopedic Surgery
OOSTERHOUS, GEORGE E., *M.D.*, Instructor in Ophthalmology (VA)
ORTH, OSWALD SIDNEY, *M.D., Ph.D*, Professor of Anesthesia
OSBORN, JOYCE LUCILLE, *B.S.*, Instructor in Physical Medicine
OSBORN, LESLIE ANDREWARTHA, *M.D.*, Director of Wisconsin Psychiatric Institute and Professor of Psychiatry
PARKIN, ROBERT CHARLES, *M.D.*, Coordinator of Graduate Medical Education and Assistant Professor of Clinical Medicine
PARKS, ROBERT EMMETT, *M.D., Ph.D.*, Assistant Professor of Pharmacology
PAUL, LESTER WARNER, *M D.*, Professor of Radiology
PETERS, HENRY AUGUSTUS, *M.D.*, Assistant Professor of Neuropsychiatry
PLATER, WADE RICHARD, *D.D.S.*, Clinical Assistant in Plastic Surgery
POHLE, ERNST ALBERT, *M.D., Ph.D.*, Professor of Radiology
POTTER, VAN RENSSELAER, *Ph.D.*, Professor of Oncology
PRICE, JAMES MELFORD, *Ph.D., M.D.*, Associate Professor of Clinical Pathology
PUESTOW, KARVER LOUIS, *M.D.*, Professor of Medicine
RANKIN, JOHN IAN, *M.B.*, Instructor in Medicine
REECK, LELAND K., *M.D.*, Clinical Instructor Neuropsychiatry
REESE, HANS HEINRICH, *M.D.*, Professor of Neuropsychiatry
RICHTSMEIER, ANTHONY J., *M.D*, Assistant Clinical Professor of Medicine (VA)
ROEMER, EDWARD PIER, *M.D.*, Assistant Clinical Professor of Neuropsychiatry
ROESSLER, ROBERT LOUIS, *M.D.*, Associate Professor of Neuropsychiatry
ROGERS, SION CLAY, *M.D.*, Assistant Clinical Professor of Orthopedic Surgery (VA)

ROUNDS, WAYNE M., *M.D.*, Instructor in Radiology
RUECKERT, RAY REGINALD, *M.D.*, Assistant Professor of Preventive Medicine
RUPP, KATHRYN LOIS, *B.S.*, Instructor in Clinical Pathology
RUSCH, HAROLD PAUL, *M.D.*, Director McArdle Memorial Laboratory; Professor of Oncology
SALLACH, HENRY J., *M.S.*, Assistant Professor of Physiological Chemistry
SCHILLING, ROBERT FREDERICK, *M.D.*, Assistant Professor of Medicine
SCHMIDT, ERWIN RUDOLPH, *M.D.*, Professor of Surgery
SCHUMM, HERMAN CHARLES, *M.D.*, Associate Professor of Orthopedic Surgery
SEASTONE, CHARLES VICTOR, *M.D.*, Professor of Medical Microbiology
SETTLAGE, PAUL HENRY, *M.D.*, *Ph.D.*, Associate Professor of Anatomy
SHAPIRO, HERMAN HARVEY, *M.D.*, Associate Professor of Clinical Medicine
SHIDEMAN, FREDERICK EARL, *Ph.D.*, *M.D.*, Professor of Pharmacology and Toxicology
SIEBECKER, KARL L., *M.D.*, Assistant Clinical Professor of Anesthesiology (VA)
SIMS, JOHN LEROY, *M.D.*, Associate Professor of Medicine
SLAUGHTER, WAYNE BENJAMIN, *M.D.*, *D.D.S.*, Clinical Professor of Plastic Surgery
SMITH, DONALD W., *Ph.D.*, Assistant Professor of Medical Microbiology
SPRAGUE, LINDLEY VINCENT, *M.D.*, Instructor in Clinical Medicine
STEINHAUS, JOHN EDWARD, *M.D.*, *Ph.D.*, Assistant Professor of Anesthesiology
STONE, WILLIAM ELLIS, *Ph.D.*, Associate Professor of Physiology
STOOPS, CHARLES W., JR., *M.D.*, Clinical Instructor in Medicine (VA)
STOVALL, WILLIAM DAVISON, *M.D.*, Director State Laboratory of Hygiene; Professor of Hygiene and Clinical Pathology
SUCKLE, HENRY MARVIN, *M.D.*, Assistant Clinical Professor of Neuropsychiatry (VA)
SULLIVAN, WALTER EDWARD, *Ph.D.*, Professor of Anatomy (on leave)
TABORSKY, CHARLES ROBERT, *M.D.*, Assistant Clinical Professor of Otolaryngology
TATUM, ARTHUR LAWRIE, *M.D.*, *Ph.D.*, Emeritus Professor of Pharmacology
TAYLOR, BENTON C., *M.D.*, Clinical Instructor in Medicine (VA)
TENNEY, HORACE KENT, JR., *M.D.*, Clinical Professor of Pediatrics
THOMPSON, CAROLINE GOSS, *B.A.*, Assistant Professor of Occupational Therapy
THORNGATE, ALICE ANGELIA, *B.A.*, Assistant Professor of Clinical Pathology
THORNTON, MADELINE JOSEPHINE, *M.D.*, Associate Professor of Obstetrics and Gynecology
THUROW, RAYMOND C., *D.D.S.*, Clinical Assistant in Plastic Surgery
WAISMAN, HARRY A., *M.D.*, Associate Professor of Pediatrics
WALKER, DUARD L., *M.D.*, Associate Professor of Medical Microbiology
WALTON, JUDITH, *M.D.*, Instructor in Preventive Medicine and Student Health
WASSERBURGER, RICHARD H., *M.D.*, Instructor in Clinical Medicine (VA)
WATERS, RALPH MILTON, *M.D.*, Emeritus Professor of Anesthesia
WATZKE, DONALD FRASER, *M.D.*, Instructor in Otolaryngology
WEAR, JOHN BREWSTER, *M.D.*, Professor of Urology
WEINSTEIN, ARVIN BERNARD, *M.D.*, Assistant Clinical Professor of Medicine (VA)
WESTON, FRANK LAWRENCE, *M.D.*, Clinical Professor of Medicine
WHEELER, CLARENCE J., *M.D.*, Fellow in Surgery
WILKIE, JAMES MACLEAN, *M.D.*, Assistant Clinical Professor of Medicine (VA)
WIRKA, HERMAN WENZEL, *M.D.*, Professor of Orthopedic Surgery
WOOLSEY, CLINTON NATHAN, *M.D.*, Charles Sumner Slichter Research Professor of Neuro-Physiology
YOUMANS, WILLIAM B., *M.D.*, Professor of Physiology
YOUNG, WILLIAM PAUL, *M.D.*, Assistant Professor of Surgery
ZURHEIN, MARIE G., *M.D.*, Instructor in Pathology

ASSOCIATE TEACHING STAFF

ASHLAND

FRANK D. WEEKS, M.D. ..... *Preceptor in Charge*

Associate Preceptors

W. E. BARGHOLTZ, M.D.
JOHN E. KREHER, M.D.
L. W. MOODY, M.D.
JOHN W. PRENTICE, M.D.
HOWARD V. SANDIN, M.D.
WILLIAM J. SMILES, M.D.

BRUCE

M. L. WHALEN, M.D. ..... *Preceptor in Charge*

Associate Preceptors

L. M. LUNDMARK, M.D.
J. E. MURPHY, M.D.
R. BENNETT, M.D.
H. F. PAGEL, M.D.
W.B.A.J. BAUER, M.D.

(Ladysmith, Wisconsin)

EAU CLAIRE

PETER A. MIDELFART, M.D. ..... *Preceptor in Charge*
HARTWIG M. STANG, M.D. ..... *Emeritus Preceptor*

Associate Preceptors

FIN G. ANDERSON, M.D.
JULIUS BLOM, M.D.
SAM L. HENKE, M.D.
A. W. HILKER, M.D.
DON E. HOFF, M.D.
CHARLES M. IHLE, M.D.
R. L. KENNEDY, M.D.
J. W. MERRITT, M.D.
H. D. NESTER, M.D.
W. O. PAULSON, M.D.
H. E. SORENSEN, M.D.
DON M. WILLISON, M.D.
JOHN H. WISHART, M.D.

JANESVILLE

A

RICHARD W. FARNSWORTH, M.D. ..... *Preceptor in Charge*

Associate Preceptors

FRANCIS M. FRECHETTE, M.D.
C. R. GILBERTSEN, M.D.
VINCENT W. KOCH, M.D.
MARSHALL F. PURDY, M.D.
A. L. REINARDY, M.D.
PAUL K. ODLAND, M.D.
E. W. REINARDY, M.D.
JACK SCHROEDER, M.D.
GEORGE L. THOMAS, M.D.
CAROL TOMLINSON, M.D.
THORNE L. VOGEL, M.D.
JOHN J. TORDOFF, M.D.

B

THOMAS J. SNODGRASS, M.D. ..... *Preceptor in Charge*

Associate Preceptors

M. MEREDITH BAUMGARTNER, M.D.
SAMUEL A. FREITAG, M.D.
GEORGE E. GUTMANN, M.D.
THOMAS O. NUZUM, M.D.
ERLAND R. OTTERHOLT, M.D.
ORRIN V. OVERTON, M.D.
JOHN F. PEMBER, M.D.
AUBREY H. PEMBER, M.D.
J. RICHARD SCHRODER, M.D.
HERBERT M. SNODGRASS, M.D.
STEWART F. RICHARDS, D.D.S.

LACROSSE

GUNNAR GUNDERSEN, M.D. ..... *Preceptor in Charge*

A

VICTOR J. BRUDER, M.D.
HARRY F. BURICH, M.D.
EDWARD S. CARLSSON, M.D.
MAY EILEEN DAVIES, M.D.
PAUL C. GATTERDAM, M.D.
ALF H. GUNDERSEN, M.D.
SIGURD B. GUNDERSEN, JR., M.D.
THOROLF E. GUNDERSEN, M.D.
JOHN C. HARMAN, M.D.
JAMES L. JAECK, M.D.
GEORGE J. KIRN, M.D.
ALMON R. MACEWEN, M.D.
ROWLAND W. LEIBY, M.D.
CHRISTIAN F. MIDELFORT, M.D.
EDWARD L. PERRY, M.D.
ROBERT W. RAMLOW, M.D.
ROBERT B. RASMUS, M.D.
GEORGE B. RIDOUT, M.D.
THOMAS RUTTER, M.D.
MARTIN SIVERTSON, M.D.
SIGURD E. SIVERTSON, M.D.

B

MATTHEW A. MCGARTY, M.D. ..... *Preceptor in Charge*

Associate Preceptors

J. J. AHLFS, M.D.
ARNOLD A. COOK, M.D.
ROBERT GILBERT, M.D.
EVERETT GUSTAFSON, M.D.
WILLIAM A. HIMMELSBACH, M.D.
RAYMOND HIRSCH, M.D.
J. P. MCCANN, M.D.
MARK T. O'MEARA, M.D.
JOHN SATORY, M.D.
ROBERT STARR, M.D.

MADISON

CITY HEALTH DEPARTMENT

CHARLES K. KINCAID ..... *Preceptor in Charge*
JAMES M. WILKIE, M.D.

WISCONSIN STATE BOARD OF HEALTH

CARL N. NEUPERT, M.D. ..... *Preceptor in Charge*
EDWIN HALL JORRIS, M.D. MILTON FEIG, M.D.

MADISON GENERAL HOSPITAL

N. A. HILL, M.D. ..... *Preceptor in Charge*

METHODIST HOSPITAL

ROBERT A. STRAUGHN, M.D. ..... *Preceptor in Charge*

ST. MARY'S HOSPITAL

ROBIN ALLIN, M.D. ..... *Preceptor in Charge*

MENDOTA STATE HOSPITAL

WALTER J. URBEN, M.D. ..... *Preceptor in Charge*

MARSHFIELD

K. H. DOEGE, M.D. ..... *Preceptor in Charge*

Associate Preceptors

R. S. BALDWIN, M.D.
F. A. BOECKMAN, M.D.
J. L. BURNS, M.D.
G. S. CUSTER, M.D.
H. C. DANGLE, M.D.
P. F. DOEGE, M.D.
S. EPSTEIN, M.D.
F. J. GOUZE, M.D.
J. R. HEERSMA, M.D.
N. J. HELLAND, M.D.
B. R. LAWTON, M.D.
R. F. LEWIS, M.D.

G. L. McCormick, M.D.
T. J. McDonell, M.D.
A. J. Macht, M.D.
G. E. Magnin, M.D.
R. W. Mason, M.D.
C. R. Montz, M.D.
R. P. Potter, M.D.
R. J. Rowe, M.D.
J. J. Suits, M.D.
T. J. Rice, M.D.
C. A. Vedder, M.D.
J. S. Vedder, M.D.
J. M. Wickham, M.D.

MILWAUKEE SOUTH VIEW ISOLATION HOSPITAL

Max J. Fox, M.D. ..... *Preceptor in Charge*

MONROE

Leslie G. Kindschi, M.D. ..... *Preceptor in Charge*

Associate Preceptors

George R. Barry, M.D.
Nathan E. Bear, M.D.
Ben H. Brunkow, M.D.
Eugene E. Eckstam, M.D.
Wayne J. Fencil, M.D.
Fred W. Kundert, M.D.
Dwain E. Mings, M.D.
Merlin J. Olson, M.D.
Robert W. Puckett, M.D.
John A. Schindler, M.D.
Paul W. Snowden, M.D.
Frank C. Stiles, M.D.
James R. Weir, M.D.
Keith B. Witte, M.D.
Robert Zach, M.D.

RHINELANDER

Warner S. Bump, M.D. ..... *Preceptor in Charge*

Associate Preceptors

Thomas H. Haug, M.D.
Rollin R. Osborne, M.D.
Warren K. Simmons, M.D.
George R. Thuerer, M.D.
Marvin Wright, M.D.

SHEBOYGAN

Paul B. Mason, M.D. ..... *Preceptor in Charge*

Associate Preceptors

A. B. C. Bock, M.D.
Friedrich Eigenberger, M.D.
Frederick G. Hidde, M.D.
W. G. Huibregste, M.D.
Jerry Wm. McRoberts, M.D.
F. A. Nause, M.D.
Edward G. Schott, M.D.
Lloyd M. Simonson, M.D.
Leslie Tasche, M.D.
Carl J. Weber, M.D.

WAUSAU

A

Walter T. Becker, M.D. ..... *Preceptor in Charge*

Associate Preceptors

John V. Flannery, M.D.
Richard C. Shannon, M.D.

B

Merritt LaCount Jones, M.D. ..... *Preceptor in Charge*

Associate Preceptors

Joseph M. Freeman, M.D.
Roy B. Larsen, M.D.
Ervin P. Ludwig, M.D.
Otis M. Wilson, M.D.

WINNEBAGO STATE HOSPITAL

John T. Petersik, M.D. ..... *Preceptor in Charge*

WESTBY

Phillips T. Bland, M.D. ..... *Preceptor in Charge*

Associate Preceptors

Raymond S. Hirsch, M.D.
Carl A. Ender, M.D.

MEDICAL SCHOOL

ADMISSION

All applicants for admission to the Medical School must have fulfilled the general entrance requirements of the University. See General Information, page 8.

By Regent ruling, preference will be given to residents who have graduated from Wisconsin secondary schools.

ADMISSION

First Year. A student wishing to apply for admission should send an official transcript of his college record to the Associate Dean of the Medical School not later than January 1 of the year in which he wishes to matriculate. If the credentials are satisfactory, an application form will be sent to the candidate for admission, to be fllled out and returned to the Associate Dean of the Medical School. All candidates will be notified of the action of the Admissions Committee as early as possible.

Second Year. Students from other institutions are not encouraged to apply for admission to this class, since vacancies rarely occur.

Third Year. A very limited number of applicants may be accepted for the third year.

MEDICAL SCHOOL CURRICULA

The university curriculum for candidates for the degree of Doctor of Medicine is divisible into three parts: preprofessional, preclinical and clinical. At the University of Wisconsin three years are required for the preprofessional period and two years each for the preclinical and the clinical. In the modern medical course the latter subdivision is no longer arbitrary. Co-ordination and integration are extending.

PREPROFESSIONAL REQUIREMENTS

The preprofessional part of the curriculum comprises college work required prior to matriculation in the Medical School. It may be combined with the preclinical part of the medical course thereby leading either to a Bachelor of Arts or a Bachelor of Science degree. If it extends through four years the Bachelor of Arts or the Bachelor of Science degree is usually received before matriculation in the Medical School.

Choice of Preprofessional Courses. The student who enters the College of Letters and Science with the intention of studying medicine registers in the B.S. or B.A. General Course. During the first two years his college faculty adviser will assist him to select a schedule of studies which will enable him to complete the required college work within the period of time which he desires to devote to preparation for the medical course. The Associate Dean of the Medical School is the adviser to all junior preprofessional students. At the beginning of the junior year, properly qualified students are admitted to a major in Medical Science. However, that major can only be completed by students who qualify for admission to the Medical School because the major study consists of a minimum of 25 credits of closely related medical subjects. It is essential, therefore, for each preprofessional student to consult with the Associate Dean regarding his program for the junior and senior years. It is possible to integrate the preprofessional program with majors in several fields of study if the

selection of courses is carefully planned. Undergraduate students who are admitted to the Medical School are registered concurrently as seniors in the College of Letters and Science and as freshmen in the School of Medicine.

Ninety college credits (3 years) are required previous to matriculation in the Medical School. All of the degree requirements of the B.A. or B.S. General Course, except those of the major (see College of Letters and Science), must be satisfied at the time of matriculation. The preprofessional training must include the following admission requirements of the Medical School. In general these subjects form an integral part of the B.S. or B.A. General Course.

1. Chemistry
   a. General (8–10 cr.) including qualitative analysis.
   b. Organic (4–5 cr.) including both aliphatic and aromatic compounds.
   c. Quantitative (3–4 cr.).
2. Physics
   a. General physics (8–10 cr.).
3. Zoology
   a. General zoology (5 cr.).
   b. Vertebrate embryology (3–5 cr.).
4. Mathematics
   a. College mathematics (3–4 cr.).
5. Origin of Greek and Latin Medical Terms (3 cr.). (Required of candidates who have not had two years of high-school Latin or its equivalent.)

If four years are spent in college work, the student has the choice of either broadening his course of study or of taking more advanced work in some special field. If a student expects to transfer to another medical school it is his responsibility to meet the admission requirements of that school.

SEMESTER FEES

	Resident	Nonresident
1st, 2nd and 3rd years	$170.00	$330.00
4th year	125.00	285.00

MEDICAL COURSES

Students are admitted for the complete four-year medical course. Combined with three years of preprofessional work, this course leads to the degree of Bachelor of Science, Medical Science, or Bachelor of Arts, at the conclusion of the first year in the Medical School. All students must obtain the bachelor's degree before advancement to the second year. Upon the successful completion of the four-year course, the degree, Doctor of Medicine, is granted.

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	5
Anatomy 121—Gross anatomy	6	Anatomy 126—Neural anatomy	4
Physiological Chemistry 104	5	Physiology 105—Medical physiology	9
Psychology 107—Medical psychology	2		
	18		18

SECOND YEAR

Medical Microbiology 102—General survey	5	Medicine 102—Clinical laboratory diagnosis	3
Pathology 101—General and special pathology	8	Medicine 111—Examination of patient	3
Medicine 110—Examination of patient	2	History of Medicine 121—Survey	2
Psycho-pathology 112	2	Pathology 102—Gross pathology	1
		Pharmacology 104	5
		Preventive Medicine 103—Hygiene	2
		Elective	2
	17		18

THIRD YEAR

Medicine 301—Third-year medicine	5	Medicine 301—Third-year medicine	4
Medicine 305—Therapeutics	1	Medicine 312—Neuropsychiatry	2
Medicine 310—Pediatrics	1	Surgery 301—Third-year surgery	4
Medicine 315—Dermatology	1	Surgery 311—Rhinology, otolaryngology	1
Surgery 301—Third-year surgery	6	Surgery 315—Orthopedics	1
Surgery 310—Ophthalmology	1	Surgery 325—Urology	1
Surgery 330—Obstetrics and gynecology	1	Surgery 330—Obstetrics and gynecology	2
Preventive Medicine 303	1	Surgery 314—Plastic surgery	1
		Medicine 316—Physical medicine	1
		Surgery 320—Radiography and radiotherapy	1
		Preventive Medicine 303	1
	17		19

FOURTH YEAR

Hygiene 401—Sanitation and public health	1	Surgery 405—Applied radiology	½
Medicine 401—Internal medicine	4	Surgery 401—General surgery	5
Medicine 410—Pediatrics	2	Surgery 410—Ophthalmology	½
Medicine 412—Neuropsychiatry	3	Surgery 411—Rhinology, laryngology, otology	½
Medicine 415—Dermatology	1	Surgery 425—Urology	2
Medicine 420—Medical jurisprudence and ethics	1	Surgery 415—Orthopedic surgery	½
Surgery 406—Obstetrics and gynecology	2	Thesis	3
Medicine 416—Applied physical medicine	1	Associate quarter	12
Preventive Medicine 403	1	Extramural quarter	8
	16		32

PRECLINICAL DIVISION

This comprises the work of the first two years of the medical course and embraces basic and intermediate groups of studies.

The work in the preclinical sciences is under the direction of specialists who devote their whole time to teaching and investigation. In each of the departments certain courses are

required of all medical students; others are elective. The required courses are designed to insure a broad basis for clinical medicine. The elective courses aid the students to gain depth of insight and special skill in a single branch. The elective courses also offer excellent opportunities to graduates who wish to specialize in some of the medical sciences and to physicians desiring to follow the progress of these sciences as a basis for research.

BASIC GROUP

Ordinarily taken in the first year of a four-year course. Prerequisite for the Intermediate Group.

	Course No.	Semester	Lectures Recitations	Laboratory Hours	Credits
Histology and Histogenesis	Anat. 110	I	32	112	5
Neural Anatomy	Anat. 126	II	32	112	4
Gross Anatomy and Morphogenesis	Anat. 121	yr.	64	320	11
Physiology	Phys. 105	II	96	96	9
Physiological Chemistry	Phys. Chem. 104	I	20	124	5
Medical Psychology	Psych. 107	II	16		2
			260	764	36

INTERMEDIATE GROUP

Ordinarily taken in the second year of a four-year course. Prerequisite for the Clinical Group.

	Course No.	Semester	Lectures Recitations	Laboratory Hours	Credits
Pathology	Path. 101	I	64	192	8
Psycho-pathology	Path. 112	I	16		2
Preventive Medicine	Med. 103	II	24	8	2
Gross Pathology	Path. 102	II		16	1
Medical Microbiology	Micro. 102	I	48	96	5
Pharmacology	Pharm. 104	II	64	48	5
Examination of Patient	Med. 110	I	32	64	2
Clinical Laboratory Diagnosis	Med. 102	II	30	90	3
Examination of Patient	Med. 111	II	16	32	3
Medical History	Med. 121	II	16		2
Electives		II	30		3
			340	546	36

CLINICAL DIVISION

For promotion to the work of this division a student must satisfactorily complete the required preprofessional and preclinical parts of the curriculum above, and must have a degree of Bachelor of Arts or Bachelor of Science. Regardless of areas of special proficiency, no student with a grade-point average of less than 3.0 (fair) will be advanced to the third year. The courses of this division are divided into two parts: an introductory clinical group and a preceptorial group.

The introductory clinical group of studies of the third year of the medical course is devoted to a consideration of the broader aspects of clinical medicine and of the major medical specialties and to practical work in care of patients in the wards and outpatient departments of the University Hospitals. This work is under the general direction of physicians who devote themselves to care of patients, and to teaching and research in the hospital. The teaching is supplemented by that of part-time men in some of the major specialties. Opportunity for advanced work in the medical sciences as well as for training in routine procedures is offered. Undergraduate instruction is pitched to the requirements of general practice and specialized training is reserved for graduate and postgraduate candidates.

The preceptorial group of studies of the fourth year of the medical course is designed to offer individual training in the art and science of medicine. Each student is assigned as an apprentice to a series of preceptors in medicine, surgery, and the major specialties. The

preceptors are selected on the basis of ability, experience, desire to teach, and clinical facilities available.

INTRODUCTORY CLINICAL GROUP

Ordinarily taken in the third year of a four-year medical course. Prerequisite for Preceptorial Group.

	Course No.	Semester	Lectures Recitations	Laboratory Hours	Credits
MEDICAL DIVISION					
General Medicine	Med. 301				9
a. Lectures		yr.	91		
b. Conferences		yr.	24		
c. Ward work		yr.		48	
d. Clinics		yr.		48	
e. Clinical Pathology Conference		yr.		32	
f. Therapeutic Conference	Med. 305	yr.			1
Dermatology	Med. 315				1
a. Lectures		I	32		
b. Clinics		yr.		8	
Pediatrics	Med. 310				1
a. Lectures		yr.	42		
b. Ward work		yr.		40	
c. Clinics		yr.		8	
Physical Medicine	Phys. Med. 316				1
a. Lectures		II	8		
b. Laboratory		II		8	
Neuropsychiatry	N.P. 312				2
a. Lectures		II	20		
b. Conferences		II	20		
c. Ward work		yr.		40	
d. Clinics		yr.		16	
Preventive Medicine	Prev. Med. 303	yr.			2
a. Lectures		yr.	32		
b. Conferences and Clinics		yr.		8	
SURGICAL DIVISION					
General Surgery	Surg. 301				10
a. Lectures		yr.	32		
b. Conferences		yr.	20		
c. Ward work		yr.		60	
d. Clinics		yr.		48	
e. Surgical Pathology Conference		yr.		32	
f. Experimental Surgery and Anesthesia		I		36	
g. Anesthesia and Resuscitation	Anes. 301	II	16		
Ophthalmology	Surg. 310				1
a. Lectures		I	16		
b. Ward work		yr.		20	
Otolaryngology and Rhinology	Surg. 311				1
a. Lectures		II	16		
Orthopedic	Surg. 315				1
a. Lectures		II	16		
b. Ward work		yr.		20	
c. Fractures		II	8		
Plastic Surgery	Surg. 314				1
a. Lectures		II	9		
Urology	Surg. 325				1
a. Lectures		II	20		
Obstetrics and Gynecology	Ob. and Gyn. 330				3
a. Lectures		yr.	36		
b. Conferences		yr.	36		
c. Demonstrations		yr.		48	
d. Ward work		yr.		40	
Radiology	Rad. 320	II	16		1
a. Lectures					
b. Laboratory		II		16	
			Total		36

The various subjects listed above are given as correlated parts of what constitutes essentially a year's course in the basic elements of clinical medicine.

PRECEPTORIAL GROUP

Regularly taken in the fourth year of a four-year medical course. Required for the degree of Doctor of Medicine.

Instruction based on the preceptor system requires at least 48 weeks for completion. The work of the year is divided into four periods of 12 weeks each. The class is divided

into four sections during the year and each section is assigned for a given period to one of four fields of work. Comprehensive examinations are given at the close of the final period. There is no formal didactic work during the year, although there are numerous sectional conferences.

The work of the four fields, known as quarters and designated medical, surgical, associate, and extramural, is arranged in the following manner:

MEDICAL QUARTER: Twelve weeks in internal medicine and the medical specialties: pediatrics, neuropsychiatry, dermatology, and preventive medicine. Eight weeks are spent at the University Hospitals, and one in public health work, state and city. Students are assigned to members of the hospital staff who serve as preceptors. The work of the quarter is as follows:

Medicine	Med. 401,	full time, 3 weeks, one-half time, 3 weeks	4 cr.
Dermatology	Med. 415,	one-half time, 3 weeks	1 cr.
Neuropsychiatry	N.P. 412,	full time, 3 weeks	3 cr.
Pediatrics	Med. 410,	one-half time, 6 weeks	2 cr.
Physical Medicine	Phys. Med. 416,	one-fourth time, 3 weeks	1 cr.
Public Health	Hyg. 401,	full time, 1 week	1 cr.
Preventive Medicine	Med. 403,	full time, 1 week	1 cr.
		Total	13 cr.

SURGICAL QUARTER: Twelve weeks in general and orthopedic surgery; eye, ear, nose, and throat work; obstetrics and gynecology; urology; and radiology taken at the University Hospitals under preceptors from the faculty. The work is arranged as follows:

General Surgery (incl. Anesthesia)	Surg. 401,	full time, 6 weeks	5 cr.
Obstetrics and Gynecology	Ob. and Gyn. 406,	full time, 2 weeks	2 cr.
Ophthalmology	Surg. 410,	one-half time, 1 week	½ cr.
Otolaryngology and Rhinology	Surg. 411,	one-half time, 1 week	½ cr.
Orthopedic Surgery	Surg. 415,	full time, 1 week	½ cr.
Radiology	Rad. 405,	one-seventh time, 12 weeks	½ cr.
Urology	Surg. 425,	full time, 2 weeks	2 cr.
		Total	11 cr.

ASSOCIATE QUARTER: A quarter extending through twelve weeks at some teaching center organized for preceptorial work. These centers are selected on the basis of pedagogical, hospital, laboratory, and library facilities. (See list of centers and preceptors on pages 494–496.) Under the supervision of the preceptor and the associate preceptors, the student assists in history taking, physical examinations, laboratory work, surveys of the literature on special cases, reviews of therapy, and in other ways beneficial to his training. 12 cr.

The chief purpose of this quarter is to acquaint the student with the conditions of medical practice in urban and rural districts. Particular attention is given to the impact of environment upon disease and the sociological factors in medicine.

EXTRAMURAL QUARTER: The chief purpose of this quarter is to acquaint the student with the social problems involved in medical practice in large cities. In Chicago each student spends four weeks on obstetrical service under the auspices of The Maternity Center and the Chicago Lying-In Hospital. A period of one week is spent in the study of tuberculosis at the Veterans Hospital at Madison under the supervision of the staff and two weeks at either Mendota or Winnebago, the state hospitals for mental diseases.

In Madison, student groups of two to four spend three weeks observing and participating in the activities of the City Board of Health and those in the field of health of the City Board of Education. The Department of Preventive Medicine, in conjunction with the staff of the City Board of Health, arranges and supervises this work. 8 cr.

In addition to the work of the four quarters outlined above each student must satisfy the following requirements:

(1) Medical students, in residence in Madison during the periods when physical examinations of all students entering the University are made, are assigned duties for one week in connection with these examinations. This work is carried on in the Department of Preventive Medicine and Student Health.

(2) An acceptable thesis upon an assigned subject, or a carefully organized report of a patient, personally observed. 3 cr.

(3) At the end of the year each student is given an individual comprehensive oral examination by a special committee composed of members of the clinical and preclinical staff.

DEGREES

Bachelor of Arts or Bachelor of Science (Medical Science). Conferred on recommendation of the College of Letters and Science upon students who major in Medical Science during the senior year in that college and fulfill the usual requirements for the respective degree.

Master of Science. This degree is conferred, on recommendation of the Graduate School, upon college graduates, matriculated in the Medical School, provided they fulfill the following conditions: (1) They must register in the Graduate School as well as in the Medical School. (2) At the time of application they must present evidence of having completed such preliminary work in one of the basic sciences of medicine as will entitle them to take advanced work in this science beyond that required in the regular medical curriculum.

Students interested in working for a master's degree should consult the chairman of the appropriate department for further instructions.

Doctor of Philosophy. Conferred, on recommendation of the Graduate School, upon candidates who exhibit general proficiency and power of original research in some field of knowledge. For the requirements of this degree the bulletin of the Graduate School should be consulted.

Doctor of Medicine. Conferred, on recommendation of the Faculty of the Medical School, upon candidates who complete the Medical School curriculum as outlined on page 499.

GRADUATE AND POSTGRADUATE INSTRUCTION

Extramural postgraduate courses are designed to provide physicians residing in a given locality with practical demonstrations of the newer methods of diagnosing and treating disease. Clinics are held at a hospital conveniently located, illustrated lectures are given, and opportunity is offered for consultation with specialists. All of these functions are under the supervision and direction of The Coordinator of Graduate Medical Education.

Other aids for postgraduate study furnished members of the medical profession in Wisconsin by the University include:

1. Extension Medical Library Service. Books, periodicals, and reprints are sent by mail to physicians in the state. References and bibliographies are prepared upon request.

2. Speakers furnished for medical meetings.

3. Models, charts, photographs, lantern slides, and moving picture films, relating to medicine and hygiene. The Extension Division will make these materials available to physicians preparing papers for presentation before medical societies or for general education in medicine and hygiene.

4. The State Laboratory of Hygiene (the laboratory of the State Board of Health) and the Diagnostic Center (an element of the State Board of Public Welfare) are located at the University and are closely affiliated with the Medical School. These institutions furnish direct laboratory aid to physicians and afford practical postgraduate instruction.

SCIENTIFIC INVESTIGATION

It is desired that the facilities of the various laboratories of the Medical School be utilized to the greatest advantage in the investigation of the causes and prevention of diseases in both man and animals. The laboratories of the Medical School are open freely to those engaged in such investigations and, so far as possible, aid will be given in carrying out research projects either at the University or elsewhere in the state.

LABORATORY AND HOSPITAL FACILITIES

The teaching of gross anatomy, histology, embryology, and neurology is at present conducted in Science Hall. The teaching of physiology, physiological chemistry, pharmacology, microbiology, pathology, and hygiene is conducted in the Service Memorial Institutes erected in memory of those who served in World War I.

The major portion of the fundamental teaching of the clinical branches is conducted in the University Hospitals, which have a capacity of over 900 beds, with facilities for medicine, surgery, and the major specialties. Included are the Student Infirmary, with a capacity of 125 beds; the Mary Cornelia Bradley Memorial Hospital, with a capacity of 50 beds for children; and the Orthopedic Hospital for Children with a capacity of 125 beds.

During the fourth year of the medical course part of the teaching is done at the University Hospitals and part under the direction of preceptors at various medical centers throughout the state and in Chicago. A large number of public and private institutions cooperate in this work.

The State and Madison Boards of Health cooperate in the practical instruction offered the students in public health work. In-plant training in preventive medicine is afforded senior students by certain local industries, notably the Oscar Mayer Company of Madison.

DEPARTMENTS OF INSTRUCTION

For a description of the courses in botany, zoology, chemistry, physics, medical technology, psychology and language, see departmental announcements of the College of Letters and Science. For courses in the School of Nursing, see the special bulletin of that school. Courses in X-ray technology, occupational therapy and physical therapy are covered in separate bulletins.

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.

Courses numbered from 1 to 100 are open for credit to undergraduates only; from 101 to 199 to both undergraduates and graduates; over 200 to graduates only, or very exceptionally to advanced undergraduates; 300–399, third-year medical courses; 400–499, fourth-year medical courses.

For courses in independent research (180, 200, 280) students should consult the chairmen of the respective departments.

HISTORY OF MEDICINE

Professor Ackerknecht, *chairman*.

121. History of Medicine. II; 2 cr. Lectures. Dr. Ackerknecht.

122. History and Geography of Diseases. I; 1 cr. Elective open to all medical students and juniors and seniors in the College of Letters and Science. Dr. Ackerknecht.

222. Seminar in History of Medicine. II; 2 cr. Prerequisite: History of Medicine 121 or other evidence of elementary background. Dr. Ackerknecht.

ANATOMY

Professors Bast, Mortensen, *chairman*, Mossman, Sullivan (on leave); Associate Professors Geist, Miles, Settlage; Instructors Hibma, Joachim, Murphy.

36. Human Anatomy. I; 4 cr. For students of physical education—women. Lecture and laboratory.

37. Human Anatomy. I; 6 cr. For students of physical medicine. Lecture and laboratory.

37. Human Anatomy. II; 6 cr. For students of occupational therapy. Lecture and laboratory.

39. Human Anatomy. II; 4 cr. For students of physical education—men. Lecture and laboratory.

108. Human Anatomy. I; 3 cr. For students in physical medicine—advanced work.

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. Drs. Bast, Mossman, Settlage, and staff.

121. Human Anatomy. I, 6 cr.; II, 5 cr. A thorough course in the dissection of the human body and in descriptive human anatomy. Organogenesis is in part included. Prerequisites: Junior standing, Zoology 1. Drs. Sullivan, Mortensen, Mossman, Geist.

122. Applied Anatomy. II; 2 cr. This course includes a modified dissection of the entire body. The Department of Surgery takes joint responsibility for the work. Prerequisite: Anatomy 121. Drs. Mortensen, Geist, Curreri, Hibma.

126. The Anatomy of the Nervous System. II; 4 cr. Gross dissection and microscopic study of the human central nervous system and sense organs; neurophysiology and clinical demonstrations are included. Drs. Bast, Geist, Settlage.

MEDICAL MICROBIOLOGY

Professors Seastone, *chairman,* Clark, *emeritus;* Associate Professors Evans, Holford, Lysenko, Walker; Assistant Professors Kitze, Smith; Instructor Boring.

1. Medical Microbiology. I; 5 cr. Open only to students in the course in Medical Technology. Dr. Holford.

2. Elementary Immunology. II; 3 cr. Open only to students in the course in Medical Technology and Medical Microbiology major. Dr. Holford.

4. Medical Microbiology for Nurses. II; 3 cr. Staff.

102. Medical Microbiology. I; 5 cr. Prerequisite: Second-year standing in Medical School; or Physiological Chemistry 104 and one year biology; or major in Agricultural Bacteriology. Dr. Seastone and staff.

109. Microbiology Journal Club. Yr; 1 cr. Staff.

123. Human Protozoology. II; 3 cr. Prerequisites: Year of biological science and consent of instructor. Dr. Lysenko.

204. Immunology. Alternate summer sessions; (1956). 4 cr. Prerequisite: Medical Microbiology 102. Dr. Seastone.

207. Virus and Rickettsial Diseases of Man. Alternate summer sessions; (1955). 3 cr. Prerequisite: Medical Microbiology 204. Dr. Walker.

208. Microbiology Seminar. Yr; 1 cr. Staff.

HYGIENE

In conjunction with the staffs of the State Laboratory of Hygiene, the Wisconsin Psychiatric Institute, the State Board of Health, and the Boards of Health of the cities of Milwaukee and Madison, courses in hygiene are offered by members of the faculty of the Medical School under the general supervision of Dr. Stovall.

401. Practical Field Work. I, II; 1 cr. Prerequisite: Fourth-year medical standing. Dr. Stovall.

MEDICAL DIVISION

GENERAL MEDICINE

PROFESSORS DICKIE, MEYER, *chairman,* GORDON, MIDDLETON (on leave), MUSSER, PUESTOW; CLINICAL PROFESSORS CURTIS, KURTZ; ASSOCIATE PROFESSORS ALBRIGHT, BENTLEY, CROSLEY, SIMS; ASSISTANT PROFESSORS CREPEA, CRUMPTON, GANE, LORENZ, SCHILLING; ASSOCIATE CLINICAL PROFESSOR SHAPIRO; ASSISTANT CLINICAL PROFESSORS ALLIN, FOSTER, LARSON, LEWIS, RICHTSMEIER, WILKIE; INSTRUCTORS KAHN, RANKIN, SPRAGUE; CLINICAL INSTRUCTORS MEISEKOTHEN, STONE, TALBOT, TAYLOR, WASSERBURGER; CLINICAL PROFESSOR WESTON.

110. EXAMINATION OF PATIENT. I; 2 cr. Normal physical diagnosis. Prerequisites: Anatomy 110, 121, 126; Physiology 105. Dr. Sims and staff.

111. EXAMINATION OF PATIENT. II; 3 cr. Pathological clinical diagnosis. Prerequisites: One semester each of Pathology 101, Medical Microbiology 102, Medicine 110. Dr. Sims and staff.

301. THIRD-YEAR MEDICINE. Yr; 9 cr. Lectures, clinics, conferences, and ward work. Prerequisite: Third-year standing. Dr. Meyer and staff.

302. ORAL HYGIENE. II. Included in 301. Prerequisite: Third-year standing. Dr. Meyer and staff.

305. THERAPEUTICS. I; 1 cr. Prerequisite: Third-year standing.

401. FOURTH-YEAR MEDICINE. I or II; 4 cr. Prerequisite: Fourth-year standing. Dr. Meyer and staff.

CLINICAL PATHOLOGY

PROFESSORS STOVALL, *sub-chairman,* JAESCHKE; ASSISTANT PROFESSORS PRICE, THORNGATE; INSTRUCTOR RUPP.

102. CLINICAL LABORATORY. II; 3 cr. Dr. Stovall and staff.

DERMATOLOGY

PROFESSOR JOHNSON, *sub-chairman;* ASSISTANT PROFESSOR COOPFR; CLINICAL INSTRUCTOR STOOPS.

315. DERMATOLOGY. I; 1 cr. Prerequisite: Third-year standing.

415. DERMATOLOGY. I or II; 1 cr. Prerequisites: Medicine 315 and fourth-year standing. Dr. Johnson.

PEDIATRICS

PROFESSOR GONCE, *sub-chairman;* CLINICAL PROFESSOR TENNEY; ASSOCIATE PROFESSORS MCDONOUGH, WAISMAN.

310. PEDIATRICS. I; 1 cr. Prerequisite: Third-year standing. Dr. Tenney and staff.

410. PEDIATRICS. I or II; 2 cr. Prerequisite: Fourth-year standing. Dr. Gonce and staff.

PHYSICAL MEDICINE

PROFESSOR BOUMAN, *sub-chairman;* ASSOCIATE PROFESSOR KOHLI; ASSISTANT PROFESSORS THOMPSON, BRIGGS, BRYCE, SHAFFER; INSTRUCTORS KRUSELL, OSBORN, SMITH, VAN SLYCK.

316. PHYSICAL MEDICINE. II; 1 cr. Dr. Bouman.

412. Applied Physical Medicine. I and II; 1 cr. Prerequisite: Medicine 316. Dr. Bouman and staff.

PREVENTIVE MEDICINE

Associate Professor Evans; Lecturers Kincaid, Lea, Neupert.

103. Preventive Medicine. Yr; 2 cr. Prerequisite: Second-year standing. Dr. Evans and staff.

303. Third-year Preventive Medicine. Yr; 2 cr. Lectures, conference. Prerequisites: Medicine 110, 111; Preventive Medicine 103. Dr. Evans and staff.

403. Fourth-year Preventive Medicine. Yr; 1 cr. Conferences, out-patient and ward work; field work in conjunction with the staff of the City Board of Health. Prerequisites: Medicine 301; Surgery 301; Preventive Medicine 303. Drs. Evans, Kincaid and staff.

NEUROPSYCHIATRY

Professors Reese, *chairman,* Kant, Osborn; Associate Professor Roessler; Assistant Professors Fey, Glover, Peters, Roemer; Lecturer Reeck; Research Assistant Eichman.

107. Medical Psychology. II; 2 cr. Dr. Fey.

112. Psycho-Pathology. I; 2 cr. Dr. Roessler.

312. Third-year Neuropsychiatry. II; 2 cr. Prerequisites: One semester each of Medicine 301 and Surgery 301. Staff.

412. Fourth-year Neuropsychiatry. I or II; 3 cr. Prerequisite: Neuropsychiatry 312.

PATHOLOGY

Professors Angevine, *chairman,* Lalich; Assistant Professors Hartmann, Kiechle; Instructors Coye, McIver, ZuRhein.

101. Human Pathology. Yr; 8 cr. The principles of human pathology and the essentials of pathological anatomy taught by lecture, laboratory exercises and conference. Prerequisites: Anatomy 110, 121, 126, Physiological Chemistry 104, Medical Physiology 105. Drs. Angevine, Lalich, and staff.

102. Gross Pathology. II; 1 cr. For second-year medical students. Prerequisite: Pathology 101. Dr. Angevine and staff.

180. Elective. Advanced Pathology. II; 2 or 3 cr. Staff.

301. Clinical Pathology Conferences. Yr. Given as part of Medicine 301. Dr. Angevine and members of medical and surgical staff.

PHARMACOLOGY AND TOXICOLOGY

Professors Shideman, *chairman,* Tatum (Emeritus); Assistant Professors Mannering, Parks; Instructor Miller.

101. Toxicology. II; 1 cr. Chemistry, action, fate and detection of toxic substances, diagnosis and treatment of poisoning, and medico-legal obligations and implications. Lectures only. Prerequisites: Physiology 105, Physiological Chemistry 104, Pharmacology 104 or concurrent registration. Dr. Mannering.

102. Forensic Medicine and Medical Jurisprudence. II; 1 cr. A consideration of that part of the law which is concerned with the regulations governing the professional practice

of the physician and the role of medicine in the solution of legal problems. Prerequisite: Second-year medical standing or consent of instructor. Dr. Mannering.

104. PHARMACOLOGY. II; 5 cr. Lectures, laboratory and conferences on the chemistry, pharmacological and toxicological actions and therapeutic uses of the more important medicinal drugs. Prerequisites: Physiology 105, Physiological Chemistry 104. Drs. Shideman, Parks.

120. JOURNAL CLUB. Yr; 1 cr. Students are assigned certain journals and are expected to abstract and report from time to time upon current papers dealing with pharmacology and toxicology. Staff.

201. SEMINAR. Yr; 1 cr. Staff.

PHYSIOLOGICAL CHEMISTRY

PROFESSOR COHEN, *chairman;* ASSOCIATE PROFESSORS DEUTSCH, MCGILVERY; ASSISTANT PROFESSOR SALLACH.

14. PHYSIOLOGICAL CHEMISTRY. I; 3 cr. Lectures and demonstrations. Provided for students who have not had organic chemistry. Required of students in physical medicine. Prerequisites: Chemistry 1, Physics 1, Zoology 1. Dr. Sallach.

103. PHYSIOLOGICAL CHEMISTRY. II; 4 cr. Lectures, conferences and laboratory. Provided for Medical Technology, Medical Bacteriology and undergraduate majors. Prerequisites: Chemistry 1a, 1b, 16, 120a, 121a. Dr.McGilvery and staff.

104. PHYSIOLOGICAL CHEMISTRY. I; 5 cr. Lectures, conferences and laboratory. Required for first-year medical students; open to others as an elective. Prerequisites: Quantitative analysis, organic chemistry, Physics 1, Zoology 1. Drs. Cohen, Deutsch, and Sallach.

115. BIOCHEMICAL ASPECTS OF DISEASE. II; 3 cr. Second-year medical students. Dr. Cohen.

120. JOURNAL CLUB. I and II; 1 cr. Staff.

222. SEMINAR IN PHYSIOLOGICAL CHEMISTRY. I and II; 1 cr. Staff.

PHYSIOLOGY

PROFESSORS YOUMANS, *chairman,* HERRIN; CHARLES SUMNER SLICHTER RESEARCH PROFESSOR WOOLSEY; ASSOCIATE PROFESSORS AKERT, MORRISON, MURPHY, STONE; ASSISTANT PROFESSORS DAWE, LARSEN.

1. ELEMENTS OF HUMAN PHYSIOLOGY. I; 4 cr. Lectures, quizzes, demonstrations and laboratory giving a general knowledge of the structure and functions of the human body. Especially adapted to teachers. Prerequisite: A course in elementary science. Dr. Stone.

4. PHYSIOLOGY. I; 4 cr. Open only to students in the course in nursing. Dr. Herrin.

35. PHYSIOLOGY. I; 5 cr. Lectures, recitations, demonstrations and laboratory. Required of physical medicine juniors, but open to others. Prerequisites: Anatomy 36 or Zoology 104; Physiological Chemistry 14. Miss Larsen.

36. PHYSIOLOGY OF ACTIVITY. II; 3 cr. Required of physical medicine juniors, but open to others. Prerequisite: Physiology 115. Miss Larsen.

103. PHYSIOLOGY. II; 4 cr. Especially designed for students in pharmacy and agriculture, but open to others. Dr. Herrin and assistants.

105. Medical Physiology. II; 9 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. Drs. Youmans, Herrin.

200. Advanced Physiology and Research. Yr; cr. to be arranged. Staff.

222. Seminar in Physiology. Yr; 1 cr.

SURGICAL DIVISION

GENERAL SURGERY

Professors Curreri, Erickson (Neurosurgery), Gale, Lemmer, Schmidt, *chairman;* Associate Professor Mohs; Associate Clinical Professor Mendenhall (VA); Assistant Professors Javid, Young; Assistant Clinical Professors Joachim (VA), Longley (VA), Suckle (VA); Assistants L. E. Antonius, L. M. Antonius; Fellow Wheeler.

301. Third-year Surgery. I, 6 cr; II, 4 cr. Lectures, conferences, ward work, clinics, surgical pathological conferences, experimental surgery. Prerequisites: Medicine 110, 111. Drs. Schmidt, Erickson, Gale, and staff.

401. Fourth-year Surgery. I, II; 3 cr. Prerequisites: Medicine 301, Surgery 301.

ANESTHESIOLOGY

Professors Orth, *chairman,* Waters (Emeritus); Associate Professor Bamforth; Assistant Professor Steinhaus; Instructors Anderson, Noll; Associate Gillespie; Assistant Clinical Professor Siebecker (VA).

301. In Conjunction with Third-year Surgery. I; Anesthesia and resuscitation in animals. II; Principles of anesthesiology as applied to man.

401. In Conjunction with Fourth-year Surgery. Practical experience in pre-operative, operative and post-operative work.

OPHTHALMOLOGY

Professors F. A. Davis (Emeritus), Duehr, *sub-chairman;* Assistant Clinical Professors Berger, F. J. Davis; Instructors Oosterhous, Peterson; Research Assistant Buessler.

310. Third-year Ophthalmology. I; 1 cr. Prerequisites: Medicine 110, 111. Dr. Duehr and staff.

410. Fourth-year Ophthalmology. I, II; 1 cr. Prerequisite: Surgery 310.

OTOLARYNGOLOGY AND RHINOLOGY

Associate Professor Bennett; Associate Clinical Professor Brindley (VA); Assistant Clinical Professor Taborsky, *sub-chairman;* Instructor Watzke.

311. Third-year Otolaryngology and Rhinology. II; 1 cr. Prerequisites: Medicine 301, I; Surgery 301, I.

411. Fourth-year Otolaryngology and Rhinology. I, II; 1 cr. Prerequisite: Surgery 311.

ORTHOPEDIC SURGERY

PROFESSORS BURNS, *sub-chairman,* WIRKA; ASSOCIATE PROFESSOR SCHUMM; ASSISTANT CLINICAL PROFESSOR ROGERS (VA); INSTRUCTOR OKAGAKI.

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.

MAXILLO-FACIAL AND PLASTIC SURGERY

ASSOCIATE PROFESSOR SLAUGHTER, *sub-chairman;* ASSISTANT PROFESSOR BERNARD; CLINICAL ASSISTANTS HOFFMAN, PHAIR, PLATER, THUROW.

314. PLASTIC SURGERY. II; 1 cr. Prerequisites: Medicine 301, I; Surgery 301, I.

UROLOGY

PROFESSOR WEAR, *sub-chairman;* ASSOCIATE CLINICAL PROFESSOR KUNDERT (VA).

325. THIRD-YEAR UROLOGY. II; 1 cr. Prerequisites: Medicine 301, I; Surgery 301, I.

425. FOURTH-YEAR UROLOGY. I and II; 2 cr. Prerequisite: Urology 325.

OBSTETRICS AND GYNECOLOGY

PROFESSOR CAMPBELL, *acting chairman;* ASSOCIATE PROFESSOR THORNTON; ASSOCIATE CLINICAL PROFESSOR HARPER.

330. THIRD-YEAR OBSTETRICS AND GYNECOLOGY. I, 1 cr.; II, 2 cr. Prerequisite: Medicine 110, 111. Dr. Campbell and staff.

406. FOURTH-YEAR OBSTETRICS AND GYNECOLOGY. I, II; 2 cr. Prerequisite: Obstetrics and Gynecology 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 (Dr. M. Edward Davis) and the Chicago Maternity Center (Drs. Beatrice E. Tucker and Harry B. Benaron).

RADIOLOGY

PROFESSORS PAUL, POHLE, *chairman;* ASSOCIATE PROFESSOR JUHL; INSTRUCTOR ROUNDS.

200. GRADUATE WORK AND RESEARCH. Yr; cr. to be arranged. Dr. Pohle.

222. SEMINAR IN RADIOLOGY. Yr; 1 cr. Dr. Pohle and staff.

320. RADIOGRAPHY AND RADIOTHERAPY. II; 1 cr. Lectures and demonstrations to third-year students. Prerequisites: Medicine 301, I; Surgery 301, I. Drs. Pohle, Paul.

ONCOLOGY

PROFESSORS LEPAGE, MILLER, POTTER, RUSCH, *director;* ASSOCIATE PROFESSORS BOUTWELL, HEIDELBERGER; ASSISTANT PROFESSORS MILLER, MUELLER.

The department offers graduate study leading to the Master of Science and Doctor of Philosophy degrees in the field of fundamental cell physiology and biochemistry allied to the study of cancer and related metabolic diseases. A broad background in the fundamental aspects of the chemistry cell processes is emphasized in a curriculum designed to integrate biochemistry with various aspects of the medical and biological sciences. In addition to the excellent research facilities of the McArdle Laboratory, ample opportunity exists for association with clinical programs in the tumor service of the University Hospitals.

A program has been set up whereby medical students may obtain a Master of Science degree in this department by registering jointly in the Graduate and Medical Schools. Further details of this program are given on page 503.

A number of fellowships are available to qualified students.

111. Experimental Oncology. II; 2–3 cr. Lectures, discussions on carcinogenesis, factors affecting tumor induction, the relation of viruses and hormone balance to tumor development, intermediary metabolism of tumors, and experimental approaches to tumor chemotherapy. Open to students in the Graduate and Medical Schools. Prerequisite: Biochemistry 105 or Physiological Chemistry 104 or equivalent. Staff.

120. Journal Club. Yr; 1 cr. Prerequisite: Consent of instructor.

AWARDS

Bardeen Award. The Alpha Psi Chapter of Phi Delta Epsilon has established this award in honor of Charles Russell Bardeen, professor of anatomy and first dean of the Medical School. This award is made annually to the student who is judged by the staff of the Department of Anatomy to have done the best work in anatomy during the freshman year.

The Borden Award. An annual award of $500, designated "The Borden Undergraduate Research Award in Medicine," was made available by the Borden Company Foundation in 1945. This award is presented to a member of the graduating class in the Medical School who, during any year while so enrolled, has carried out the most meritorious undergraduate research.

The William J. Bleckwenn, Jr., Memorial Award. This award is made annually to the senior medical student with the greatest clinical promise.

The Walter J. Meek Award. Established in September 1948 by graduate students who had worked under Dr. Meek. A prize of $100 is awarded annually at the Medical School Field Day to the student who has done the best research work the previous year.

William Davison Stovall Award. This award has been established by the Wisconsin Division of the American Cancer Society. It will be granted annually to an undergraduate student who is a resident of Wisconsin and is selected on the basis of scholarship in chemistry and biology and for qualities of promise in research, particularly cancer research. Its purpose is to stimulate the interest of undergraduate students in cancer research and to acquaint them with the various possible avenues of training. The award of $250 will be made on the basis of scholarship and special interest. Apply to Dr. H. P. Rusch, 118 McArdle Memorial Laboratory.

STUDENT LOANS

The State Legislature, the Regents, and many friends of the University have made funds available to be used to assist medical students of good character and limited financial means.

In general, loans are granted for educational purposes and borrowers are expected to repay loans in accordance with the terms of specific funds. In cases of unforseen circumstances the borrower may seek approval of alternative arrangements of repayment. Interest, when charged, is at variable but nominal rates.

Students should obtain loan application forms, information, and assistance in making loans by calling at the office of the Dean of the Medical School.

LECTURESHIPS

William Snow Miller Lectureship. The Alpha Pi Chapter of the Phi Beta Pi Fraternity has established an annual lectureship in honor of Professor William Snow Miller.

The Helmholz Lectureship. In 1941 the four children of Mr. and Mrs. August Helmholz established an annual lectureship to be known at The A. C. Helmholz Lectureship

ARTHUR S. LOEVENHART LECTURESHIP. The Phi Delta Epsilon Fraternity has established an annual lectureship in honor of Dr. Arthur S. Loevenhart.

THE GUNDERSEN LECTURESHIP. Established in 1946 by the Adolf Gundersen Medical Foundation, this plan is designed to bring distinguished contributors to medical science to the campus for lectures and conferences.

CHARLES RUSSELL BARDEEN LECTURESHIP. The Tau Beta Chapter of Phi Chi Fraternity has established an annual lectureship in honor of Dr. Charles Russell Bardeen.

KATHERINE BAIRD LECTURESHIP. The women's medical fraternity, Alpha Epsilon Iota, has established this lectureship in memory of Dr. Baird, a former student and graduate of the Medical School.

COURSE IN MEDICAL TECHNOLOGY

A four-year course leading to the degree of Bachelor of Science (Medical Technology) has been established in the College of Letters and Science, and is administered jointly with the Medical School. 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.

For additional information concerning the course, consult the Letters and Science section or see Dr. O. A. Mortensen, Associate Dean of the Medical School, Service Memorial Institutes, Madison 6, Wisconsin.

COURSE IN X-RAY TECHNOLOGY

The Department of Radiology offers a 12-month course for those who wish to become X-ray technicians. Requirements for admission to this course are high-school graduation, one year of college including a course in physics, preferably electricity, admission to the University in the usual way, and the minimum age of 19. The course consists of lectures, assigned reading and practical training. The course does not carry university credit but students receive a certificate after satisfactory completion of the work. Detailed information may be secured from Dr. E. A. Pohle, who is adviser for all students in X-ray technology. Those interested may write him in care of the University Hospitals, 1300 University Ave., Madison 6, Wisconsin.

COURSE IN PHYSICAL MEDICINE

A four-year course leading to the degree of Bachelor of Science (Physical Medicine) in the College of Letters and Science and a certificate in Physical Medicine in the Medical School has been established. A detailed outline of the curriculum of this course is given in the Letters and Science section.

Inquiries concerning this course should be directed to Dr. H. D. Bouman, Department of Physical Medicine, Service Memorial Institutes, Madison 6, Wisconsin.

COURSE IN OCCUPATIONAL THERAPY

A four-year course, leading to the degree of Bachelor of Science (Occupational Therapy), is offered in the School of Education. For entrance to this course a student must satisfy the general admission requirements of the University. The course is under the joint control of the Schools of Education and Medicine, and the physician in charge of the Division of Physical Medicine is director of this course.

A detailed outline of the curriculum of this course is given in the Occupational Therapy bulletin. For additional information concerning the course, inquiry should be made to Miss Caroline Thompson, Temporary Building 14, University of Wisconsin, Madison 6, Wisconsin.

SCHOOL OF NURSING

MARGERY J. MACLACHLAN, *Director and Associate Dean*

FACULTY

ADAMS, RUTH C., *M.P.H., R.N.*, Associate Professor of Public Health Nursing
CAREY, GLADYS K., *B.S., R.N.*, Instructor and Supervisor of Nursing
COOPER, MRS. SIGNE S., *B.S., R.N.*, Assistant Professor of Nursing
CRUMP, MARGARET C., *R.N.*, Associate Professor of Nursing
DICKIE, RUTH C., *M.S.*, Associate Professor of Dietetics and Chief Dietitian
DUNN, MARION J., *B.S., R.N.*, Instructor and Supervisor of Nursing
FLETCHER, LILA B., *R.N.*, Associate Professor of Nursing and Superintendent of Nurses
GUNDERSON, MRS. ARLEEN S., *B.S., R.N.*, Instructor in Nursing
KACHELSKI, M. AUDREY, *B.S., R.N.*, Instructor in Nursing
KRUEGER, ELIZABETH A., *B.S., R.N.*, Instructor in Nursing
MACLACHLAN, MARGERY J., *B.S., R.N.*, Director of the School of Nursing, Professor of Nursing
MCCUNE, HELEN, *B.S., R.N.*, Instructor in Nursing
SCHMIDT, C. EVELYN, *M.S., R.N.*, Assistant Professor of Nursing
SCHOEN, EUGENIA A., *B.A.*, Instructor in Nursing
STEWART, MARGARET, *B.S., R.N.*, Instructor and Supervisor of Nursing
WATSON, SHIRLEY R., *B.S., R.N.*, Assistant Professor of Nursing
ZIEGEL, ERNA E., *B.S., R.N.*, Instructor and Supervisor of Nursing

ASSOCIATE FACULTY

DR. J. W. BROWN and associate members of the Department of Preventive Medicine
DR. O. O. MEYER and associate members of the medical staff of the University Hospitals
DR. C. V. SEASTONE and associate members of the Department of Medical Microbiology
DR. E. R. SCHMIDT and associate members of the surgical staff of University Hospitals
DR. A. L. TATUM and associate members of the Department of Pharmacology and Toxicology
DR. W. B. YOUMANS and associate members of the Department of Physiology

ASSOCIATE TEACHING STAFF

CLARA RUE, Associate Director, Visiting Nurse Association, Milwaukee
JANET JENNINGS, Director, Bureau of Public Health Nursing, State Board of Health
ANN KIRCHNER, The Chicago Lying-In Hospital and Dispensary

PUBLIC HEALTH ADVISORY COMMITTEE

WILLIAM S. MIDDLETON, *M.D.*, Chairman

MRS. MELVIN R. LAIRD
MARGERY MACLACHLAN
MABEL MARKEE
MRS. INEVA MEYER
IONE ROWLEY
CLARA RUE
WILLIAM D. STOVALL, *M.D.*
RUTH TE LINDE

SCHOOL OF NURSING

AIMS

The faculty of the School of Nursing believes that students should be guided in those learning experiences which will help them to become participating citizens in a democratic society as well as competent, contributing members of their profession.

The aim of the basic professional curriculum is to develop attitudes, skills, understandings and appreciations which will enable the student to function effectively as a nurse in meeting the total health needs of the patient. The professional education of the student is enriched by a background of study in the College of Letters and Science. The entire curriculum is planned with the object of aiding her to develop as a well-rounded person in accordance with her individual capacities and interests.

HISTORY AND ORGANIZATION

The University of Wisconsin School of Nursing was organized in 1924 in association with the Medical School and the State of Wisconsin General Hospital.

Ever since the organization of the School, nursing students have taken their preclinical academic work in the same classes with other students at the University. The first curriculum, which led to the Certificate of Graduate Nurse, required one semester of academic work and 32 months of resident clinical instruction. In 1934 the preclinical requirement was changed from one semester to two. By 1940 the background of general education had increased to two academic years and the resident clinical requirement was 29 months. In 1939 the School of Nursing inaugurated a program which led to a Bachelor of Science degree with a major in Public Health Nursing. In 1946 another curriculum was begun which led to a Bachelor of Science degree with a major in Ward Management and Ward Teaching.

At the present time, the School of Nursing has two curricula: *Curriculum A,* the Basic Professional course which prepares the student for the Certificate of Graduate Nurse and the degree of Bachelor of Science (Nursing) and *Curriculum B,* for graduate professional nurses, which leads to the degree of Bachelor of Science (Nursing) with a major in either Public Health Nursing or Ward Management and Ward Teaching.

The Co-ordinating Committee of the School of Nursing is composed of the Dean of the Medical School, the Superintendent of the University Hospitals, the Superintendent of Nurses, and the Director of the School. The Director has charge of immediate administration.

Clinical education for nursing students is given in the university hospitals which are located on the University of Wisconsin campus. Training in Obstetric Nursing is provided by an affiliation with the Chicago Lying-In Hospital. Graduate nurse students who major in Public Health Nursing receive a part of their experience through affiliation with the Milwaukee Visiting Nurses Association and an official Public Health Nursing Agency.

The Nurses' Dormitory for undergraduate students is located one-half block from the hospitals and is a part of the group of medical buildings on the campus.

The School of Nursing is accredited by the Wisconsin State Department of Nurses and the National Nursing Accrediting Service. It is an active member of the Association of Collegiate Schools of Nursing.

FACILITIES

During her last year in the preclinical period and her 29 months clinical (or residence) period in the School of Nursing, the student receives instruction and supervision in the care of the sick at the university hospitals. The central unit (Wisconsin General Hospital) was built in 1924 as a memorial to the soldiers of the First World War and, in keeping with

other departments of the University, serves the people of the state of Wisconsin both directly and indirectly. Patients from all counties of the State are admitted here by referral of their local doctors. When additions now under construction are completed, the bed capacity will be nine hundred.

The primary purpose of the hospitals is the promotion of health and the care of the sick; but they also provide laboratory experience for students in medicine, nursing, laboratory technology, occupational therapy and medical social work. The nursing student receives her clinical experience here, with the exception of thirteen weeks affiliation in obstetric nursing at Chicago Lying-In Hospital.

The hospitals, with the Service Memorial Institutes (which house laboratories and classrooms of the Medical School) and McArdle Memorial Laboratory (the cancer and cardiac research centers), are located on the campus of the University, and cover approximately two square blocks.

The Medical Library in the Service Memorial Institutes serves medical students, nursing students and others on the medical team. A small reading room in the Nurses' Dormitory provides periodicals and some source material. All libraries on the campus are available to nursing students.

A complete student medical center is maintained on the campus under the direction of the Department of Preventive Medicine and Student Health. Services include a complete physical examination upon entrance, periodic chest x-rays, immunization against infectious diseases, and medical attention ranging from guidance for emotional problems to bedside care in the Student Infirmary for acute illness.

With certain exceptions, these health services are provided to the student without additional charge, aside from the semester fee.

(See General Information.)

ADMISSION

For admission to the School of Nursing, a student must satisfy the general requirements for admission to the University as given in the General Information bulletin. Application for admission should be made to the Office of Admissions, 166 Bascom Hall.

EXPENSE

During the preclinical instruction period nursing students provide their own room and board and pay the regular University fees and tuition.

During the period of clinical instruction, students live in the Nurses' Dormitory. Scholarships are awarded for all students in residence to cover general fees, room, board and laundry of uniforms. The student buys her own uniforms and textbooks and pays a laboratory fee for affiliations.

(See General Information for a discussion of student expense, loan funds, scholarships, etc.)

STUDENT ACTIVITIES

One of the greatest advantages of being a student in a collegiate school of nursing is that in addition to membership in the local and State Student Nurse Association, it offers an opportunity to enjoy the privileges of all university activities.

Every university student is governed by the Wisconsin Student Association, but women students are governed directly by the Women's Self-Government Association where curfew hours and general disciplinary problems are concerned. Each women's dormitory elects its own student council and appoints to the Women's Self-Government Association a representative who is responsible for upholding its rules in her dormitory. This system helps to teach students both the privileges and responsibilities of a democratic way of life.

The student religious centers on the campus offer opportunity for worship and church work in the denomination of the student's choice.

When a student registers at the University she is issued a fee card which makes her a

member of the Student Union and entitles her to student rates on season tickets to athletic and cultural programs. The fee card also serves as a free admission ticket to many university functions.

Besides enjoying the academic benefits of a university, nursing students, like any others, may become class officers and may join sororities or clubs as a part of their extracurricular program. Athletic tournaments in bowling, basketball and volleyball, university proms, publications, and homecoming contests are just a few of the activities in which students in the School of Nursing participate. Christmas and spring formals are always big occasions on the social calendar. Less important, but equally popular, are the coffee hours held after football games. At the open houses, which each dormitory holds in the fall, nursing students have another opportunity to meet students from all other organized campus houses.

The student in the School of Nursing seeks a profression as she pursues a well-rounded academic curriculum; but at the same time she may enjoy the extracurricular activities open to all university students. Though the academic calendar is full and varied, it allows time for extracurricular work and play for any student who is interested in taking advantage of the many activities which the University affords. Activities, services, and general regulations of the University are outlined in the Student Handbook, which the student receives at registration time.

CURRICULA LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (NURSING)

REQUIREMENTS FOR GRADUATION

The School of Nursing offers two programs (curriculums A and B below) which combine general education with profressional nursing education, and which lead to the degree of Bachelor of Science (Nursing). This degree is conferred by the College of Letters and Science and requires a minimum of 127 credits and 127 grade-points.

The requirement in United States History and Institutions applies to all degrees conferred in the College of Letters and Science and must be met by all students who receive degrees in June, 1954 or thereafter. The student may satisfy this requirement in one of three ways:

1. By passing, by the beginning of the junior year, an attainment examination in United States History based on college level work.

2. By completing satisfactorily, in college, a continuous year course in United States History. A year course is here understood to be one so listed in the Announcement of Courses (i.e., History 4, 12–112, 113, 117, 120, 121, 122); or two semester courses which, as to content, are in chronological sequence (i.e., any two *consecutively numbered* semester courses chosen from the following: History 101, 102, 103, 104, 105, 106, 107, 108, 109).

3. By completing a semester course in United States History to be chosen from: History 101, 102, 103, 104, 105, 106, 107, 108, 109, 111; or by *completing either semester* of one of the following years courses: History 112, 113, 117, 120, 121, 122. In addition to the semester of history, the student must take any one of the following semester courses: Economics 1a; English 140; Integrated Liberal Studies 23; Philosophy 139; or Political Science 7, 110, 112a, 112b, 165, 166, or 171.

Curriculum A is for students in the Basic Professional Program. These students must complete satisfactorily a minimum of 60 credits during the first two years before entering the clinical period of instruction.

The clinical part of the program includes experience in the University Hospitals with one month vacation each of the two summers. On completing this clinical part of the program the student receives a certificate and is qualified to take the State examination to become a registered professional nurse. After she has received her certificate, she may complete the work for the degree Bachelor of Science (Nursing) in one of two areas, Public Health Nursing or Ward Management and Ward Teaching.

A. CURRICULUM FOR STUDENTS IN THE BASIC PROFESSIONAL PROGRAM

English 1a and 1b or exemption	6 credits
English 30, 32, 33, or 40	6 credits
Foreign language (may be fulfilled by high-school language)	8 credits
Science	17–19 credits
To include: Chemistry 5 or 1a, Biochemistry 3, Physiology 4, Microbiology 4, Science elective (3 credits—Zoology or Physics recommended)	
†Social Studies	16 credits
To include: History (continuous year course), Sociology 1 or 2, Psychology 1, Psychology 105	
Letters and Science electives	5–15 credits
Nursing	37 credits
Major—in Public Health Nursing or Ward Management and Ward Teaching	30–31 credits
Total	127–138 credits

A TYPICAL CURRICULUM INCLUDING REQUIREMENTS AND SUGGESTED ELECTIVES

FIRST YEAR

First Semester		Second Semester	
Course	*Credits*	*Course*	*Credits*
English 1a	3	English 1b	3
Foreign Language	4-0	Foreign Language	4-0
Sociology 1 or 2	3	Biochemistry 3	4
Chemistry 5 or 1a	3-5	Electives	4-10
Electives	0-7		
	15-17		15-17

SECOND YEAR

First Semester		Second Semester	
Course	*Credits*	*Course*	*Credits*
English	3	English	3
Psychology 1	4	Microbiology 4	3
Physiology 4	4	Dietetics 1	2
Nursing 1a	5	Nursing 1b	5
		Psychology	3
	16		16

THE CLINICAL PART OF THE PROGRAM BEGINS HERE.

THIRD YEAR

First Semester		Second Semester	
Course	*Credits*	*Course*	*Credits*
Nursing 2	3	Nursing 10	3
Nursing 3	3	Nursing 11	2
Nursing 4	3	Nursing 12	2
History	2-3	History	3
	11-12		10

FOURTH YEAR

First Semester		Second Semester	
Course	*Credits*	*Course*	*Credits*
Nursing 13	3	Nursing 15	2
Nursing 14	2	(Affiliation in Obstetrics at Chicago Lying-In Hospital and Dispensary)	
	5		

FIFTH YEAR

First Semester	
Course	*Credits*
Nursing 5	2
Electives	4
	6

The Certificate in Nursing is given at this time. The student may continue in her major study for the degree of Bachelor of Science (Nursing).

† The student must meet the United States History and Institutions requirement before the end of the senior year.

PUBLIC HEALTH NURSING MAJOR

First Semester		Second Semester	
Course	*Credits*	*Course*	*Credits*
Nursing 30	3	Nursing 41	3
L & S Electives	3	Nursing 42	3
Nursing 40	3	Nursing 43	3
Social Work 145	3	Nursing 45	8
Education 120 or 123	2-3		
	14-15		17

WARD MANAGEMENT AND WARD TEACHING MAJOR

First Semester		Second Semester	
Course	*Credits*	*Course*	*Credits*
Nursing 20a	3	Nursing 20b	3
Nursing 30	3	Nursing 21	3
L & S Electives	3	Social Studies and Education	9
Social Studies and Education	6		
	15		15

See bulletin of the School of Home Economics for combined course in Home Economics and Nursing.

CURRICULUM B is for students who enter as registered professional nurses. They may earn the degree Bachelor of Science (Nursing) with a major in Public Health Nursing or Ward Management and Ward Teaching. The School of Nursing will evaluate the professional education of the students and will make recommendations regarding elections in the science group listed below. A maximum 37 credits may be granted for completion of the basic program on the basis of its equivalency to that of the University of Wisconsin School of Nursing.

Students entering without equivalent undergraduate work or relatively recent experience in the major clinical areas may be required to take special study in the area of deficiency.

B. CURRICULUM FOR STUDENTS IN THE REGISTERED PROFESSIONAL NURSE PROGRAM

English 1a and 1b or exemption	6 credits
English 30, 32, 33 or 40	6 credits
Foreign language (may be fulfilled by high-school language)	8 credits
Science (to include at least two fields)	12 credits
†Social Studies	20 credits
To include: Psychology 1 (4 cr.), Psychology 105 (3 cr.), Sociology 1 or 2 (3 cr.), History (a continuous year course—6 cr.)	
Electives	8–16 credits
Nursing	37 credits
Major—in Public Health Nursing or Ward Management and Ward Teaching	30–31 credits
Total	127–128 credits

MAJOR IN PUBLIC HEALTH NURSING

The program in public health nursing is accredited by the National Nursing Accrediting Service. Its purpose is to prepare qualified graduate nurses for health service in the community, and to develop in them a wide interest in social and professional problems. They are trained to evaluate the health needs of individuals and families, and to give the nursing care and health guidance that will help meet those needs.

† The student must meet the United States History and Institutions requirement before the end of the senior year.

The major in Public Health Nursing is made up of 30–31 credits:

Nursing 30, 40, 41, 42, 43, 45	22 credits
Social Studies and Education	5–6 credits
(to include either Education 120 (2 cr.) or Education 123 (3 cr.))	
Letters and Science Elective	3 credits
Total	30–31 credits

A TYPICAL CURRICULUM INCLUDING REQUIREMENTS AND SUGGESTED ELECTIVES

FIRST YEAR

First Semester		Second Semester	
Course	*Credits*	*Course*	*Credits*
English 1a	3	English 1b	3
History	3	History	3
Sociology 1 or 2	3	Biochemistry 3	4
Foreign Language	4-0	Foreign Language	4-0
Chemistry 5 or 1a	3	Elective	2
	16		16

SECOND YEAR

First Semester		Second Semester	
Course	*Credits*	*Course*	*Credits*
English	3	English	3
Psychology	4	Science Elective	3
Science Elective	3	Elective	5
Economics	4	Public Health Nursing 40	3
Social Studies Elective	3	Public Health Nursing 30	3
	17		17

THIRD YEAR

First Semester		Second Semester	
Course	*Credits*	*Course*	*Credits*
L & S Elective	3	Public Health Nursing 45 (Field Work)	8
Public Health Nursing 42	3		
Social Work 145	3		
Education 120 (3 cr.) or 123 (2–3 cr.)	2-3		
Public Health Nursing 41	3		
Public Health Nursing 43	3		
	17-18		

MAJOR IN WARD MANAGEMENT AND WARD TEACHING

This program is designed to prepare nurses for the position of head nurse or assistant clinical instructor.

The major in Ward Management and Ward Teaching is made up of 30 credits:

Nursing 20, 21, 30	12 credits
Social Studies and Education	15 credits
(Education limited to 6 credits)	
Letters and Science Electives	3 credits
Total	30 credits

A TYPICAL CURRICULUM INCLUDING REQUIREMENTS AND SUGGESTED ELECTIVES

FIRST YEAR

First Semester		Second Semester	
Course	*Credits*	*Course*	*Credits*
English 1a	3	English 1b	3
History	3	History	4
Foreign Language	4	Foreign Language	0-3
Sociology 1 or 2	3-0	Sociology 1 or 2	5-3
Science	3-5	Science	
	16-15		15-16

SECOND YEAR

First Semester		Second Semester	
Course	*Credits*	*Course*	*Credits*
English	3	English	3-3
Psychology 1	4	Psychology 105	3-3
Science	4	Social Studies	7-4
Electives	4	Electives	2-4
	15		15-14

THIRD YEAR

First Semester		Second Semester	
Course	*Credits*	*Course*	*Credits*
Nursing 20a	3	Nursing 20b	3
Nursing 30	3	Nursing 21	3
Social Studies	9	L & S Elective	3
		Social Studies or Education	6
	15		15

PREPARATION IN NURSING WITH A MAJOR IN LETTERS AND SCIENCE OR HOME ECONOMICS

Students who are interested in combining the study of nursing with a major in the College of Letters and Science may do so by taking the Bachelor of Arts or Bachelor of Science (General Course) degree and electing those courses in nursing which lead to the Certificate of Graduate Nurse. See the College of Letters and Science for details.

Students who wish to combine the study of nursing with the degree of Bachelor of Science (Home Economics) should consult the School of Home Economics.

DESCRIPTION OF COURSES

Abbreviations:

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
I or II—semester course given either in the first or second semester
cr—number of credit hours per semester

NURSING

1. Introduction to Nursing. Yr; 5 cr. Provides basic experiences to help the student understand her role as a nurse in society, in the hospital, and other health agencies.

2. Medical Nursing. I; 3 cr. Causes, symptoms, treatment, and prevention of medical conditions. Emotional, socio-economic, nutritional and rehabilitative aspects of nursing care.

3. Pharmacology. I; 3 cr. Nature, action, therapeutic uses, dosage range, toxicology, and administration of the most commonly used drugs. The nurse's responsibility in the administration of medicines.

4. Surgical Nursing. I; 3 cr. Fundamentals of surgical nursing; social and economic aspects of disease; observing, reporting and recording signs and symptoms; the nurse's role in diagnosis, treatment, and rehabilitation of the surgical patient.

5. The Nursing Profession. I, II; 2 cr. Historical background of nursing, current trends in nursing; choosing and adjusting to a field of work; professional problems and organizations.

10. Child Care. II; 3 cr. Principles of child care; care of children with medical and surgical illnesses—problems directly related to hospitalization, home care, and community programs.

11. Orthopedic Nursing. II; 2 cr. Fundamentals, principles, and attitudes in the care of people with orthopedic disabilities.

12. Eye, Ear, Nose and Throat Nursing. II; 2 cr. Anatomy and physiology; diagnosis, treatment and nursing care in the more common diseases; types of surgery. Sight saving and prevention of blindness; psychological and economic problems of blindness and deafness.

13. Neuropsychiatric Nursing. I; 3 cr. A survey of mental illness and diseases of the nervous system, including pathology, symptomatology, treatment, preventive aspects, and the physical and mental approaches to nursing care.

14. Communicable Disease Nursing. I; 2 cr. Etiology of infectious diseases; general principles of recognition and control. Methods and techniques of disinfection applied to the more common diseases. Preventive factors, family and community aspects of infectious diseases.

15. Obstetric Nursing. I, II; 2 cr. Principles of normal and abnormal aspects of pregnancy, labor, delivery, and puerperium with nursing care of mother and new-born.

20. Ward Management. Yr; 3 cr. Aims and objectives of ward management; techniques of ward supervision. Methods of teaching and planning the clinical experience in the ward unit.

21. WARD TEACHING. I, II; 3 cr. Supervised experience as an assistant head nurse on selected services in University Hospitals.

30. PREVENTIVE MEDICINE AND COMMUNITY HEALTH. I; 3 cr. The public health movement; communicable disease control and sanitation; maternal and child health; the use of vital statistics; organization and function of local, state and national health departments.

40. PRINCIPLES OF PUBLIC HEALTH NURSING. I or II; 3 cr. The scope and principles of public health nursing; nursing care to the family (with emphasis on interviewing and teaching); professional relationships, health program planning, the case load, citizen participation. Open only to graduate nurses.

41. PUBLIC HEALTH NURSING SERVICES. I or II; 3 cr. A study of needs and programs for family health service in the major health areas; communicable disease (including tuberculosis), rheumatic fever, orthopedic conditions, cancer and other long-term illnesses. Prerequisite: Nursing 40 or consent of instructor.

42. MATERNAL AND CHILD HEALTH. I or II; 3 cr. Emotional, physical, and social aspects of nursing care to the expectant mother, the infant, and the growing child. Trends in school health and the role of the nurse in the school.

43. TEACHING IN PUBLIC HEALTH NURSING. I or II; 3 cr. Health teaching in family, community and class groups. Demonstration and practice in teaching home nursing and parents' classes. Prerequisite: Nursing 40.

45. FIELD WORK. I or II; 8 cr. Supervised experience in selected urban and rural public health nursing fields. Prerequisites: Nursing 40 and laboratory fee to field agency.

SCHOOL OF PHARMACY

EDWIN B. FRED, PRESIDENT

ARTHUR H. UHL, DEAN

FACULTY

APPLE, WILLIAM S., *Ph.D.*, Assistant Professor of Pharmacy Administration; Coordinator of Pharmacy Extension Services

BUSSE, LOUIS W., *Ph.D.*, Associate Dean of the School of Pharmacy; Professor of Pharmacy

FOYE, WILLIAM O., *Ph.D.*, Assistant Professor of Pharmaceutical Chemistry

HIGUCHI, TAKERU, *Ph.D.*, Professor of Pharmacy

JONES, JAMES J., *M.L.S.*, Librarian

LAFORS, CLAUDE D., *(Lt. Col)*, Associate Professor of Military Science

LEMBERGER, AUGUST P., *Ph.D.*, Instructor in Pharmacognosy

MILLER, JACK W., *Ph.D.*, Instructor in Pharmacology

NEPTUNE, JOHN A., *Ph.D.*, Instructor in Pharmaceutical Chemistry

PARKS, LLOYD M., *Ph.D.*, Professor of Pharmaceutical Chemistry

SONNEDECKER, GLENN A., *Ph.D.*, Assistant Professor of History of Pharmacy

UHL, ARTHUR H., *Ph.D.*, Dean of the School of Pharmacy; Professor of Pharmacy

URDANG, GEORGE, *Ph.D.*, Professor of History of Pharmacy (Emeritus)

WESTING, J. HOWARD, *Ph.D.*, Professor of Marketing

WURSTER, DALE E., *Ph.D.*, Associate Professor of Pharmacy

Two representatives each from the four divisions to be appointed annually by the Executive Committee of Divisions.

SCHOOL OF PHARMACY

GENERAL STATEMENT

The Course in Pharmacy is an integral part of the University and is governed by the same general policy that characterizes that institution. The object of the course is to furnish a thoroughly scientific foundation for the pursuit of the profession of pharmacy in all its branches; to prepare students not only to operate drug stores but to fit them as well for other lines of pharmaceutical activity—to become hospital pharmacists, pharmacognosists, pharmacists in the Army or Navy, to take up pharmaceutical manufacturing, to engage in pharmaceutical research, or to enter the government service. The elements of the fundamental natural sciences, botany, chemistry, and physics, must be studied and their principles understood before their applications to pharmacy can naturally be considered. For this reason students in pharmacy are required to pursue general elementary courses in these fundamental sciences where they have the advantage of close association with students in other departments of the University.

AMERICAN COUNCIL ON PHARMACEUTICAL EDUCATION

The American Council on Pharmaceutical Education is sponsored by the American Pharmaceutical Association, the National Association of Boards of Pharmacy, and the American Association of Colleges of Pharmacy. The purpose of this Council is to advance the standards of pharmaceutical education and to maintain a list of acceptable colleges of pharmacy. The School of Pharmacy is a class "A" accredited school of pharmacy.

AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

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

STUDENT EXPENSE

For information regarding living costs, tuition and fees, and student employment, consult General Information, page 13.

SELF-SUPPORT

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

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

REQUIREMENTS FOR ADMISSION

Students who are candidates for the degree of Bachelor of Science (Pharmacy) will enter the School of Pharmacy at the beginning of the sophomore year after completing one year of work in the College of Letters and Science. Sophomores must make application to the Dean of the School of Pharmacy for official transfer as soon as the requirements for the freshman year have been fulfilled.

The specific requirements for admission to the School of Pharmacy which should be met by the end of the freshman year are:

1. English ..... 6 credits
2. Chemistry ..... 10 credits
3. Mathematics or Foreign Language ..... 8 credits
4. Zoology ..... 3 credits
5. Botany ..... 3 credits

Applicants for admission to the School of Pharmacy must present a minimum grade-point average for all of their collegiate work of 2.3. Pre-pharmacy students in the University of Wisconsin who fail to attain a minimum grade-point average of 2.3 at the end of their first year of pre-pharmacy work may continue their registration in the school or college of their original registration provided that they have met the minimum requirements of that school or college. No student may be registered as a pre-pharmacy student for more than four semesters. Such students will not be allowed to carry courses in the School of Pharmacy in their second year of pre-pharmacy work.

STUDENTS TRANSFERRING TO THE UNIVERSITY OF WISCONSIN

Students whose freshman year is spent in some other college outside the University of Wisconsin should follow a sequence similar to that outlined above if graduation from the School of Pharmacy is contemplated. 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.

Applicants for admission to the School of Pharmacy from other colleges or universities should sent a transcript of their credits, for evaluation, to the Office of Admissions, Bascom Hall, University of Wisconsin, Madison 6, Wisconsin.

GRADUATE STUDY

Like the sister profession, medicine, pharmacy is in need not only of the general practitioner, but also of the specialist. Graduates who wish to prepare themselves as analytical, food, or sanitary chemists in manufacturing concerns will find the department offers excellent opportunities for specialized study and research. Extensive research facilities are provided, and the graduate courses in pharmacy, pharmaceutical and plant chemistry, pharmacognosy, pharmacology and history of pharmacy make up an important part of the offerings of the department. The degrees of Master of Science and Doctor of Philosophy are conferred upon candidates who have successfully met the requirements of the respective courses. For information regarding Graduate Study Fellowships, Graduate and Research Assistantships write A. H. Uhl, Dean of the School of Pharmacy, 101 Pharmacy Building, Madison 6, Wisconsin.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE IN PHARMACY

A total of not less than 128 credits with an average grade of *C* is required for the degree of Bachelor of Science in Pharmacy. The minimum registration in the School of Pharmacy, in order to qualify for the degree of Bachelor of Science in Pharmacy, is three years. The minimum residence requirement for the bachelor's degree is 30 credits and 60 grade-points at the University of Wisconsin. Substantially all of the last year's work must be taken in residence in the School of Pharmacy at the University of Wisconsin.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE (Pharmacy)

FRESHMAN YEAR

First Semester	Credits	Second Semester	Credits
English 1a—Freshman English	3	English 1b—Freshman English	3
Chemistry 1a—General chemistry	5	Chemistry 1b—General chemistry	5
Mathematics or Language	4	Mathematics or Language	4
Botany 17—Survey	3	Zoology 17—Survey	3
Pharmacy 1a—Orientation	1	Pharmacy 1b—Orientation	1
Physical Education	0	Physical Education	0
Military Training or Band	0	Military Training or Band	0
	16		16

SOPHOMORE YEAR

Pharm. Chem. 24a	3	Pharm. Chem. 24b	3
Pharm. Chem. 25a	1	Pharm. Chem. 25b	1
Pharmacy 3	2	Pharmacy 4	4
Physics 65	3	Physics 65	3
Agric. Bacteriology 1	4	Electives	5–6
Electives	3–4	Physical Education (women only)	0
Physical Education (women only)	0	Military Training	0
Military Training	0		
	16–17		16–17

JUNIOR YEAR

Pharm. Chem. 126	3	Pharm. Chem. 127	4
Pharm. Chem. 145	4	Pharmacognosy 120b	3
Pharmacy 128	2	Physiology 3	4
Pharmacy 129	2	Electives	5–6
Pharmacognosy 120a	3		
Electives	3		
	17		16–17

SENIOR YEAR

Pharmacy 134	2	Pharm. Chem. 140b	4
Pharmacy 135	2	Pharm. Chem. 146	2
Pharm. Chem. 140a	4	Pharmacy 150	2
Pharmacy 142	4	Pharmacy 151	2
Pharmacy 158	3	*Pharmacy 100	0–2
*Pharmacy 100	0–2	Electives	6–5
Electives	2–0		
	17		16–17

* Students who have a grade-point average of 2.5 or better may elect 4 credits of Thesis during the senior year.

DEPARTMENTS OF INSTRUCTION

Abbreviations used in the announcement of courses:

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

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

PHARMACY

1. Orientation in Pharmacy. Yr; 0–1 cr. Required of freshmen in the School of Pharmacy. Mr. Uhl and staff.

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

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

51. Drug Store Practice. II; 2 cr. Lectures and topics ranging from the planning and equipment of a store to salesmanship and the laws governing the practice of pharmacy. Mr. Apple and special lecturers.

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

124. Pharmaceutical Manufacturing. I, II; 1–4 cr. A presentation of the methods and practice in the formulation of pharmaceuticals in semi-plant scale quantities. Prerequisite: Consent of instructor. Mr. Nelson.

125. Organization and Administration of Pharmaceutical Research and Development. I; 2 cr. A study of industrial pharmaceutical organization, including management, research and development, new product formulation, reports, and other administrative aspects. Mr. Wurster.

128. Pharmaceutical Technology. I; 2 cr. A course in the application of pharmaceutic agents and techniques to the preparation of official and unofficial pharmaceutical products. Prerequisite: Pharmaceutical Chemistry 24b. Mr. Busse.

129. Pharmaceutical Technology Laboratory. I; 2 cr. Prerequisite: Concurrent registration in Pharmacy 128.

131. Preservation and Stabilization of Pharmaceuticals. II; 3 cr. A study of the agents and problems involved in the preservation and stabilization of pharmaceuticals. Mr. Busse.

134. Prescription Practice. I; 2 cr. The study and the compounding of prescriptions representative of the various modes of administration. Prerequisites: Pharmaceutical Chemistry 24, Pharmacy 128. Mr. Wurster.

135. Prescription Practice Laboratory. I; 2 cr. Prerequisites: Pharmaceutical Chemistry 24, Pharmacy 128. Mr. Wurster.

142. Materia Medica. I; 4 cr. The chief physiological effect of drugs with special emphasis on the posology, toxicology and the bio-assay of the official preparations. Prerequisites: Pharmaceutical Chemistry 127; Physiology 3. Mr. Miller.

150. Prescription Practice. II; 2 cr. A study of prescriptions with special reference to incompatibilities and the techniques in the proper dispensing thereof. Prerequisites: Pharmacy 134, 135, and 142. Mr. Wurster.

151. PRESCRIPTION PRACTICE LABORATORY. II; 2 cr. Prerequisite: Concurrent registration in Pharmacy 150. Mr. Wurster.

156a. TECHNIQUES AND INSTRUMENTS USEFUL IN PHARMACEUTICAL RESEARCH. I; 1–4 cr. A course designed to familiarize the student with the newer techniques, theory, and instruments useful in pharmaceutical research. Mr. Higuchi.

156b. TECHNIQUES AND INSTRUMENTS USEFUL IN PHARMACEUTICAL RESEARCH. II; 3 cr. A continuation of 156a. Mr. Higuchi.

158. HISTORY OF PHARMACY. I; 3 cr. Development of pharmacy in the principal countries of Europe and in the United States. Mr. Sonnedecker.

159. HISTORY OF PHARMACOPOEIAS. II; 2 cr. A survey of the development of official pharmaceutical standards. Prerequisite: Senior standing. Mr. Sonnedecker.

160. PHARMACEUTICAL LITERATURE. II; 2 cr. A study of the evolution of pharmaceutical literature and its influence on the development of the profession. Mr. Sonnedecker.

168. PHYSICAL PHARMACY. II; 3 cr. The application of physical laws and principles to pharmaceutical systems. Prerequisites: Chemistry 130a and 131a and consent of instructor. Mr. Higuchi.

180. ADVANCED INDEPENDENT STUDY. I, II; 2–4 cr. Open only to superior students. Staff.

200. GRADUATE RESEARCH IN PHARMACY. Yr; 2–6 cr. Staff.

210. EXTRACTION AND ADSORPTION METHODS. 2 cr. (Given only in odd-numbered years.) The physical principles involved in separation by extraction and adsorption. Prerequisite: Chemistry 131. Mr. Higuchi.

232. COLLOIDS, SUSPENSIONS, AND EMULSIONS. II; 2 cr. (Given only in even-numbered years.) A presentation of the theory basic to the technology of colloidal suspension and emulsion used in pharmacy and medicine. Prerequisite: Chemistry 131 or equivalent. Mr. Busse, Mr. Higuchi.

250. CONFERENCE OF RESEARCH WORKERS. Yr; 1 cr. Mr. Uhl.

PHARMACEUTICAL AND PLANT CHEMISTRY

24a. ORGANIC CHEMISTRY FOR PHARMACY STUDENTS. I; 3 cr. An elementary course drawing upon materials of pharmacy and medicine for illustrations and emphasizing reactions of pharmaceutical importance. Prerequisite: Chemistry 1b. Mr. Foye.

24b. ORGANIC CHEMISTRY FOR PHARMACY STUDENTS. II; 3 cr. Prerequisite: Pharmaceutical Chemistry 24a. Mr. Foye.

25a. ORGANIC CHEMISTRY FOR PHARMACY STUDENTS. Sem; 1 cr. Credit or concurrent registration in Pharmaceutical Chemistry 24a. Lab. 3 hrs. Mr. Foye.

25b. ORGANIC CHEMISTRY FOR PHARMACY STUDENTS. Sem; 1 cr. Credit or concurrent registration in Pharmaceutical Chemistry 24b. Lab. 3 hrs. Mr. Foye.

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

126. INORGANIC PHARMACEUTICAL CHEMISTRY. I; 3 cr. A review of certain of the principles of inorganic chemistry with special attention to preparation, properties, testing, and uses of medicinal chemicals. Prerequisites: Pharmaceutical Chemistry 24b, Pharmacy 4. Mr. Parks.

127. ORGANIC PHARMACEUTICAL CHEMISTRY. II; 4 cr. A study of the chemistry of organic medicinal products. Prerequisites: Pharmaceutical Chemistry 24b, 25b, Pharmacy 4. Mr. Foye.

129. SYNTHESIS OF ORGANIC MEDICINALS. II; 4 cr. A detailed consideration of the theory, mechanism and scope of commonly employed and selected reactions in the preparation of organic medicinal compounds. Prerequisites: Pharmaceutical Chemistry 127 and consent of instructor. Mr. Foye.

130. Selected Topics in Pharmaceutical Chemistry. I; 2 cr. An advanced study of those types of compounds of medicinal value that are presently under development. Prerequisite: Pharmaceutical Chemistry 127. Mr. Foye.

140a. Pharmaceutical Plant Chemistry. I; 4 cr. A study of natural drug plant principles and products with special attention to their pharmaceutical aspects. Prerequisites: Pharmaceutical Chemistry 24b, 25b, 145. Mr. Parks.

140b. Pharmaceutical Plant Chemistry. II; 4 cr. A study of the chemistry of the metabolic processes and products of living matter with special attention to their pharmaceutical aspects. Prerequisites: Pharmaceutical Chemistry 24b, 25b, 145, 140a. Mr. Neptune.

141. Phytochemical Methods and Techniques. II; 4 cr. A lecture-laboratory course on the methods, techniques, and equipment commonly used in the isolation, identification, and analysis of drug plant principles and products. Prerequisites: Pharmaceutical Chemistry 127, 145. Mr. Parks.

145. Quantitive Pharmaceutical Chemistry. I; 4 cr. Quantitive analytical procedures and theory as applied to the assay of pharmaceutical chemicals. Prerequisite: Pharmaceutical Chemistry 126 or concurrent registration. Mr. Neptune.

146. Drug Assay. II; 2 cr. Quantitative methods of analysis of drugs and pharmaceutical preparations with special reference to official products and procedures. Prerequisite: Pharmaceutical Chemistry 145. Mr. Parks.

147. Pharmaceutical Manufacturing Control. I; 3 cr. A study of the responsibility and authority of the control department. Prerequisites: Pharmaceutical Chemistry 146; Pharmacy 124 or concurrent registration. Mr. Neptune.

148. Development of Drug Standards. I; 2 cr. The organization and development of official drug standards in the United States. Prerequisites: Pharmaceutical Chemistry 145 and consent of instructor. Mr. Neptune.

200. Graduate Research. Yr; 1–5 cr. Staff.

229. Chemistry of Organic Sulfur Compounds. II; 2 cr. A study of the synthesis and general reactions of organic compounds containing sulfur with particular emphasis on compounds of medicinal interest. Prerequisite: Chemistry 124. Mr. Foye.

241. Advanced Plant Chemistry. Yr; 2 cr. A study of the chemistry of selected types of drug plant constituents. Prerequisite: Consent of instructor. Mr. Parks.

246. Advanced Drug Analysis. II; 2 cr. or 4 cr. with laboratory. An advanced study of basic analytical methods of drug assay. Prerequisites: Graduate standing and consent of instructor. Mr. Neptune.

PHARMACOGNOSY

22. Habitats of Crude Vegetable and Animal Drugs. I, II; 1 cr. Various factors influencing the geographic sources of natural remedial agents. Mr. Lemberger.

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

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

120. Natural History of Vegetable and Animal Drugs. Yr; 3 cr. A monographic study of a considerable number of vegetable and animal drugs based on their natural relationships. Prerequisites: Pharmacognosy 112, Botany 1, Chemistry 1. Mr. Lemberger.

130. Cultivation of Medicinal Plants. Yr; 1–5 cr. Mr. Lemberger.

200. Research in Medicinal Plants. Yr; 1–5 cr. Mr. Lemberger.

THE UNIVERSITY EXTENSION DIVISION

LORENTZ H. ADOLFSON, DIRECTOR
HENRY DUWE, BUSINESS MANAGER
CLAY SCHOENFELD, ASSISTANT TO THE DIRECTOR
W. M. HANLEY, DIRECTOR, FRESHMAN-SOPHOMORE CENTER PROGRAM AND CREDIT CLASSES
ALLAN OSTAR, DIRECTOR, EDITORIAL SERVICES
GEORGE A. PARKINSON, DIRECTOR, MILWAUKEE EXTENSION DIVISION
THEODORE SHANNON, DIRECTOR, INFORMAL INSTRUCTIONAL SERVICES
WILSON B. THIEDE, DIRECTOR, FIELD SERVICES
CHARLES A. WEDEMEYER, RECORDER AND DIRECTOR, CORRESPONDENCE STUDY

GENERAL EXTENSION FACULTY

ADOLFSON, LORENTZ HENNING, *Ph.D.*, Director
AHRNSBRAK, HENRY C., *Ph.D.*, Assistant Professor of Education; Director of Wausau Extension Center
ALLEN, CHESTER, Assistant Professor, Director of Special Services in Correspondence Study
ALLEN, WILLIAM HOMER, *Ed.D.*, Assistant Professor, Bureau of Audio-Visual Instruction
ALLHISER, NORMAN CARL, *M.A.*, Associate Professor and Director, Industrial Management Institute
AMES, WILLIAM FRANCIS, *M.S.*, Instructor in Mathematics
APPLE, WILLIAM SHOULDEN, *Ph.D.*, Assistant Professor, Co-ordinator of Extension Services in Pharmacy
AZPELL, NORMAN JAMES, *M.A.*, Assistant Professor; Adviser to Students
BARGER, JOHN EDWARD, *M.S.*, Instructor in Mathematics
BASCOM, LELIA, *M.A.*, Emeritus Associate Professor of English
BATTIG, LEON, *M.A.*, Instructor in Mathematics
BAUMANN, RUTH, *M.A.*, Assistant Professor of Political Science
BEERY, GEORGE S., *Ph D.*, Special Teaching Assistant in Education
BERG, ROBERT LOUIS, *M.A.*, Instructor in Political Science
BERGER, ROLLAND DAVID, *M.A.*, Instructor, Bureau of Community Development
BERMAN, DAVID ALVIN, *M.S.*, Assistant Professor of Chemistry
BLOTZ, MRS. HELENE STRATMAN-THOMAS, *M.A.*, Assistant Professor of Music
BOYD, BRADFORD BURTON, *M.B.A.*, Assistant Professor, Industrial Management Institute
BRIDGMAN, CHARLES SIMMONS, *Ph.D.*, Professor and Director, Bureau of Industrial Psychology
BROCKHAUS, HERMAN HENRY, *Ph.D.*, Associate Professor of Speech
BROWN, FREEMAN HARDING, *B.S.*, Assistant Professor; Director of Photographic Laboratory
BRUMBLAY, RAY ULYSSES, *Ph.D.*, Associate Professor of Chemistry
CARLSON, LAWRENCE OSSIAN, *M.A.*, Instructor in History
CHAMPAGNE, ROGER JAMES, *M.S.*, Instructor in History
CLEMENS, THOMAS DEMPSTER, *M.S.*, Instructor, Bureau of Audio-Visual Instruction
COLBERT, ROY JEFFERSON, *Ph.D.*, Professor, Director of Bureau of Community Development
COLVIN, CLAIR IVAN, *B.S.*, Instructor in Chemistry
CRANE, FRANK DOUGALL, *Ph.D.*, Professor of English
CURRY, MYRON MORGAN, *M.A.*, Instructor in Speech
DEAN, CHARLES LYMAN, *B.S.*, Emeritus Associate Professor of Mechanical Engineering
DEBAUN, HAROLD, *Ph.B.*, Associate Professor of Commerce

DONOGHUE, JAMES ROBERT, *Ph.D.*, Associate Professor of Political Science
DOYLE, MERYL DANIEL, *M.A.*, Instructor, Industrial Management Institute
DUNCAN M. MAGDALEN, *M.A.*, Assistant Professor of English
DUWE, HENRY JOHN, *M.A.*, Instructor and Business Manager
DWELLE, DOROTHY CAROLYN, *M.A.*, Instructor in English
DYSINGER, DALE WENDELL, *Ph.D.*, Assistant Professor of Psychology
EBISCH, KONRAD ERNST, *M.S.*, Instructor in Geography
ECKHARDT, AUGUST GOTTLIEB, *LL.M., S.J.D.*, Associate Professor of Law
EDSALL, BESSIE EVA, *Ph.M.*, Emeritus Professor of History
ENGLISH, H. ROWLAND, *M.A.*, Emeritus Professor of Commerce
ESSER, ROBERT EMMET, *Ph.D.*, Assistant Professor of Botany and Zoology
EVANS, HERBERT PULSE, *Ph.D.*, Professor of Mathematics
FARRELL, MARY KATHERINE, *B.A., B.M.*, Instructor, Field Organization and Bureau of Lectures and Concerts
FINLEY, ROBERT WILLIAM, *Ph.D.*, Assistant Professor of Geography
FOSTER, MARVIN REED, *M.S.*, Director, Bureau of Lectures and Concerts
FOWLER, RUSSELL WINSLOW, *M.S.*, Associate Professor of Mechanical Engineering
FRASER, M. SHIRLEY, *M.S.*, Instructor in Chemistry
FRIEDMANN, EUGENE ALVIN, *Ph.D.*, Assistant Professor of Sociology
GANGSTAD, IDA MARIE, *B.A.*, Assistant Professor of Library Methods
GARD, ROBERT EDWARD, *M.A.*, Professor of Speech and Rural Sociology; Director of "Wisconsin Idea" Theatre
GEE, RONALD CALLAWAY, *M.S.*, Instructor, "Wisconsin Idea" Theatre
GEREND, MRS. HERTA FRIEDA, *B.A.*, Instructor (part-time) in German
GEREND, JOSEPH JOHN, *M.A.*, Instructor in English and Supervisor, Marinette Extension Center
GILLETT, PHILIP WAYNE, *M.S.*, Instructor in Mathematics
GORDER, LYLE DONALD, *M.S.*, Instructor in Geography
GRAFF, MARSHALL CONANT, *M.A.*, Assistant Professor, Field Organization and Bureau of Lectures and Concerts
GROGAN, PAUL JOSEPH, *M.S.*, Associate Professor of Mechanical Engineering and Co-ordinator of Engineering Activities in Extension
GROSNICK, RAYMOND OTTO, *B.Ed.*, Instructor in Mathematics and Adviser to Students
GUILFORD, HARRY GARRETT, *Ph.D.*, Assistant Professor of Botany and Zoology
HAILER, HAROLD HERMAN, *Ph.M.*, Instructor, Bureau of Audio-Visual Instruction
HANLEY, MRS. LOUISE WARDELL, *M.A.*, Assistant Professor of English
HANLEY, WILBUR MATTHEW, *Ph.D.*, Associate Professor of Geography; Director of Freshman-Sophomore Center Program and Credit Classes
HEROLD, ROBERT FREDERICK, *M.S.*, Instructor in Speech
HILL, HENRY BERTRAM, *Ph.D.*, Professor of History
HILLIS, LEONARD FOLSOM, *M.S.*, Associate Professor of Civil and Structural Engineering
HOLT, HARRIETTE GRACE, *M.A.*, Emeritus Assistant Professor of Mathematics
HUGDAHL, EDWARD OTTO, *M.S.*, Instructor in Music
HULTMAN, RICHARD HAROLD, *M.S.*, Instructor in Biological Sciences
HUMPHREYS, RICHARD WILLIAM, *M.A.*, Instructor, School for Workers
IMHOFF, LAVERNE JOSEPH, *M.S.*, Instructor, Field Organization and Bureau of Lectures and Concerts
IVERSON, MAURICE THEOBALD, *Ph.D.*, Assistant Professor of Education; Bureau of Audio-Visual Instruction
JAMES, BERNARD JOSEPH, *M.A.*, Instructor in Sociology and Anthropology and Field Representative
JAMES, MRS. LILLIAN JORGENSEN, *Mu.B.*, Instructor in Music
JANSKY, CYRIL METHODIUS, *B.S.*, Emeritus Professor of Electrical Engineering
JOHNSON, ORPHEUS LEROY, *M.A.*, Instructor in Music

JORGENSON, JAMES RICHARD, *M.M.E.*, Instructor in Music
KAMARCK, EDWARD LAWRENCE, *M.A.*, Assistant Professor, "Wisconsin Idea" Theatre
KASTLER, NORMAN MANTONYA, *M.A.*, Associate Professor of Economics and Sociology
KERR, HAROLD HOUSTON, *B.S.*, Instructor in Mechanical Drawing
KIRCHBERGER, HANS FRITZ, *J.U.D.*, Lecturer Emeritus in Political Science
KIRKPATRICK, DONALD LEE, *Ph.D.*, Assistant Professor, Industrial Management Institute
KLEINER, JOSEPH LESTER, *M.B.A.*, Assistant Professor of Commerce
KNOWLES, MARGARET ISABEL, *Ph.D.*, Assistant Professor of History
KONIG, SELMA SOPHIE, *Ph.D.*, Assistant Professor (part-time) of German
KOOB, ROBERT LIVINGSTON, *B.B.A.*, Instructor, Industrial Management Institute
KOPITZKE, VELDOR ALVIN, *M.A.*, Instructor in Economics
KRASSELT, OTTO LOUIS, *B.A.*, Instructor, Field Organization and Bureau of Lectures and Concerts
KUBIAK, HENRY JOSEPH, *B.S.*, Assistant Professor of Electrical Engineering
KUHL, WILLIAM OWEN, *M.S.*, Instructor, School for Workers
KUNEY, MRS. BERNICE DONNELLY, *M.A.*, Emeritus Associate Professor of English
LEVI, HERBERT WALTER, *Ph.D.*, Associate Professor of Botany and Zoology
LICHTY, JAMES JOHNSTON, *M.A.*, Assistant Professor, Industrial Management Institute
LIESCH, WILLIAM HENRY H., Field Representative and Director, Locally Directed High-School Correspondence Study
LIGHTY, WILLIAM HENRY, *Ph.B.*, Emeritus Professor of Extension Teaching
LINDSAY, ROBERT GEORGE, *M.A.*, Lecturer in Journalism
LOCKSMITH, LILA DELLA, *M.A.*, Instructor in Spanish and French and Adviser to Students
LOEFFLER, JOSEPH WELLINGTON, *B.S.*, Instructor in Physical Education
LOOMER, ALLISON POTTER, *M.A.*, Instructor in Mathematics
LOWE, MYRON JAMES, Instructor, Field Organization
LUDEMAN, JOHN FREDERICK, *M.S.*, Instructor in Psychology and Co-ordinator of Student Personnel Services
MACAULEY, C. CAMERON, *B.A.*, Instructor, Bureau of Audio-Visual Instruction
MANLEY, CHARLES ROTHWELL, JR., *M.A.*, Instructor in Sociology and Anthropology and Adviser to Students
MANN, HENRY LOUIS, *M.A.*, Instructor in English
MAY, ALBERT EMIL, *Ph.D.*, Associate Professor of Mathematics and Director, Racine Extension Center
MCCANSE, RALPH ALAN, *M.A.*, Associate Professor of English
MCCARROLL, WILLIAM GRIFFITH, *M.A.*, Instructor in Economics
MCCUTCHEON, LEONA ESSIE FREDERICA, *M.A.*, Emeritus Assistant Professor, Bureau of Information and Program Services
MCMULLEN, KATHERINE WAY, *M.A.*, Assistant Professor of English
MCPHEE, RODERICK FULTON, *M.S.*, Instructor and Assistant Director, Bureau of Information and Program Services
MEIVES, WALTER JEWETT, *B.A.*, Instructor, Photographic Laboratory
MILLER, JOHN LESTER, *Ph.D.*, Professor of Economics, Sociology, and Anthropology
MONTROSS, HAROLD WESLEY, *Ph.D.*, Instructor, Assistant Director, Racine Extension Center
MULVIHILL, EDWARD ROBERT, *Ph.D.*, Professor of Spanish
MUNRO, HILDA MARY, *M.A.*, Instructor, Industrial Management Institute
MUNTS, RAYMOND CHABROL, *M.A.*, Instructor, School for Workers
NAJEM, ROBERT E., *M.A.*, Instructor in French and Italian
NESBERG, LLOYD S., *Ph.D.*, Instructor in Psychology and Adviser to Students
ONHEIBER, JEROME, *M.A.*, Instructor in Spanish and Adviser to Students
ORCUTT, CLAYTON GARFIELD, Lecturer, Industrial Management Institute
OSTAR, ALLAN WILLIAM, *B.A.*, Instructor and Director, Office of Editorial Services
OZANNE, ROBERT WILLARD, *Ph.D.*, Assistant Professor and Director, School for Workers
PALMERI, JOSEPH, *Ph.D.*, Professor of French and Italian

PENNIMAN, CLARA, *Ph.D.*, Assistant Professor of Political Science
PETERSON, LEROY JAMES, *Ph.D.*, Professor of Education
PFLEGER, RAYMOND, *Ph.M.*, Instructor in Geography
PIETSCH, EWALD CARL, *M.S.*, Instructor in Geography
PITMAN, ANNA MARIA, *Ph.D.*, Emeritus Professor of Greek and Latin
PORZAK, BERNARD PETER, *M.A.*, Instructor in English
PULVER, HARRY E., *B.S., C.E.*, Emeritus Professor of Civil and Structural Engineering
RATNER, ROBERT ALEXANDER, *M.S.*, Assistant Professor of Mechanical Engineering
RINDT, KENNETH EDWARD, *M.A.*, Instructor, Bureau of Community Development
ROBERTS, MRS. ETHEL IRENE, *B.A.*, Instructor (part-time) in Mathematics
RODMAN, GEORGE BUSH, *Ph.D.*, Professor of English
ROSS, BRUCE MITCHELL, *Ph.D.*, Instructor in Psychology and Adviser to Students
SANGER, CARL EDGAR, *M.S.*, Associate Professor of Physical Education and Intramural Athletics
SARIG, EMMETT RAY, *M.M.*, Associate Professor of Music
SCHACHT, ROBERT HUGO, *M.S.*, Instructor; Director, Bureau of Information and Program Services
SCHLATTER, EDWARD BUNKER, *Ph.D.*, Emeritus Professor of Romance Languages
SCHOENFELD, CLARENCE ALBERT, *M.A.*, Assistant Professor of Journalism and Assistant to the Director
SCHULTZ, GWENDOLYN MANETTE, *M.A.*, Instructor in Geography
SCHULTZ, ROBERT ARTHUR, *B.S.*, Instructor, Industrial Management Institute
SCHULZ, GERHARD ROBERT, *B.A.*, Instructor in Photographic Laboratory
SCHWEBKE, HOWARD JOHN, *M.S.*, Assistant Professor of Engineering Drawing
SCHWENN, ROGER EDWARD, *B.A.*, Instructor and Librarian
SEIFERT, LESTER WILHELM J., *Ph.D.*, Associate Professor of German
SETO, FRANK, *Ph.D.*, Assistant Professor of Botany and Zoology
SEVERSON, KERMIT EARL, *Ph.D.*, Assistant Director of Correspondence Study
SHANNON, THEODORE JOSEPH, *M.A.*, Director of Informal Instructional Services
SMITH, J. HAROLD, *M.A.*, Instructor in English
SMITH, RALPH DORRANCE, *B.S.*, Instructor in Mechanical Engineering
STEHN, MRS. FLORENCE, *M.A.*, Emeritus Assistant Professor of French
STEINBERG, CHARLENE JUNE, *M.A.*, Instructor in Chemistry
STEWART, WILLIAM FRANCIS, *M.A.*, Instructor in Sociology and Anthropology
STILWELL, WILLIAM PAUL, *M.B.A.*, Assistant Professor, Industrial Management Institute
STUEBER, RALPH KENT, *B.S.*, Instructor in Physical Education and Athletics
SULLIVAN, RICHARD ELMORE, *B.S., M.B.A.*, Assistant Professor of Commerce
SWINDELL, BLANCHE, *M.A.*, Instructor in English
TALLENT, BERNARD COX, *M.A.*, Instructor in Political Science and Director of Kenosha Extension Center
TAUBE, EDWARD E., *Ph.D.*, Instructor in Geography
TEGTMEYER, RAYMOND CHARLES, *M.S.*, Assistant Professor of Mechanical Engineering
THIEDE, WILSON BICKFORD, *Ph.D.*, Director of Field Services
THOMSON, JOHN WALTER, JR., *Ph.D.*, Associate Professor (part-time) of Botany and Zoology
TIBBETTS, NORRIS LOWELL, JR., *A.B.*, Instructor, School for Workers
TIETZE, FREDERICK INGLEBRIT, *Ph.D.*, Assistant Professor of English
TIFFANY, JACKSON DEWAIN, Instructor, Bureau of Audio-Visual Instruction
TOWN, GEORGE GALLOWAY, *Ph.D.*, Professor of Chemistry
TRICE, HARRISON MILLER, *M.A.*, Instructor in Sociology
VANDERLIN, CARL JOSEPH, JR., *M.S.*, Instructor in Mathematics
VOZZA, JOHN FERNANDO, *Ph.D.*, Assistant Professor of Chemistry
WAGNER, RAPHAEL DARREL, *Ph.D.*, Associate Professor of Mathematics
WARD, JAMES EUGENE, *M.S.*, Instructor in Mathematics
WATERMAN, ARTHUR ELROY, *M.A.*, Instructor in English

WATERS, MAURICE, *A.B.*, Instructor in Political Science
WEDEMEYER, CHARLES ADRIAN, *M.A.*, Recorder and Director of Correspondence Study
WEINER, SAMUEL, *Ph.D.*, Assistant Professor of Chemistry
WENDT, FLORENCE, *B.A.*, Instructor in Commerce
WHIPPLE, PATRICIA ETHEL, *M.A.*, Instructor in Spanish and French
WHITE, FREDERICK ALLISON, *Ph.D.*, Assistant Professor and Assistant Director, Bureau of Audio-Visual Instruction
WHITE, H. DONALD, *Ph.D.*, Assistant Professor of Art Education
WHITNEY, BERYL ESTHER, *M.A.*, Instructor in English
WILDA, EUGENE FRANKLIN, *M.S.*, Instructor in Chemistry
WILLIAMS, RICHARD HENRY, *M.A.*, Instructor, Bureau of Audio-Visual Instruction
WILSON, ROBERT SANFORD, *M.S.*, Instructor in Physics
WITTICH, WALTER ARNO, *Ph.D.*, Professor of Education; Director, Bureau of Audio-Visual Instruction
WOLF, ALFRED, *Ph.D.*, Instructor in History
WOODRUFF, LLOYD WILBUR, *M.S.*, Assistant Professor of Political Science
ZADROZNY, JOHN THOMAS, *Ph.D.*, Instructor in Sociology
ZORN, ROMAN JOSEPH, *Ph.D.*, Assistant Professor of History and Director, Green Bay Extension Center
ZYWICKI, DONNA SHIRLEY, *B.S.*, Instructor in Chemistry

MILWAUKEE EXTENSION DIVISION

GEORGE AMBROSE PARKINSON, *Ph.D.*, DIRECTOR
EDWARD DEMIN HOLST, *Ph.D.*, ASSISTANT DIRECTOR

FACULTY

ALDRICH, RUTH ISABELLE, *M.A.*, Instructor in English
AVEY, HARRY THOMPSON, *M.E.*, Emeritus Professor of Mechanical Engineering
AVNER, SHIRLEY MILDRED, *M.A.*, Instructor in English
BAGGALEY, ANDREW ROBERT, *Ph.D.*, Assistant Professor of Psychology
BAIER, JOSEPH GEORGE, *Ph.D.*, Professor of Zoology
BALDWIN, LEO STARR, *B.A., B.S.*, Emeritus Professor of Drawing
BARDELL, ROSS HARVEY, *Ph.D.*, Professor of Mathematics
BAXTER, MRS. IRMA B., *M.A.*, Instructor in Geography
BECKER, ARTHUR PETER, *Ph.D.*, Associate Professor of Economics
BELL, MARY LOUISE, *M.A.*, Instructor in English
BEST, MARTHA, *M.A.*, Instructor in French
BLUM, LAWRENCE PHILIP, *Ph.D.*, Assistant Director of Student Personnel Services and Associate Professor
BONOW, EUNICE RUTH, *Ph.D.*, Assistant Professor of Pharmacy
BOZAK, IRENE MARY, *B.A.*, Registrar and Faculty Secretary and Assistant Professor
BROOKS, DUDLEY COOKINGHAM, *M.A.*, Assistant Professor of English
BRUMBLAY, RAY ULYSSES, *Ph.D.*, Associate Professor of Chemistry
CHRISTMAN, WEBSTER MARCH, *M.Ed.*, Associate Professor of Drawing
COLLINS, FRANK MCDONALD, *Ph.D.*, Assistant Professor of English
CULVER, MRS. MARION PRENTISS, *B.A.*, Instructor in English
DAWE, WILLIAM HOWARD, *M.A.*, Instructor in English
DEPTULA, SZYMON STANISLAW, *M.A.*, Assistant Professor of Slavic Languages
DOWNING, WILLARD EDWARD, *M.S.S.*, Associate Professor of Social Work (also School of Social Work, Madison)
DUNLOP, DOUGLAS WAYNE, *Ph.D.*, Assistant Professor of Botany
EICHSTEADT, ARDEN CARL, *Ph.D.*, Assistant Professor of Student Personnel Services
ELMERGREEN, GEORGE LESTER, *M.S.*, Assistant Professor of Electrical Engineering
ERIKSON, WARREN WILBER, *M.A.*, Instructor in History
ERNST, DOROTHY JANET, *Ph.D.*, Assistant Professor of History
FELDMANN, VIRGINIA LOUISE, *B.S.*, Instructor in Chemistry
FELKEY, WILBUR T., *B.A., M/Sgt., U.S.A.*, Assistant in Military Science and Tactics
FREEMAN, MRS. MILDRED BROWNLEE, *M.A.*, Instructor in English
GANSWINDT, ALBERT HENRY, *M.Ed., C.P.A.*, Assistant Professor of Commerce
GEHRZ, DONALD KENNETH, *M.S.*, Instructor in Botany and Assistant to Building Superintendent
GOFF, CHARLES DAVIS, *Ph.D.*, Assistant Professor of Political Science
HAGEN, WILLIS WILLIAM, *B.A., LL.B., C.P.A.*, Instructor in Commerce
HARTWELL, MRS. INEZ LOW, *B.S.*, Instructor in Chemistry
HASHAGEN, RICHARD O., *B.A., M/Sgt., U.S.A.*, Assistant in Military Science and Tactics
HAYES, MERLIN LEWIS, *Ph.D.*, Associate Professor of Zoology and Assistant to the Director (Student Affairs)
HAZARD, WILLIAM RICHARD, *M.S.*, Assistant Professor of Journalism

HEPP, JOHN DALE, *B.S.*, Instructor in Drawing
HODGE, EDWIN R., JR., *D.B.A.*, Director, Division of Commerce, and Associate Professor of Commerce
HOLMES, MRS. ELISABETH KATZ, *M.A.*, Associate Professor of English
HOLST, EDWARD DEMIN, *Ph.D.*, Assistant Director and Associate Professor of English
HUDDLESTON, PAUL F., *M.B.A.*, Assistant Professor of Commerce
HUNT, MRS. MARY ANN, *M.Ed.*, Instructor in Student Personnel Services
JAECK, ELSA LAURA, *B.A.*, Librarian and Assistant Professor
JAGGARD, ROBERT ARTHUR, *M.S.*, Instructor in Physics
JOHNSON, ROBERT EARL, *M.Ph.*, Instructor in Physics
KENNEY, JOHN FRANCIS, *M.A.*, Associate Professor of Mathematics
KENNY, JOSEPH WILLIAM, *M.A.*, Lecturer in Geography
KITTSLEY, MRS. HELEN JUNG, *M.S.*, Instructor in Zoology (part-time)
KLECZKA, FLORENCE MARY, *B.A.*, *B.L.S.*, Assistant Professor of Student Personnel Services and Assistant Adviser to Women (Social Activities) and Vocational Librarian
KNUTSEN, HAROLD WALDEMAR, *M.S.*, Assistant Professor of Mechanics and Mechanical Engineering
KOCH, GILBERT HENRY, *M.S.*, Instructor in Chemistry
KORE, MRS. BRIGITA EKMANIS, *B.S.*, Instructor in Chemistry
KRUSE, ALBERT JOHANNES, *Ph.D.*, Associate Professor of German
LANGWILL, MRS. IRENE, *B.A.*, Emeritus Associate Professor and Emeritus Faculty Secretary and Adviser to Women (Scholastic Activities)
LAWRENCE, LEE EDWARD, *Ph.D.*, Associate Professor of History
LAYDE, DURWARD CHARLES, *Ph.D.*, Associate Professor of Chemistry
LEER, JERRY ARTHUR, *M.B.A.*, *C.P.A.*, Assistant Professor of Commerce
LEESEBERG, DONALD GEORGE, *M.B.A.*, Assistant Professor of Commerce
LEWIS, JOHN WILLIAM, *M.S.*, Instructor in Geography
LINDENBERG, GEORGE DUDLEIGH, *M.B.A.*, Instructor in Commerce
MAECHLER, HUGO CARL, *B.S.*, Assistant Professor of Drawing
MALLOY, THOMAS GREGORY, *M.D.*, Medical Specialist (part-time), Student Health Services
MALOTT, DONALD R., *M/Sgt., U.S.A.*, Assistant in Military Science and Tactics
MARCH, JAMES HERBERT, *M.B.A.*, *C.P.A.*, Professor of Commerce
MARDEN, MORRIS, *Ph.D.*, Professor of Mathematics
MCCALL, RAYMOND GEORGE, *M.A.*, Instructor in English
MCCAULEY, WILLIAM H., *B.A.*, *M/Sgt., U.S.A.*, Assistant in Military Science and Tactics
MCLAUGHLIN, TED JOHN, *Ph.D.*, Assistant Professor of Speech
MERRIAM, ALAN PARKHURST, *Ph.D.*, Assistant Professor of Sociology and Anthropology
MEYER, MRS. GENEVIEVE TESKE, *M.A.*, Instructor in Mathematics
MILLINGTON, PAUL EMMANUEL, *Ph.D.*, *M.D.*, Professor of Chemistry
MYERS, RAYMOND HARLAND, *M.A.*, Professor of Speech
NORWALK, JOHN W., *B.S.*, *Major, U.S.A.*, Assistant Professor of Military Science and Tactics
NOTESTEIN, ROBERT BRUCE, *Ph.D.*, Assistant Professor of Sociology
OESTREICH, CARL RALPH, *B.S.*, Associate Professor of Civil Engineering and Superintendent of Buildings and Grounds
OTTO, OWEN, *M.D.*, Psychiatrist (part-time), Student Health Services
PARKINSON, GEORGE AMBROSE, *Ph.D.*, Director and Professor of Mathematics
PAULY, LUDWIG KOENEN, *Ph.D.*, Assistant Professor of Zoology
PERSON, PHILIP HILMORE, *Ph.D.*, Professor of Sociology
PURIN, CHARLES MALTADOR, *Ph.D.*, Emeritus Director and Emeritus Professor of German
RANDALL, STERLING PRICE, JR., *M.S.*, Instructor in Chemistry
RATLEDGE, EARL THORNTON, *B.S.*, Instructor in Drawing
REILLY, MRS. MARION STEWART, *M.A.*, Instructor in English
REINDERS, VICTOR AMBROSE, *Ph.D.*, Associate Professor of Chemistry
RICE, CATHERINE LOUISE, *M.M.*, Lecturer in Music (part-time)

RIDDLE, GLENN KEITH, *Ph.D.*, Assistant Professor of Philosophy
RITTER, WILLIAM ARNOLD, *M.S.*, Assistant Professor of Athletics and Physical Education
ROBINSON, FLORENCE MILDRED, *M.A.*, Instructor in English
RODERMUND, KARL ARTHUR, *B.A., Major, U.S.A.*, Assistant Professor of Military Science and Tactics
ROEMING, ROBERT FREDERIC, *Ph.D.*, Associate Professor of French
ROOB, DORIS MAE, *B.S.*, Instructor in Chemistry
ROUSE, THEODORE ALTON, *Ph.D*, Professor of Physics
SCHAEFER, JAMES ROBERT, *M.B.A.*, Instructor in Commerce
SCHULD, ELMER GEORGE, *M.A.*, Instructor in Mathematics
SCHWARTZ, DONALD ALBERT, *M.Ph.*, Lecturer in Economics
SEDWICK, B. FRANK, *Ph.D.*, Assistant Professor of Spanish
SEITZ, KERLIN MCCULLOUGH, *Ph.D.*, Instructor in Geography
SHEA, DONALD RICHARD, *Ph.D.*, Assistant Professor of Political Science (on lv yr)
SHELDON, DAVID CLARK, *Ph.D.*, Assistant Professor of English
SHERMAN, AARON, *U.S.M.A., Capt., U.S.A.*, Assistant Professor of Military Science and Tactics
SHURMAN, MICHAEL MENDELSOHN, *Ph.D.*, Assistant Professor of Physics
SOFFEN, JOSEPH, *M.S.W.*, Assistant Professor of Social Work (also School of Social Work, Madison)
SPIEGELGLAS, STEPHAN, *Ph.D.*, Assistant Professor of Economics
SPITZBART, ABRAHAM, *Ph.D.*, Associate Professor of Mathematics (on lv yr)
STEINFORT, META MARY, *M.A.*, Emeritus Professor of Spanish
STROEBEL, JAMES ARTHUR, *B.S.*, Instructor in Athletics and Physical Education
SULLIVAN, BENJAMIN ANDREW, *Ph.D.*, Director of Student Personnel Services and Associate Professor
SUMM, HELMUT, *M.Ed.*, Associate Professor of Art Education
SWEETLAND, HARRIET MARGARET, *M.A.*, Instructor in English
TETER, JOHN WINFRED, *Ph.D.*, Associate Professor of Social Work (also School of Social Work, Madison)
TODD, MARY AVIS, *M.S.W.*, Assistant Professor of Social Work (also School of Social Work, Madison)
TOWN, GEORGE GALLOWAY, *Ph.D.*, Professor of Chemistry
UHL, ARTHUR HOYT, *Ph.G., Ph.D.*, Dean of School of Pharmacy (Madison) (part-time)
VAN VLEET, JAMES G., *M.S.*, Director, Division of Engineering and Professor of Mechanics and Mechanical Engineering
VOIGT, MRS. FRIEDA ANNA MARIE, *M.A.*, Assistant Professor of German
WALKER, RUTH IRENE, *Ph.D*, Professor of Botany
WARNER, ELDON DEZELLE, *Ph.D.*, Associate Professor of Zoology
WESLE, HERBERT WILLIAM, *B.S.*, Professor of Civil Engineering
WHITFORD, PHILIP BURTON, *Ph.D.*, Associate Professor of Botany
WOLF, LOUISE ADELAIDE, *Ph.D.*, Associate Professor of Mathematics
YOUNG, CHARLES EDMUND, *Ph.D.*, Emeritus Professor of French

WHAT THE EXTENSION DIVISION IS

Sixty years ago a pioneer president of the University of Wisconsin had a unique idea. "There are tens of thousands of people who want University instruction," he said, "but they cannot leave their homes to go to the Universiy. We will take the University to them!"

Today the University of Wisconsin is famous around the world for this *Wisconsin Idea* of partnership between people and University—transforming University resources and skills into practical educational services—helping those who will help themselves to life-long learning.

The Extension Division is the branch of the University which brings the University to the citizens, the schools, the businesses, the organizations, the communities of Wisconsin—

carrying University teaching and research beyond the campus through a state-wide network of correspondence study, instructional centers, classes, institutes, lectures, counseling, and special services.

The key to Extension is *co-operation*—co-operation between the University and the Wisconsin citizens who provide financial support for educational services . . . co-operation between the Extension Division and the University as a whole, rooting Extension programs in the basic teaching and research of the campus . . . co-operation with a wide range of public and private agencies and groups, supplying the genuine needs and desires of Wisconsin citizens in the most practical way possible.

This is the job of Extension: "To see to it that the learning of the University is always linked closely to the life of the state in terms of practical service, serving alike the youthful minds and adult minds beyond the campus, making the knowledge and the insight of the University available to men and women throughout Wisconsin for the economic betterment, the intellectual stimulation, and the spiritual enrichment of their lives."

For the typical readers of this bulletin, the Extension Division can probably co-operate with you best through correspondence study, through the freshman-sophomore centers, and through special classes. In these formal ways the Division provides educational opportunities for individuals who cannot or who prefer not to attend regular classes at Madison. You can take (1) regular university studies for credit, (2) special courses in general or professional fields, (3) high-school and preparatory studies, and (4) technical courses meeting vocational needs. At the close of this section on University Extension you will find detailed information on correspondence study offerings. In the meantime, here is an overview of the total Extension program:

WHAT THE EXTENSION DIVISION DOES

Correspondence Study

University of Wisconsin instruction is as close to you as your mailbox. Through study by mail, you can take University courses for credit . . . you can take special courses in business, engineering, cultural, and professional areas . . . you can take high-school subjects. A University teacher will tutor you. More than 470 courses to choose from. Fees are modest. Over 90,000 students of all ages and all walks of life now enrolled, including servicemen enrolled through United States Armed Forces Institute. *Correspondence Study Catalog* gives full details. Special correspondence study center at Rhinelander.

Special Classes

Each year the Extension Division conducts more than 200 University classes in various cities and towns throughout the state. These classes usually meet once a week at night for a number of weeks. Courses you can take include subjects for University credit, and a wide range of commercial, professional, educational, and civic subjects to meet your practical needs. University instructors travel out from Madison and other cities to bring to your home town the resources of the campus. Annual enrollment, 7,100. Schedules of classes available on request.

Freshman-Sophomore Centers

In eight Wisconsin cities, you can take a beginning resident program of undergraduate instruction for University credit—at the University Extension Centers in Green Bay, Kenosha, Manitowoc, Marinette, Menasha, Racine, Sheboygan and Wausau. A unique college system, equalizing educational opportunities throughout the state. Personalized guidance and counseling. Entrance requirements, fees, and standards are the same as at Madison. Full-time students now enrolled, 1,200. *Student Handbook* provides detailed guidance.

Milwaukee Extension Division

The Milwaukee Extension Division affords a varied and distinguished sampling of University programs. For young people who wish to live at home while beginning their college education, there is a full curriculum of freshman-sophomore University work, or a two-year terminal program in business methods. For college graduates there is advanced work in education, engineering, commerce, and social work. For professional people there are conferences and institutes. For adults of all walks of life there are both credit and non-credit classes in a wide range of subjects; lectures; and cultural programs. Many of these programs are offered at night. Day school students, 1,250; evening school registrations, 7,000. A Milwaukee *Catalog* is available on request.

Institutes

Over 20,000 Wisconsin people will be "going to the University" this year to attend 250 short courses, conferences, and seminars tailored to meet their educational needs. If you are a businessman, a worker, a teacher, a county clerk, an engineer, a newspaperman, a lawyer, a civic leader, a pastor . . . if you want to learn about the latest developments in audio-visual instruction, in retail sales, in industrial management, in trade unions, in drama, in sociology, in industrial psychology, in government, in advertising, in music, in pharmacy . . . whatever your job and whatever your interests, an Extension Division institute stands ready to serve you.

School and Community Services

"Package libraries" for discussion groups, program-planning services for club leaders, films for schools, lectures and concerts for organizations, guidance for musicians and dramatists, counseling for chambers of commerce—these are only a few of the many ways in which the Wisconsin Extension Division can reach out to you and your city with direct educational services which bring University skills and resources to bear on the economic, social, and cultural problems and projects in your community. Wisconsin communities served this year 700.

Communications

The press, radio, films, television, publications—these, too, are ways in which you and the Wisconsin Extension Division join hands in learning for living. Informative stories and columns in your local newspaper . . . educational programs over WHA, the state FM network, and your local radio station . . . educational and technical films produced and circulated . . . credit and non-credit courses taught by telecast . . . booklets, pamphlets, bulletins, brochures, and books from the duplicating machines of the Division—"programs of direct service to the people of the state, designed to keep the University in close contact with citizens in all the counties, profoundly influencing the lives of people through health, business, industry, and governmental relations."

HOW THE EXTENSION DIVISION IS ORGANIZED

Twenty-four Academic Departments

Like the University itself, the Extension Division is organized around a core of academic departments, staffed and equipped to offer University teaching in 40 basic fields of scholarship. These departments conduct off-campus teaching via correspondence study, special classes, and extension centers: art education, chemistry, commerce, economics-sociology-anthropology, education, engineering, English, French-Italian, geography, German, history, journalism, law, library methods, mathematics, music, pharmacy, photography, physical education, political science, psychology, Spanish-Portuguese, and speech.

Supplementary subjects: astronomy, classics, comparative literature, geology, home economics, meteorology, physics, Scandinavian languages, Slavic languages, social work.

Thirteen Professional Bureaus

Those Extension departments allied most closely with professional or vocational fields are organized as applied-studies agencies, so as to be of even broader and more direct service through institutes, counseling, professional services, and publications:

Education, serving schools, teachers, superintendents and principals, school boards.
Government, serving municipal, county, and state officials.
Economics and Sociology, serving teachers, pastors, social workers, welfare personnel.
Engineering, serving engineers with 24 professional institutes a year.
German, serving teachers and scholars.
Industrial Management Institute, helping companies train executive, staff and supervisory personnel. Illustrated brochure on the more than 100 institutes held each year available on request.
Industrial Psychology, serving business, industry, and the professions through research, testing, and consulting.
Law, offering professional conferences for members of the bar.
Journalism, offering conferences and publications for newspaper, magazine, radio, and television personnel.
Music, developing and enriching musical activities in local schools, communities, and regions.
Pharmacy, presenting professional institutes and publications for practicing pharmacists.
School for Workers, pioneering in the field of workers' education. Write for descriptive material on classes, conferences, and institutes.
Spanish, serving teachers and scholars.

Six Service Agencies

The Bureau of Information and Program Services stimulates study and discussion of questions of the day by supplying packets of authentic and well-balanced materials. Aids club leaders through program-planning services and leadership-training courses. Guides organized forensics in Wisconsin high schools. Maintains a library of plays, choral and organ music, magazines, and pamphlets.

The Bureau of Lectures and Concerts enriches public platform programs throughout the state. Offers "lyceum" programs for schools and civic groups. Books off-campus concerts by UW resident artists, symphony, band, choral groups, and other campus educational and cultural groups. Arranges off-campus lectures by faculty personnel and others.

The Wisconsin Idea Theatre co-ordinates statewide creative efforts in theatre and writing. Encourages and guides community theatre groups. Publishes bulletins and manuals in the theatre arts. Advises community leaders on problems of community entertainment. Conducts a program of creative writing throughout Wisconsin.

The Bureau of Community Development helps Wisconsin communities face economic problems which need prompt attention. Assists communities in their efforts to find adequate and satisfactory means of improving their social and economic situations—through research, counseling, workshops, and publications. Specializes in trade-area surveys and industrial development.

The Bureau of Audio-Visual Instruction circulates sound motion-picture films, slides and filmstrips. Trains teachers in the uses of audio-visual aids. Produces sound films and television programs. Assists schools and groups in organizing audio-visual programs of instruction. On file: 10,000 prints, 15,000 reels, 1,600 filmstrips, 400 recordings.

The Photographic Laboratory produces motion pictures and still photographs for use in research projects and in classroom teaching. Offers instruction through correspondence study, special classes, and technical counseling. Serves as University repository for film negatives. Produces public information films.

SEVEN ADMINISTRATIVE DEPARTMENTS

Assisting the Division in carrying the University to the state: Field Services, Business Office, Editorial Services, Library, Auxiliary Services, Duplicating Services, and Book Stores.

EXTENSION FIELD OFFICES

APPLETON

Marshall C. Graff
129 North Green Bay Street
(3–6947)

EAU CLAIRE

O. L. Krasselt
1332 Woodland Avenue
(3558)

GREEN BAY

Roman J. Zorn
Green Bay Extension Center
240 N. Baird Street
(HEmlock 5–5391)

KENOSHA

Bernard Tallent
Kenosha Extension Center
Vocational School Building
(OLympic 5171)

MADISON

(South, Central Wis. incl. Madison)
Mary Farrell
203 Extension Building
(5–3311, Ext. 4628)
(Southwestern Wisconsin)
Verne Imhoff
313 Extension Building
(5–3311, Ext. 4113)

MANITOWOC

M. J. Lowe
Manitowoc Extension Center
Vocational School Building
(4408)

MARINETTE

J. J. Gerend
Marinette Extension Center
Vocational School Building
(2–4477)

MENASHA

Marshall C. Graff
Menasha Extension Center
Vocational School Building
(2–4064)

RACINE

A. E. May
Harold Montross
Racine Extension Center
620 Lake Avenue
(4–3361)

MILWAUKEE

George Parkinson
Edward D. Holst
Milwaukee Extension Division
600 W. Kilbourn Avenue
(BRoadway 6–7660)

RHINELANDER

Bernard James
Rhinelander Extension Center
108 E. Davenport Street
(1018)

SHEBOYGAN

M. J. Lowe
Sheboygan Extension Center
Vocational School Building
(2–9310)

WAUSAU

Henry C. Ahrnsbrak
Wausau Extension Center
709 W. Stewart Avenue
(3071)

CORRESPONDENCE STUDY PROGRAM

In order to provide educational opportunities for individuals who can not or who prefer not to attend regular formal classes either at the University of Wisconsin or at some other educational institution, the Extension Division has developed correspondence courses which may be taken by the student in his own home in whatever time he has available for study.

PLAN AND SCOPE

The University of Wisconsin thus provides, through home-study instruction by correspondence, the following:

1. Certain regular university courses which may, under approved conditions, be taken for credit toward a degree.
2. Special professional and cultural courses for adults who wish to continue learning together with business and technical courses prepared with reference to the needs and requirements of given occupations.
3. High-school and preparatory courses.

METHOD

COUNSELING. The Extension Division offers individual counseling to the student who is planning a correspondence study program. Prospective students may contact the Student Adviser in the Correspondence Study Office of the University Extension Division for assistance.

PROCEDURE. Before enrolling a prospective student should obtain from the Correspondence Study Office application blanks together with the Correspondence Study Courses bulletin which contains regulations concerning correspondence study and lists all current course offerings together with their fees and the costs of required texts and materials. Persons interested in completing their freshman and sophomore years of college work either in whole or in part through correspondence study should request the specially prepared bulletin entitled "University of Wisconsin Freshman and Sophomore Course Offerings Through Correspondence Study." After the student has selected his correspondence course or courses he should fill out an application blank and return it, with the required fee, to the Correspondence Study Office. The required texts and materials may be purchased through the Extension Division, or they may be secured elsewhere. 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 should be taken at one time unless the student can give evidence that he can devote several hours a day to study.

THE INSTRUCTION. Upon receipt of the application and fee, the first group of assignments will be sent with instructions for study, methods of preparation, and directions for returning written assignments. Each written assignment will be returned to the student with such corrections, explanations, and suggestions as may be needed. Lists of books, assignments for reading, and all necessary assistance will be furnished throughout the course, so that no student will be left without adequate aid and guidance. Questions on the subject in hand are at all times encouraged.

THE COURSE. The course is divided, where practicable, into twenty-four assignments. Such a course represents at least an amount of work equal to that done in residence at the University in a class of three hours a week for one semester or half year. It is assumed that this work may be done by the average student in twenty-four weeks in 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 various courses have been arranged, wherever that is desirable, in co-ordination 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 under supervised conditions approved by the University.

GENERAL 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. 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 is eighteen months, unless otherwise designated.

6. Payment of fees in full is expected at the time of registration. Students can make arrangements for the partial payment of instruction fees of $15 and over for Wisconsin residents, and $20 and over for residents of other states. Such arrangements include the filling out of a special application form which can be obtained from the Correspondence Study Office, plus the payment of a small additional fee. If an application for instruction is rejected, the fee is returned. Refunds may be granted under certain other approved conditions.

7. Correspondence courses are available free of charge to citizens of Wisconsin who are members of the armed forces. Servicemen interested in enrolling in the University of Wisconsin correspondence study courses through the United States Armed Forces Institute should contact the Correspondence Study Office for further information. The privilege of obtaining these courses is also available to veterans (both residents and non-residents) who can qualify under the provisions of United States Public Laws 16, 346, 550, and 894.

8. The instruction fee for university credit courses is $7.50 per credit for students who are residents of the State of Wisconsin. For students not residents of the State of Wisconsin, the fee is $12 per credit. For courses not involving university credit, corresponding fees prevail.

REGULATIONS REGARDING 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 formally entered residence study. Then 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 directions of the instructor giving such course, or supervised by someone designated by the University for that purpose.

4. Correspondence study for university credit may not be carried on by any student while in attendance at any institute of learning, except by written approval from an authorized official of the institution concerned.

5. Students engaged upon correspondence study courses prior to enrollment for residence work, who have not completed them by the first day of classes, must take a suspension of correspondence study instruction and must deposit with the Recorder of the Extension Division all uncompleted assignments. The student may continue his correspondence study work upon the completion of his school term; the time during which he was in school not counting as part of his time limit to complete the course.

6. In special cases credit may be allowed for correspondence study courses of perparatory grade to satisfy partial entrance requirements to the University.

7. Students formerly in residence at the University of Wisconsin at any time who wish to take correspondence courses for credit must, under the following circumstances, obtain written permission from the dean of the college in which they were formerly enrolled:

a. Had senior status when last in attendance at the University.

b. Were enrolled in the College of Engineering or the College of Agriculture (including Home Economics) when last in attendance at the University.

c. Had deficiencies, such as a condition, or were dropped from the University.

d. Previously failed the course for which application is being made.

LOCALLY DIRECTED HIGH-SCHOOL CREDIT COURSES

(Supervised Correspondence Study)

Correspondence study courses involving high-school credit are available to all high schools in the state under a plan of local supervision by the high-school administration.

The instruction fees for high-school credit courses may be paid by local boards of education under a co-operative arrangement with the University Extension Division under the authorization of statute "40.47" (4A) entitled "Other Tuition." Fifteen dollars ($15) is the fee for a semester course of 16 assignments. A lower fee prevails for courses of fewer than 16 assignments and higher fees for those of more than 16 assignments.

This program enables the small high school to offer an enriched curriculum. It aids the larger high school in solving a number of teaching and administrative problems.

CORRESPONDENCE STUDY COURSES

Following is a list of the courses offered by correspondence. It is divided into three groups: University Credit Courses; Business, Technical, Professional, and Cultural Courses; and High-School Courses. University Credit Courses contain eight assignments per credit; the number of credits appears after the title. The resident fee appears first; the nonresident fee follows. Descriptions and other detailed information concerning courses offered can be found in the Correspondence Study Courses bulletin which can be obtained from the Correspondence Study Office in the Extension Division.

UNIVERSITY CREDIT COURSES

Art

60 Layout and Letter Structure. 3 cr. $22.50; $36.
62a Creative Design. 3 cr. $22.50; $36.

Astronomy

17 Survey of Astronomy. 3 cr. $22.50; $36.

Botany

1 General Botany. 5 cr. $37.50; $60.

General Classics

38 Origins of Greek and Latin Medical Terms. 3 cr. $22.50; $36.

51 Classical Mythology. 2 cr. $15; $24.
113 Greek Drama in English. 2 cr. $15; $24.

Commerce

43 Business Ethics. 2 cr. $15; $24.

Comparative Literature

67a Drama from Ibsen to the Present. 2 cr. $15; $24.
67b Drama from Ibsen to the Present. 2 cr. $15; $24.
68a The Novel in the Modern World. 2 cr. $15; $24.
68b The Novel in the Modern World. 2 cr. $15; $24.

Economics

1a General Economics. 4 cr. $30; $48.
1b General Economics. 4 cr. $30; $48.
105 Money and Banking. 3 cr. $22.50; $36.
122 Labor Problems. 3 cr. $22.50; $36.
127 Co-operation. 3 cr. $22.50; $36.

Education

73 The Child, His Nature and His Needs. 3 cr. $22.50; $36.
104 Social History of Education. 3 cr. $22.50; $36.
118 Human Abilities and Learning. 3 cr. $22.50; $36.
140 Elementary School Curriculum. 3 cr. $22.50; $36.
165 Methods of Audio-Visual Instruction. 3 cr. $22.50; $36.
169 Health Information for Teachers. 3 cr. $22.50; $36.
176 Introduction to Guidance and Personnel Services. 3 cr. $22.50; $36.
181 Techniques of Guidance and Personnel Services. 3 cr. $22.50; $36.
193 Introduction to Supervision: The Planning and Evaluation of Educational Programs. 2 cr. $15; $24.
76 The Teaching of English. 2 cr. $15; $24.
84 The Teaching of History and the Social Studies. 2 cr. $15; $24.
189 Speech Methods in the Elementary School. 2 cr. $15; $24.
198 The Teaching of Speech in the High School. 2 cr. $15; $24.

Engineering—Civil

52 Stresses in Simple Structures. 4 cr. $30; $48.
165 Principles of Reinforced Concrete. 3 cr. $22.50; $36.
15 Elementary Surveying I. (no field work) 1 cr. $7.50; $12.
16 Elementary Surveying II. (no field work) 1 cr. $7.50; $12.
118 Short Course in Surveying. 2 cr. $15; $24.
132 Highway Engineering. 3 cr. $22.50; $36.
72 Hydraulics. 3 cr. $22.50; $36.

Engineering—Drawing and Descriptive Geometry

12 Engineering Drawing. 3 cr. $22.50; $36.
23 Engineering Drawing and Descriptive Geometry. 3 cr. $22.50; $36.
24 Advanced Engineering Drawing. 2 cr. $15; $24.

Engineering—Mechanics

1 Statics. 3 cr. $22.50; $36.
2 Dynamics. 3 cr. $22.50; $36.
3 Strength of Materials. 4 cr. $30; $48.

Engineering—Mechanical

1 (M.E. 41) Machine Design. 4 cr. $30; $48.
43 Design of Machine Elements. 4 cr. $30; $48.
535 Industrial Organization and Management. 3 cr. $22.50; $36.

English

1a English Composition. 3 cr. $22.50; $36.
1b English Composition. 3 cr. $22.50; $36.
2 Intermediate Composition. 2–3 cr. $15 or $22.50; $24 or $36.
3 Introduction to Creative Writing. 2–3 cr. $15 or $22.50; $24 or $36.
5a Advanced Composition. 2–3 cr. $15 or $22.50; $24 or $36.
7 Short Story Writing. 2 cr. $15; $24.
88 Specialized Exposition. 2 cr. $15; $24.
30a Survey of English Literature. 3 cr. $22.50; $36.
30b Survey of English Literature. 3 cr. $22.50; $36.
32a Contemporary Literature. 3 cr. $22.50; $36.
32b Contemporary Literature. 3 cr. $22.50; $36.
33a English Literature and Modern Civilization: Some Aspects. 3 cr. $22.50; $36.
33b English Literature and Modern Civilization: Some Aspects. 3 cr. $22.50; $36.
40a General Survey of American Literature. 3 cr. $22.50; $36.
37a Shakespeare. 3 cr. $22.50; $36.
37b Shakespeare. 3 cr. $22.50; $36.
49 Modern Short Story. 2 cr. $15; $24.
130 English Versification. 2 cr. $15; $24.
131 Chaucer. 3 cr. $22.50; $36.
134 The Romantic Movement. 3 cr. $22.50; $36.
135 Victorian Poetry. 3 cr. $22.50; $36.
139b The English Novel (Dickens to Hardy). 3 cr. $22.50; $36.
141 The Poetry of Tennyson. 2 cr. $15; $24.

French

1a First-Semester French. 4 cr. $30; $48.
1b Second-Semester French. 4 cr. $30; $48.
10a Third-Semester French. 3 cr. $22.50; $36.
10b Fourth-Semester French. 3 cr. $22.50; $36.
15 Elementary Composition. 2 cr. $15; $24.
25 Intermediate Composition. 2 cr. $15; $24.
124 Advanced Composition. 2 cr. $15; $24.
21 Special. Advanced Reading. 2–3 cr. $15 or $22.50; $24 or $36.
22a Elementary Survey of French Literature. 3 cr. $22.50; $36.
22b Elementary Survey of French Literature. 3 cr. $22.50; $36.
123 Modern French Dramatists. 2–3–4 cr. $15, $22.50, or $30; $24, $36, or $48.
136 Modern French Novelists. 2–3–4 cr. $15, $22.50, or $30; $24, $36, or $48.

Geography

5 Physical Earth and Its Resources. 3 cr. $22.50; $36.
7 Economic Geography. 3 cr. $22.50; $36.
101 Geography of Europe. 3 cr. $22.50; $36.
102 Geography of South America. 3 cr. $22.50; $36.
103 Geography of Anglo-America. 3 cr. $22.50; $36.
110 Geography of the Far East. 3 cr. $22.50; $36.
128 Conservation of Natural Resources. 3 cr. $22.50; $36.

Geology

28 Physical Geology. 3 cr. $22.50; $36.

German

1a First-Semester German. 4 cr. $30; $48.
1b Second-Semester German. 4 cr. $30; $48.
10a Third-Semester German. 3–4 cr. $22.50 or $30; $36 or $48.
10b Fourth-Semester German. 3–4 cr. $22.50 or $30; $36 or $48.
20 Classical and Modern Writers. 3 cr. $22.50; $36.
21 Classical and Modern Writers. 3 cr. $22.50; $36.
22 Prose Writers of the 19th and 20th Centuries. 2–3 cr. $15 or $22.50; $24 or $36.
23 Literature of the 19th and 20th Centuries. 2–3 cr. $15 or $22.50; $24 or $36.
102 The Classical Period. 3 cr. $22.50; $36.
104 Contemporary German Literature. 3 cr. $22.50; $36.
131 Survey of German Literature. 3 or 6 cr. $22.50 or $45; $36 or $72.
133 Goethe's Faust. 3 cr. $22.50; $36.
25a Intermediate Composition. 3 cr. $22.50; $36.
25b Intermediate Composition. 3 cr. $22.50; $36.
28 Scientific German (for students of Chemistry). 2 or 4 cr. $15 or $30; $24 or $48.
29 Scientific German (for students of Medicine). 2–3 cr. $15 or $22.50; $24 or $36.

Greek

1 Elementary Greek. 4 cr. $30; $48.
2 Xenophon's Anabasis. 3 cr. $22.50; $36.
3 Homer: The Iliad. 3 cr. $22.50; $36.
7 Reading Course in Herodotus. 3 cr. $22.50; $36.
8 Reading Course in Greek Drama. 2 cr. $15; $24.

History

1a Medieval History. 2–3 cr. $15 or $22.50; $24 or $36.
1b Medieval History. 2–3 cr. $15 or $22.50; $24 or $36.
2a Modern European History. 2–3 cr. $15 or $22.50; $24 or $36.
2b Modern European History. 2–3 cr. $15 or $22.50; $24 or $36.
3a European Civilization, 800 to 1660. 3–4 cr. $22.50 or $30; $36 or $48.
3b European Civilization, 1660 to the Present. 3–4 cr. $22.50 or $30; $36 or $48.
4a History of the United States, 1492–1865. 3 cr. $22.50; $36.
4b History of the United States, 1865 to the Present. 3 cr. $22.50; $36.
5a English History. 2–3 cr. $15 or $22.50; $24 or $36.
5b English History. 2–3 cr. $15 or $22.50; $24 or $36.
10a Ancient History. 3 cr. $22.50; $36.
10b Ancient History. 3 cr. $22.50; $36.
108 Recent History of the United States, 1901–1929. 3 cr. $22.50; $36.
109 Recent History of the United States, 1929 to the Present. 3 cr. $22.50; $36.
114 History of Wisconsin. 3 cr. $22.50; $36.
138a The French Revolution and the Napoleonic Period, 1789–1815. 2–3 cr. $15 or $22.50; $24 or $36.
138b History of Europe, 1815–1871. 2–3 cr. $15 or $22.50; $24 or $36.
139a The Age of Imperialism, 1871–1918. 2–3 cr. $15 or $22.50; $24 or $36.
139b Recent and Contemporary European History, 1918 to the Present. 2–3 cr. $15 or $22.50; $24 or $36.

Home Economics

119 Development of the Young Child in the Home and the Nursery School. 2 cr. $15; $24.

Italian

1a First-Semester Italian. 4 cr. $30; $48.
1b Second-Semester Italian. 4 cr. $30; $48.
10a Third-Semester Italian. 3 cr. $22.50; $36.
10b Fourth-Semester Italian. 3 cr. $22.50; $36.

Journalism

2a Introduction to News Writing. 3 cr. $22.50; $36.
105a Writing and Selling Feature Articles. 3 cr. $22.50; $36.

Latin

1a Elementary Latin. 4 cr. $30; $48.
1b Caesar. 4 cr. $30; $48.
10 Virgil: Aeneid. 4 cr. $30; $48.
11 Cicero: Orations. 4 cr. $30; $48.
101a Intermediate Latin Composition. 2 cr. $15; $24.
101b Advanced Latin Composition. 2 cr. $15; $24.
102a General Survey. 3 cr. $22.50; $36.
104 Sallust and Livy. 3 cr. $22.50; $36.
106 The Roman Elegy. 2 cr. $15; $24.
118 Horace: Satires and Epistles. 3 cr. $22.50; $36.

Mathematics

1 Introductory College Algebra. 4 cr. $30; $48.
1S College Algebra. 3 cr. $22.50; $36.
2 Introductory Mathematical Analysis. 4 cr. $30; $48.
2S Plane Trigonometry. 2 cr. $15; $24.
3 Analytic Geometry. 3 cr. $22.50; $36.
5b Integral Calculus. 4 cr. $30; $48.
7 Theory of Investment. 4 cr. $30; $48.
52 Elementary Mathematical Analysis. 5 cr. $37.50; $60.
101a Calculus. 4 cr. $30; $48.
101b Calculus. 4 cr. $30; $48.
102a Calculus. 4 cr. $30; $48.
102b Calculus. 4 cr. $30; $48.
110 Higher Mathematics for Engineers. 3 cr. $22.50; $36.
111 Higher Mathematics for Engineers. 3 cr. $22.50; $36.
112 Differential Equations. 3 cr. $22.50; $36.
115a Theory of Equations. 3 cr. $22.50; $36.
116a Higher Analysis (Complex Variables). 3 cr. $22.50; $36.
118 Introduction to the Theory of Probability. 3 cr. $22.50; $36.
120 Advanced Calculus. 3 cr. $22.50; $36.
134 Mathematics of Elementary Statistics. 3 cr. $22.50; $36.

Music

20a Appreciation and History of Music. 2 cr. $15; $24.
20b Appreciation and History of Music. 2 cr. $15; $24.

Physical Education

59 Nature, Function, and Organization of Play and Playgrounds. 3 cr. $22.50; $36.
130 Measurement in Physical Education. 3 cr. $22.50; $36.

164 School Health and Hygiene. 3 cr. $22.50; $36.
168 Organization and Administration of Physical Education. 2 cr. $15; $24.
184 Age Characteristics in Motor Skills. 2 cr. $15; $24.

Physics

51E Engineering Physics. 3 cr. $22.50; $36.
52E Engineering Physics. 3 cr. $22.50; $36.

Political Science

7 American Government and Politics. 3 cr. $22.50; $36.
7a American Government and Politics: The National Government. 3 cr. $22.50; $36.
13 Municipal Government. 2–3 cr. $15 or $22.50; $24 or $36.
27 Modern Foreign Governments. 3 cr. $22.50; $36.
122 Political Parties and Citizenship. 3 cr. $22.50; $36.
143 Introduction to Public Administration. 3 cr. $22.50; $36.

Portuguese

1a First-Semester Portuguese. 4 cr. $30; $48.
1b Second-Semester Portuguese. 4 cr. $30; $48.

Psychology

1 Introduction to Psychology. 4 cr. $30; $48.
30 Psychometric Methods. 3 cr. $22.50; $36.
50 Applied Psychology. 3 cr. $22.50; $36.

Russian

1a Elementary Russian. 4 cr. $30; $48.
1b Elementary Russian. 4 cr. $30; $48.

Scandinavian

1a First-Semester Norwegian. 4 cr. $30; $48.

Social Work

145 Introduction to the Field of Social Work. 3 cr. $22.50; $36.

Sociology

1a Man, Culture, and Society. 3 cr. $22.50; $36.
2 Social Problems. 3 cr. $22.50; $36.
25 Rural Life. 3 cr. $22.50; $36.
161 Criminology. 3 cr. $22.50; $36.
177 The Modern City. 3 cr. $22.50; $36.

Spanish

1a First-Semester Spanish. 4 cr. $30; $48.
1b Second-Semester Spanish. 4 cr. $30; $48.
10a Third-Semester Spanish. 3 cr. $22.50; $36.
10b Fourth-Semester Spanish. 3 cr. $22.50; $36.
16a Elementary Composition and Grammar Review. 2 cr. $15; $24.
16b Elementary Composition and Grammar Review. 2 cr. $15; $24.
21a Elementary Survey of Spanish Literature. 3 cr. $22.50; $36.
21b Elementary Survey of Spanish Literature. 3 cr. $22.50; $36.
23a Modern Spanish Readings. 3 cr. $22.50; $36.
23b Modern Spanish Readings. 3 cr. $22.50; $36.
25 Intermediate Composition. 2 cr. $15; $24.
27 Spanish Commercial Letter Writing. 2 cr. $15; $24.

BUSINESS, TECHNICAL, PROFESSIONAL, AND CULTURAL COURSES

Art

303 Freehand Drawing. $12; $18.

Business Administration—Accounting

125 Industrial Accounting, Part I. $15; $24.
126 Industrial Accounting, Part II. $15; $24.
127 Industrial Accounting, Part III. $15; $24.
130 Introductory Accounting, Part I. $15; $24.
131 Introductory Accounting, Part II. $15; $24.
132 Intermediate Accounting, Part I. $15; $24.
133 Intermediate Accounting, Part II. $15; $24.
134 Advanced Accounting, Part I. $12; $18.
135 Advanced Accounting, Part II. $12; $18.
141 Cost Accounting, Part I. $15; $24.
142 Cost Accounting, Part II. $15; $24.
144 Governmental Accounting. $15; $24.
147 Auditing. $22.50; $36.
148 C.P.A. Review. $22.50; $36.

Business Administration—Business Law

120 The Law of Contracts and Agency. $15; $24.
121 The Law of Business Transactions. $15; $24.
122 The Law of Business Organization. $12; $18.

Business Administration—Business Letter Writing

102 Business Letter Writing, Part I. $12; $18.
103 Business Letter Writing, Part II. $12; $18.

Business Administration—Finance

165 Financial Statement Analysis. $15; $24.

Insurance

173 Fire Insurance. $15; $24.
174 Casualty Insurance. $15; $24.

Business Administration—Management

100 Business Management, Part I. $12; $18.
101 Business Management, Part II. $12; $18.
149 Management of a Small Retail Business. $12; $18.
151 Personnel Management, Part I. $15; $24.
152 Personnel Management, Part II. $7.50; $12.
156 Office Management. $15; $24.
157 Office Personnel Supervision. $7.50; $12.

Business Administration—Marketing: Advertising, Retailing, and Sales

154 Principles of Advertising. $15; $24.
155 Retail Advertising and Sales Promotion. $15; $24.
159 Retail Selling and Consumer Buying. $15; $24.
175 Salesmanship. $15; $24.
176 Sales Management. $15; $24.
177 Retailing, Part I. $15; $24.
178 Retailing, Part II. $7.50; $12.

Business Administration—Secretarial Training

106 Secretarial Training. $15; $24.

Business Administration—Taxation

160 Federal Income Tax, Part I. $12; $18.
161 Federal Income Tax, Part II. $12; $18.

Creative Writing

300 Dramatic Writing for Stage and Television. $15; $24.

Economics

51 Review Course in Economics. $22.50; $36.
307 Managing Your Money. $7.50; $12.

Engineering—Civil

242 The Properties and Uses of Wood. $12; $18.
403 How to Read Building Plans. $15; $24.
404 Civil Engineering Drawing. $15; $24.
408 Essentials of Structural Theory. $15; $24.
409 Essentials of Structural Theory. $15; $24.
410A Stresses in Trusses—Uniform Loads. $15; $24.
410B Stresses in Trusses—Concentrated Loads. $15; $24.
411 Roof Trusses. $12; $18.
412 Plate Girders. $12; $18.
413 Design of a Railway Bridge Truss. $15; $24.
418A Reinforced Concrete Fundamentals. $22.50; $36.
421 Steel Building Design. $15; $24.
425 Deflection of Structures and Stresses in Redundant Members of Trusses. $7.50; $12.
427 Stress Analysis of Rigid Building Frames. $22.50; $36.
430 Plain Concrete Construction. $15; $24.
441A Elementary Surveying. $15; $24.
441B Advanced Surveying. $15; $24.
445 Engineering Curves. $15; $24.
472 Materials of Construction. $15; $24.
481 Principles of Hydraulics. $22.50; $36.
496 Construction Estimates and Costs. $22.50; $36.
511 Construction of Sewers. $7.50; $12.
521 Construction of Water Supply Systems. $7.50; $12.

Engineering—Electrical

312 Theory of Alternating Currents. $20; $30.
313 Alternating Current Machinery. $22.50; $36.
315 Practical Alternating Currents. $20; $30.
316 Central Electric Stations. $20; $30.
319A Watthour Meters. $12; $18.
324 Electric Wiring. $20; $30.
327 Essentials of Electricity. $20; $30.
328A Elements of Radio. $15; $24.
330 Television. $15; $24.
341 Principles of Direct-Current Machines. $30; $48.
343 Principles of Alternating Currents. $30; $48.
344 Principles of Alternating-Current Machinery. $30; $48.

Engineering—Drawing

4 Freehand Lettering. $15; $24.
4A Engineering Lettering. $6; $9.
5 Show-Card Writing. $10; $15.
203S Freehand Industrial Sketching. $15; $24.
204A Shop Drawing. $20; $30.
204B Advanced Shop Drawing. $20; $30.
243A Principles of Architectural Drawing. $15; $24.
243B Advanced Architectural Drafting. $10; $15.

Engineering—Practical Mathematics

31 Practical Arithmetic. $12; $18.
32 Practical Algebra. $12; $18.
33 Practical Geometry. $12; $18.
34 Practical Trigonometry. $12; $18.
35 Practical Calculus. $22.50; $36.
75 Slide Rule Practice. $5; $7.50.
201A Shop Arithmetic. $20; $30.
201B Advanced Shop Mathematics. $20; $30.

Engineering—Industrial

531 Industrial Safety Engineering. $22.50; $36.

Engineering—Mechanical

206 Elements of Mechanics. $20; $30.
206S Elements of Graphic Statics. $10; $15.
207 Strength of Materials. $15; $24.
208 Mechanism. $12; $18.
209 Elementary Machine Design. $15; $24.
219A Automotive Engines. $15; $22.50.
219B Automotive Chassis. $15; $22.50.
220 Diesel Engines. $20; $30.
222 Refrigeration. $22.50; $36.
223 Heating and Ventilating. $22.50; $36.
230A Thermodynamics. $30; $48.
230B Heat Power. $30; $48.

Engineering—Metallurgy

272 Cupola Practice. $7; $10.50.
274 Foundry Metallurgy. $9; $13.50.

English

20 Appreciation of Literature. $7.50; $12.
88A Specialized Exposition. $7.50; $12.
89 Manuscript Criticism. $10; $15.50.

French

30 French for Reading Knowledge. $15; $24.

German

2 Elementary German Review. $15; $24.
30 Reading German. $15; $24.

Health

6 Prevention of Disease and Home Care of the Sick. $15; $24.

Home Economics

302 Interior Design for the Home. $17; $28.

Italian

30 Italian for Reading Knowledge. $15; $24.

Journalism

40 Community Newspaper Writing. $15; $24.

Law

405 Wisconsin Farm Law. $15; $22.50.

Library Methods

1 Library Methods for Teacher Librarians. $30; $48.
2 Cataloging. $15; $24.
3 Elementary School Library Methods. $12; $18.
4 Library Practice for Apprentices. $22.50; $36.
6 Government Publications and Pamphlet Collections for Small Libraries. $7.50; $12.

Physics

60 Modern Physics. $30; $48.
91 Physics of Sound. $7.50; $12.

Political Science

400 Home-study Course in English and Government for Candidates for Naturalization. $5. (not available to non-residents)
401 Home-study Course in Our Constitution and Government for Candidates for Naturalization. $5. (not available to non-residents)

Spanish

30 Spanish for Reading Knowledge. $12; $18.

Speech

1 Fundamentals of Public Speaking. $7.50; $12.

HIGH-SCHOOL COURSES

Art

1HSA Elements of Art. $15; $24.
1HSB Elements of Art. $15; $24.

Business

1HSA First-Year Bookkeeping. $15; $24.
1HSB First-Year Bookkeeping. $15; $24.
2HSA Second-Year Bookkeeping. $15; $24.
2HSB Second-Year Bookkeeping. $15; $24.
3HSA Business Training. $15; $24.
3HSB Business Training. $15; $24.
4HS Management of a Small Business. $12; $18.
6HS Business English and Correspondence. $15; $24.
7HS Thomas Natural Shorthand. $15; $24.
9HSA Typing, Part A. $15; $24.
9HSB Typing, Part B. $15; $24.

Chemistry

11HSA Functional Chemistry. $15; $24.
11HSB Functional Chemistry. $15; $24.

Civics

50 American Government and Citizenship. $15; $24.

Economics

50 Practical Economics. $15; $24.

English

12HSA Fundamentals of English Grammar and Composition. $15; $24.
13HSA First-Year High-School English. $15; $24.
13HSB First-Year High-School English. $15; $24.
14HSA Second-Year High-School English. $15; $24.
14HSB Second-Year High-School English. $15; $24.
15HSA American Literature. $15; $24.
15HSB American Literature. $15; $24.
16HSA English Literature. $15; $24.
16HSB English Literature. $15; $24.
17HSA Grammar Review for High-School Seniors and Adults. $15; $24.
17HSB Composition for High-School Seniors and Adults. $15; $24.

French

1HSA First-Year High-School French. $15; $24.
1HSB First-Year High-School French. $15; $24.
2HSA Second-Year High-School French. $15; $24.
2HSB Second-Year High-School French. $15; $24.

General Science

1HSA General Science. $15; $24.
1HSB General Science. $15; $24.

Geography

1HSA Physical Geography. $15; $24.
1HSB Physical Geography. $15; $24.

German

1HSA First-Year High-School German. $15; $24.
1HSB First-Year High-School German. $15; $24.
2HSA Second-Year High-School German. $15; $24.
2HSB Second-Year High-School German. $15; $24.

History

51 History of the United States. $15; $24.
52 History of the United States. $15; $24.
60 World History. $15; $24.
61 World History. $15; $24.

Latin

1HSA First-Year High-School Latin. $15; $24.
1HSB First-Year High-School Latin. $15; $24.
2HSA Second-Year High-School Latin. $15; $24.
2HSB Second-Year High-School Latin. $15; $24.

Mathematics

9A Elementary Algebra. $20; $30.
9B Elementary Algebra. $20; $30.
10A Plane Geometry. $15; $24.
10B Plane Geometry. $15; $24.
50 Advanced High-School Algebra. $15; $24.
12A Solid Geometry. $20; $30.
12B Plane Trigonometry. $20; $30.

Music

3HSA Fundamentals of Musicianship. $15; $24.
3HSB Fundamentals of Musicianship. $15; $24.

Physics

1HSA Elementary Physics. $15; $24.
1HSB Elementary Physics. $15; $24.

Psychology

10 Human Behavior, Part I. $12; $18.
11 Human Behavior, Part II. $12; $18.

Sociology

50 Human Relations. $15; $24.

Spanish

1HSA First-Year High-School Spanish. $15; $24.
1HSB First-Year High-School Spanish. $15; $24.
2HSA Second-Year High-School Spanish. $15; $24.
2HSB Second-Year High-School Spanish. $15; $24.

THE GRADUATE SCHOOL

C. A. Elvehjem, Dean
J. Homer Herriott, Associate Dean
W. J. Brogden, Associate Dean

ORGANIZATION AND PURPOSES

Graduate work at the University of Wisconsin began informally about 1880. By 1904 the departments offering graduate work and the students enrolled at the graduate level had so increased that the University formally established the Graduate School, and in the ensuing years it has grown steadily. Its purpose is to offer advanced instruction and opportunities for research to as many qualified students as possible, and to provide leadership in the advancement of human knowledge. In all departments of the Graduate School special attention is given to introducing the graduate student to the research problems of his field. To this end able students share in the investigations of their professors and are encouraged to acquire the spirit as well as the methods of productive work.

The Graduate School is made up of the departments which offer graduate instruction leading to advanced degrees, and its faculty is composed of the members of these departments who have professorial rank and instruct at the graduate level. The work of the Graduate School is under the general direction of the Graduate Faculty. The Dean of the Graduate School is responsible for the administration of the regulations and requirements pertaining to admission, conduct of work, and the granting of advanced degrees. These regulations and requirements are the minimum for the Graduate School as a whole and must be fulfilled by all students and all departments. Individual divisions and departments, however, may have additional regulations or requirements beyond the minimum established for the Graduate School. To obtain complete information on all of them that pertain to a given program, the student should consult the general section of this bulletin, the announcement of the department or departments concerned, and also the announcement of the graduate division of which this department is a member.

Some of the departments which offer graduate instruction are grouped in divisions according to subject matter. The purposes of these divisions are (1) to regulate, within bounds fixed by the Graduate School, graduate instruction and procedure in related fields, (2) to discuss matters of common interest, and (3) to promote scholarship and research through the co-operation of the several departments. These divisions are as follows: the Biological Division, the Departments of Language and Literature, the Departments of Mathematical and Physical Sciences, the Division of Social Studies. A Division of Statistics is made up of members of the Graduate Faculty who offer graduate courses in statistics. It was organized for the purpose of (1) offering a broader selection of courses to graduate students, (2) providing the opportunity for a thorough mathematical background suitable for an appreciation of the assumption and limitation of methods adapted to subject-matter fields, (3) supervising a minor field for the degree of Doctor of Philosophy wherein the courses may be chosen from several fields.

ADMISSION

Admission to the Graduate School is based primarily on the applicant's undergraduate record. The applicant should write to the Dean of the Graduate School for a form on which to make his application. Transmission of this form and official transcripts of all undergraduate and graduate work to the Dean of the Graduate School normally completes

an application for admission. *An official transcript from each school attended is necessary.* All credentials should be in the Graduate School office at least six weeks before the registration date for the semester (or summer session) which the applicant plans to attend. Evaluation of credentials is made in terms of undergraduate preparation at the University of Wisconsin or its equivalent. Correspondence and extension work may be accepted for credit for admission only if taken at the University of Wisconsin or at the institution from which the applicant was graduated. The evaluation is then made and the application submitted to the proposed major department for approval. If the applicant is eligible, he will be sent a permit to register, which will state the conditions under which he may enter. Transcripts of applicants who are admitted to the Graduate School become a permanent part of the university files and may not be returned. The conditions of admission to the Graduate School are as follows:

Admission With Full Graduate Standing. (1) A bachelor's degree from the University of Wisconsin or other approved institution, (2) an undergraduate major, or its equivalent, in the field of proposed graduate study, (3) 70 semester hours of academic work outside of the undergraduate major with appropriate subject-matter distribution, (4) an undergraduate grade-point average of 2.75 (4 point).

Admission With Deficiencies. If the applicant meets requirements (1) and (4) above, he may be considered for admission with deficiencies. The minimum requirement for admission with deficiencies in the applicant's proposed major field is as follows: the applicant shall normally have completed at least twelve semester hours of academic work in the field of proposed graduate study; in special cases an applicant will be accepted who has completed at least twelve semester hours of academic work in related fields approved by the department concerned. There is no minimum requirement for admission with deficiencies in (3) above. Each case will be considered individually. Students admitted with deficiencies must make up their deficiencies during the first semester (or summer session) of registration and shall be required to spend more time in residence than that normally required for the degree sought.

Admission on Probation. In exceptional cases students whose records show an undergraduate grade-point average slightly below 2.75 but who meet all other requirements for admission with full graduate standing may be admitted on probation providing other substantial evidence of scholastic aptitude is presented. Students whose records fall within this category should present all possible evidence to support the prediction that they are able to do satisfactory graduate work. A record of attainment in the Graduate Record Examination prepared and administered by the Educational Testing Service is considered particularly valuable in these cases. Applicants for admission to the Graduate School who wish to take this examination should apply directly to the Educational Testing Service, P. O. Box 592, Princeton, N. J., where full information may be secured and convenient arrangements made for taking the test. There is a fee of $12.00. To be permitted to continue in the Graduate School, a student who is admitted on probation must carry a full graduate program (9 to 12 credits) and must make grades of *B* or better in all courses.

Foreign Students. Before registering for the first time at the University of Wisconsin, every foreign student whose native tongue is not English is required to take the English Language Test for Foreign Students on the basis of which additional work in English may be required. Students should report to the Graduate School office, 150 Bascom Hall, immediately upon arrival in Madison, for assignment to the examination.

Admission of Students Enrolled in Professional Colleges. Graduates of the University of Wisconsin or other approved institutions who are regularly enrolled in the professional colleges of the University and who meet all requirements for admission with full standing may enroll concurrently in the Graduate School. Upon the completion of an approved course of study they will be admitted to examination for the master's degree.

Details of the programs leading to the master's degree in the basic medical sciences are

available in mimeograph form from the Graduate School office and the offices of the Departments of Anatomy, Microbiology, Oncology, Pathology, Pharmacology, Physiological Chemistry, and Physiology. Students in the Law School who are interested in joint registration in the Graduate School should consult with the Graduate School office about a program for the Master of Arts or Master of Science degrees.

ADMISSION ON SENIOR-GRADUATE BASIS. Seniors in the University of Wisconsin who are within 6 credits of graduation who have earned an over-all grade-point average to date of 3.00 or better and who can otherwise meet all requirements of the Graduate School for admission with full standing may be admitted on application. The student may enroll for one semester only under these conditions and may carry up to 6 credits of graduate work for which he may receive a maximum of two-thirds of one semester's residence credit. His entire program is subject to the regulations and requirements of the Graduate School. He will receive graduate credit only if he completes the requirements for the bachelor's degree at the end of the semester during which he is so enrolled.

ADMISSION OF MEMBERS OF THE FACULTY. 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

The permit issued to a successful applicant indicates the period for *first* registration in the Graduate School. If the permit is not used in that period the student must have it revalidated before he may register. Such revalidation of permits must be requested at least six weeks before the registration day of the semester (or summer session) in which the student wishes to start his graduate work. *Continuing* graduate students register without a permit if their standing in the last period of registration was satisfactory. *Re-entering* students should notify the Graduate School office of their plan to register at least six weeks prior to the opening date of the semester in which the student plans to resume his graduate work. This notification is necessary in order that registration materials will be available.

The normal program for a semester is from nine to twelve credits. In the summer session 5 to 6 credits is a full graduate program; in exceptional cases, the major professor may permit the student to carry a maximum of 8 credits. Although students may carry less than the normal program they are not permitted to enroll for credits in excess of twelve in the semester. The courses which carry graduate credit are those bearing numbers in the 100– and 200– groups. Graduate credit is given only for those courses in which the student receives a grade of *B* or better. When the work of a graduate student falls below *B*, a representative of the major department will be consulted; and after such consultation, the Dean of the Graduate School will determine whether the student may continue his graduate studies in the University. One semester of residence credit toward advanced degrees is allowed for each semester in which the candidate successfully completes a normal program; one-half semester's residence credit is allowed for successful completion of the normal program of the summer session. Students are expected to carry a normal program except when they are employed in part or in full by the University or other agencies. In the cases of employed students, the programs which may be carried and the residence credit which may be allowed are limited. Students in this category should consult the Dean of the Graduate School for a ruling on program and residence credit.

At the time of matriculation the student will go to his major department and select, or be assigned to, a major professor. The major professor advises the student on his program of courses, directs the student's research and thesis work, and provides the student with a channel of communication to the major and other departments and the administrative organization of the Graduate School. The major professor must approve the student's program before registration may be completed. Any change in this program must have the

approval of the major professor. The major professor directs the thesis research, signs the thesis, and serves as chairman of the committee which administers the comprehensive examination of candidates for the master's degree. For the doctoral candidate, the major professor directs the selection of courses and the research program; he serves as chairman of the thesis reading committee and of the committees which administer the preliminary and final examinations. It is primarily from the major professor that the student receives individual counsel, guidance, and instruction in the spirit and practice of scholarly research which characterize graduate training.

SUMMER SESSION. The large number of graduate courses and the ample provisions for investigation afforded by the laboratories and libraries at Madison, make the eight-week period profitable for serious work. High-school instructors who desire to test their qualifications for graduate work, and ultimately for college teaching, have a unique opportunity at this time. Students who desire to carry on special investigative work not specifically provided for in the announced courses, are invited to correspond with the professor whose aid and supervision they desire. Every assistance will be extended to them.

The courses which carry graduate credit are those bearing numbers in the 100– or 200–groups. The normal graduate load for the session is 5–6 credits.

The fee for the session is $70 for all students. There is no nonresident fee. A special bulletin on the Summer Session may be obtained from the Office of the Director of the Summer Session.

OFF-CAMPUS GRADUATE STUDY. The Graduate Faculty has authorized the teaching of courses off the Madison campus. Graduate credit obtained from such courses is applicable only to the master's degree. The establishment of this program extends the boundaries of the Graduate School beyond the limits of the Madison campus and provides an opportunity for advanced study to persons who are unable to complete on the Madison campus all the requirements for the master's degree. All off-campus instruction is given by members of the Graduate Faculty of the University of Wisconsin or by members of the faculties of other institutions who have been approved as graduate lecturers.

For courses given off the Madison campus, the details of class organization, registration of students, collection of fees, and similar matters are administered by the University Extension Division in accordance with its regular procedures. At the present time courses have been authorized by which a student may earn credit toward a master's degree at Milwaukee and a number of other Extension Centers throughout the state.

Students interested in registering for off-campus courses should consult the Extension Division and the graduate department concerned. Admission to the Graduate School is not required for enrollment in off-campus graduate work. However, an official transcript of that work from the Extension Division must accompany other credentials when the student applies for admission to the Graduate School. Once the student has been on the campus in Madison for a period of registration and has done satisfactory work, the off-campus credits will be recorded on his official record card. Students who are fully employed may register for only one off-campus course in any given semester.

MILWAUKEE CENTER. A maximum of one semester of residence credit (18 weeks) will be granted on completion of 12 credits of graduate work. If less than 12 credits are earned, residence credit of 3 weeks for each 2 or 3 credit course is allowed. Residence credit of 2 weeks will be allowed if a single off-campus course is taken.

OTHER CENTERS. One-half semester of residence (9 weeks or the equivalent of a summer session) will be granted on completion of 6–9 credits (3 courses) of graduate work. Residence credit of 2 weeks will be allowed if a single off-campus course is taken.

THE MASTER'S DEGREE

The University of Wisconsin confers the degrees of Master of Arts, Master of Science, Master of Business Administration, and Master of Music. The particular degree conferred

will depend upon the undergraduate preparation of the candidate. In order to qualify for the Master of Arts degree, a candidate must have the equivalent of the foreign-language requirement for a Bachelor of Arts degree at the University of Wisconsin. This consists of a minimum of 24 semester hours in one foreign language, 28 in two languages, or 30 in three. High-school work will be credited at the rate of four semester hours for each high-school unit.

The following requirements for the master's degree apply to all candidates and are the minimum requirements. Additional requirements may be found in the announcements of the divisions and individual departments.

Residence. The candidate must offer a minimum of two semesters of residence credit of which at least one semester must have been earned at the University of Wisconsin. In order to obtain full residence for any semester, the candidate must complete satisfactorily at least nine credits of work on the graduate level. Complete summer sessions, semesters, or quarters of graduate work may be transferred from another approved institution and established as residence credit for a master's degree at the University of Wisconsin. Such transfer of residence credit from another institution will be based upon an evaluation of the official transcript and made only after the student has completed a semester (or summer session) of satisfactory work at the University of Wisconsin. In no case may more than one semester of residence be transferred from another institution. In some departments all the work for the master's degree must be done in residence at the University of Wisconsin.

Course Credit. The candidate must earn a minimum of 18 credits of course work, equally distributed over two semesters (or proportionate course work in summer sessions), in order to satisfy the residence requirement. Most departments require more course credits than the minimum.

Comprehensive Examination. The candidate must pass a comprehensive examination on the graduate work offered in support of his candidacy. At the option of the department concerned, the examination may be oral, written, or both. Eligibility for admission to the examination is determined by the Graduate School office and the warrant will be issued if the student's record is clear of incompletes and his current program indicates that he will satisfy the residence requirement by completing the work of the semester. If a thesis is a part of the requirement for the master's degree, it must be completed before the examination is given. The time of this examination will be determined and the examining committee appointed by the Dean of the Graduate School.

Thesis. At the option of the major department a candidate for the master's degree may be required to prepare a thesis. The thesis offered in partial fulfillment of the requirements for a master's degree must be typewritten and must be approved by the major professor under whose guidance it has been produced. It shall be deposited in the Memorial Library on the Friday before Commencement. A candidate for a degree at the close of the first semester or a summer session must file the thesis on or before the last day of the session.

Time Limit on Work Toward a Master's Degree. A candidate for a master's degree who does no graduate work for a period of five or more consecutive years will be required to start the work again.

THE DEGREE OF DOCTOR OF PHILOSOPHY

The degree of Doctor of Philosophy is the highest degree in course conferred by the University. It is a research degree and is never conferred solely as a result of study, no matter how faithful, extending over any prescribed period. It represents more than merely the sum of semesters in residence and of credits for courses taken. The amount of residence and the plans of study listed below as minimum are secondary. The degree is granted solely upon evidence of general proficiency and of distinctive attainment in a special field, and particularly upon a recognized ability for independent investigation as demonstrated

in a thesis based upon original research or creative scholarship and presented with a high degree of literary skill.

The following requirements for the degree, Doctor of Philosophy, apply to all candidates and are the minimum requirements. Additional requirements may be found in the announcements of the divisions and the individual departments.

Residence. The candidate must offer minimum residence credit of three academic years, at least three semesters of which must have been earned at the University of Wisconsin. In order to obtain full residence credit for any semester, the candidate must complete satisfactorily at least 9 credits of work on the graduate level. The transfer of residence credit from other approved institutions will be considered after the student has been in residence at the University of Wisconsin for at least one semester. The residence requirement for the degree of Doctor of Philosophy may not be satisfied by summer session attendance only. A candidate must spend at least one continuous year in residence to assure continuity in his research work. This requirement is normally met by completion of a full graduate program during each semester of a single academic year beyond the level of the master's degree.

A student may be granted leave from the University to carry out special investigation in the field or to take advantage of opportunities for research in a special subject not to be found at the University of Wisconsin. Residence credit is granted for such leave of absence only in special cases and under definite limitations. Students who wish leave of absence which carries residence credit should consult the Dean of the Graduate School.

Major and Minor Fields 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 an organized program of study and research. Courses must be selected from groups embracing one principal subject of concentration called the major and from one or two related fields called the minor. The major field is normally coextensive with the work of a single department or with one of the subjects under which certain departmental plans of courses have been formally arranged. A major will be permitted to extend beyond the above limits only with the prior approval of the Dean of the Graduate School.

Supplementary to his major study a candidate is required to take a minimum of either ten or twelve credits in graduate courses in another field. These courses must be selected according to a coherent plan under Option A or Option B as follows: *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 department or departments concerned; *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 of the committee will inform the Graduate School office of the courses selected and of the method to be followed in testing the candidate. Each candidate must pass tests set up, in the case of Option A, by the department or departments; in the case of Option B, by the committee.

Languages. A reading knowledge of two foreign languages in which there is substantial scholarly literature in the student's major field is required of all candidates. One of these languages must be French or German. The student must obtain approval of his choice of languages from his major professor, the chairman of his major department, and the Dean of the Graduate School not later than the third semester of graduate work.

The Graduate School office will supply a card to the student on which he will indicate his choice of the two foreign languages in which he will demonstrate a reading proficiency. The major professor and the chairman of the major department shall certify by their signatures on the card that in the student's field of study and research there is a substantial body of scholarly literature in the foreign languages chosen. The signature of the

Dean of the Graduate School will constitute final approval for the two languages shown on the card.

Certification of reading proficiency in these languages must be obtained from the appropriate language departments of the University of Wisconsin upon passage of an examination. Students should pass the foreign-language examinations and file the certificates with the Dean of the Graduate School as soon as possible after admission to the Graduate School. These certificates must be filed with the Dean of the Graduate School before the student may be admitted to the preliminary examination. Certificates of reading proficiency in foreign languages from other schools are not acceptable.

ADMISSION TO CANDIDACY. An applicant will be admitted to candidacy for the degree of Doctor of Philosophy when he has (a) passed the comprehensive preliminary examination in the major field, (b) obtained approval of the scope of the proposed minor from the professor in charge, and (c) presented the title or special field of the proposed thesis, approved by the major professor.

Students are eligible to take the comprehensive preliminary examination in the major field only after they have satisfied the foreign-language reading proficiency requirement and when their records are cleared of all incomplete grades. When these requirements have been satisfied, the Graduate School office will issue the warrant authorizing the department to admit the student to the preliminary examination. When this form is appropriately completed and filed with the Dean of the Graduate School, it constitutes a formal application for admission to candidacy for the degree of Doctor of Philosophy. The applicant will be admitted to candidacy when his application has been approved by the Administrative Committee. If a candidate for the degree of Doctor of Philosophy fails to take the final oral examination within five years after passing the preliminary examination, he will be required to take another preliminary examination and be admitted to candidacy a second time.

THESIS. At any time after admission to candidacy, and at least two weeks prior to the final examination, the candidate must submit to the Dean of the Graduate School for approval of mechanical form and execution, one typewritten copy of his complete thesis and abstract. The thesis must be the candidate's own work. It may be the result of research enterprises in which others have collaborated, but in such cases the candidate will be required to present in his own style a substantial portion which represents his own contribution. The dean will furnish an official title page for the thesis and appoint a committee of three, consisting of the major professor and two other members of the Graduate Faculty, to pass on its substantial merit. Their report, if favorable, will be endorsed on the official title page. If the thesis and abstract are approved, they will be filed in the Memorial Library not later than the last day of the session (in June the Friday before Commencement).

THESIS ABSTRACT. The student will submit the abstract of his thesis, approved by the major professor, at the time he submits the copy of the thesis. At present, the University uses the facilities of University Microfilms, Ann Arbor, Michigan, to provide for publication of the thesis on microfilm and for publication of an abstract of the dissertation of not more than 600 words in Dissertation Abstracts, a monthly publication. Each successful candidate will pay a fee of $20.00 to cover the cost of publication of the abstract of his dissertation. Detailed information concerning the formal requirements for preparation of the thesis and the abstract of the thesis will be sent to each candidate.

FINAL ORAL EXAMINATION. Every candidate for the doctor's degree is subject to an oral examination on the thesis and the general field of the major and the minor studies; but the preliminary examination may be construed as final for certain aspects of these fields, if the professors in charge of the candidate's work are satisfied with his preparation.

The candidate may not take the final examination until all requirements for the degree have been satisfied and there has been a lapse of one academic year or its equivalent from

the time of the preliminary examination. The student's record must be cleared of incomplete grades. The Dean of the Graduate School will appoint for each candidate an examining committee of five or more members of the Graduate Faculty, with the major professor as chairman. The time and place of the examination will be arranged by the major professor. When the candidate passes this examination, the fact will be recorded on the warrant provided.

LOANS AND SCHOLARSHIPS

(See page 16)

FEES AND EXPENSES

(See page 13)

FELLOWSHIPS—SCHOLARSHIPS—ASSISTANTSHIPS

For the promotion of scholarship and research the Regents of the University have authorized various fellowships and scholarships in the Graduate School. Many of these are on a permanent basis while others, particularly industrial fellowships, are established for only a limited time. All fellowships and scholarships will be filled each year except where special funds supporting them do not permit. Men and women are equally eligible except where the donor has decreed otherwise.

For detailed information write to the Dean of the Graduate School.

LOAN FUNDS

The University has available some loan funds for graduate students. These loans are of an emergency character and are restricted in amount and duration. Further information may be obtained at the Student Loan Office, Administration Building.

A more detailed bulletin of the Graduate School may be obtained by writing to the Dean of the Graduate School.

SUMMER SESSION

L. H. Adolfson, Acting Director

The Summer Session, insituted over fifty years ago as a period of sudy 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 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 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, commerce, education, engineering, home economics, pharmacy, 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 Director 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 00. A student who desires to graduate from the University and who comes with advanced standing from a state college or from another college or university, should submit a complete official record of his preparatory work and college credits to the Office of Admissions, 166 Bascom Hall.

A student in the eight-week session who wishes to secure credit toward graduation at some other institution and who is not a candidate for a degree at Wisconsin, need not comply with the entrance requirements but may register upon presentation of a satisfactory statement of status and aims. Forms for such statements are provided by the Summer Session office. 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 the work in the Graduate School may be found on page 000 of this catalog. The Graduate School also publishes special bulletins containing detailed information.

Special eight-week courses are provided to enable students to earn a half semester of residence credit in a summer session.

Credits. The maximum number of credits which may be earned toward a degree at Wisconsin is eight for the eight-week session. However, upon request, programs of nine or ten credits are authorized for purposes of transfer and for promotional credit in school systems. In the Graduate School, credit is by period of residence only, an eight-week session yielding one half of a semester of residence credit toward a higher degree.

Each student not enrolled in the Graduate School will be required to carry at least six credits of work unless specifically exempted from this requirement by the Dean of the college concerned. Students enrolled in the Graduate School will arrange their programs with the Graduate Office.

SUMMER SESSION FEES

INCLUDING TUITION, INCIDENTAL, LABORATORY AND INFIRMARY FEES

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

	Undergraduate	Graduate
Eight-week	$70	$70
Ten-week Law Course	$90	$90

(There is no nonresident fee in the eight-week session or the Law session.)

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 $12, but may earn no credit.

Refund of Fees. Upon recommendation of the Registrar, the Cashier is authorized to make partial refund of fees to students withdrawing early from the Summer Session in accordance with a schedule published in the Summer Session bulletin.

Other Expense. Other expenses for the eight-week session may be estimated from the following: room rent, $40–$50; board, $90–$130; books and classroom materials, $10–$20; incidental expenses, including laundry, $20–$40; total, not including fees or traveling expenses, $160–$240.

PHYSICAL EDUCATION

The aims of the Departments of Physical Education are (1) to promote the physical development of 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 opportunity for students to participate in and develop a reasonable degree of skill in a variety 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, sports coaches, and play leaders; and (6) to promote a more effective organization of play and administration of physical education throughout the state of Wisconsin.

MEDICAL AND PHYSICAL EXAMINATIONS

The organic condition, state of physical development, and degree of motor efficiency of each freshman are determined at the opening of the college year by a series of examinations and tests made by the Department of Student Health and the Department of Physical Education. An endeavor is made to outline for each student a proper regimen of exercise, diet, rest, and work. Students are classified on an organic scale and are permitted to engage only in sports and games for which they are physically fitted. Candidates for all intramural teams and intercollegiate athletic squads must secure permission from the Departments of Student Health and Physical Education before reporting for participation.

All new students are held responsible for keeping the appointment for the medical examination given by the Department of Student Health at the beginning of each semester.

PHYSICAL EDUCATION REQUIREMENT - MEN

A. L. Masley, Director

All male freshmen are required to take two hours of physical education per week for two semesters during their first year of residence at the University. Students who fail to pass the basic swimming test may be required to take a third hour per week until this deficiency is removed.

Exemptions. The following students are exempt: 1) students who are certified as physically unfit by the Department of Student Health; 2) students who have served three (3) months or more in the armed forces; 3) students who at the time of registration have passed their twenty-first (21st) birthday; 4) transfer students with 24 credits; and 5) other exemptions at the discretion of the director.

NOTE: All freshman transfer students may apply toward the completion of their requirement here any physical education credit earned at another institution and accredited by this University.

Deferments. All applications for postponements must be made in advance to the director of required physical education. In addition to passing the swimming test, the satisfactory completion of the required course in physical education is determined on the basis of motor proficiency and physical fitness, and knowledge and skills in a balanced selection of recreational sports for leisure-time use.

Although the physical education requirement may be satisfied through participation in intercollegiate sports, it is necessary that students fill out a registration card for physical education at the time of the regular registration period.

COSTUME. A regulation gym suit is required of all students consisting of a white T shirt with the name Wisconsin in cardinal across the chest and pants with cardinal trim, supporter, sweat socks, and rubber-soled tennis or basketball shoes. *Students who expect to play tennis should provide themselves with smooth-soled tennis shoes.* For outdoor activities a plain gray sweat shirt and long sweat pants are recommended.

INTRAMURAL SPORTS. The opportunity for participation in a year-round sports program of varied activities is offered to all male students enrolled in the University. Intramural tournaments and contests are conducted and supervised under the management of the Division of Physical Education for Men.

The intramural program includes such sports as touch football, volleyball, bowling, basketball, water polo, badminton, softball, tennis, and golf, and are organized in three divisions, namely, the Fraternity League, the Men's Halls League, and the Independent League. Every male student with a satisfactory health grade may participate in at least one of these leagues. The Wisconsin aim is "sports for all."

INTERCOLLEGIATE ATHLETICS

GUY M. SUNDT, DIRECTOR

The University is a member of the Western Intercollegiate Conference Athletic Association and maintains representative teams in all intercollegiate sports. The requirements for membership on an intercollegiate team are as follows: one year's residence at the University, regular enrollment and a full program of studies in the college or school in which the student is enrolled; no disciplinary probation; no unsatisfied failure, condition, or incomplete.

Intercollegiate sports are under the government of the Athletic Board, a committee of seven members consisting of four faculty members, two representatives of the Alumni Association, and the president of the Student Athletic Board. Ex-officio members of the Board are: the Faculty Representative to the Western Conference appointed by the President, the Director of Intercollegiate Athletics and the Business Manager of Athletics. 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.

Baseball	Cross-country	Gymnastics
Basketball	Fencing	Swimming
Boxing	Football	Tennis
Crew	Golf	Track
		Wrestling

WOMEN'S DEPARTMENT

MARIE L. CARNS, DIRECTOR

Freshman and sophomore women are required to take two 50-minute periods or their equivalent of physical education per week for four semesters (i.e., for their first two years in the University). All transfer students who enter the University with less than 58 credits are required to take physical education until they attain junior standing and have satisfactorily completed all courses taken in the department. They may apply any physical education credit which has been transferred from another institution and accredited by this University toward the completion of their requirement here.

COURSE REQUIREMENT. The satisfactory completion of the required course in physical education is determined upon the basis of participation, motor proficiency, and knowledge of the principles of efficient body control and healthful living. Every woman who enters the University as a freshman is required to meet the following specific course requirements

during her two years in the department: (1) participate for one semester (two seasons) in a class in the Fundamentals of Physical Education; (2) participate for one season in each of the following: a team sport, a dance activity, an individual or dual sport; (3) meet the swimming requirement by demonstrating her ability to swim or be at ease in deep water; otherwise she must elect swimming as her individual activity for one or two seasons depending upon her ability to keep afloat in deep water. After these requirements are met, a student may elect any activity offered by the department. Adjustments are made in the course requirement for students who enter the University with sophomore standing.

There are two registrations in physical education during the year, one at the beginning of each semester. Both registrations are held at Lathrop Hall.

Activities included in the three required groups from which student may elect are:

Team Sports	**Dance**	**Individual and Dual**
Basketball	Folk and Square Dance	Archery
Hockey	Introduction to Dance (Modern)	Badminton
Soccer	Social Dance	Bowling
Softball		Canoeing
Speed-a-way		Diving
Volleyball		Fencing
		Golf
		Life Saving
		Swimming
		Tennis
		Water Safety

EXEMPTIONS a) Students who are certified as physically unfit by the Department of Student Health; b) students who have served three (3) months or more in the armed forces; c) students who at the time of registration have passed their twenty-first (21st) birthday; d) women transfer students with 58 credits; e) other exemptions by the dean of the school or college in which the student is registered on the recommendation of the director of required physical education.

POSTPONEMENTS. Self-supporting students and occasionally others for whom the requirement of physical education may cause a temporary hardship may be permitted to postpone the requirement. Permission to postpone the requirement will not be granted for more than one semester at a time and none of the requirement will be postponed into the senior year. All requests for postponements must be made in advance to the director of required physical education at 108 Lathrop Hall.

COSTUME. A specified costume for sports is required. A two-piece dance costume is required for Introduction to Dance and Fundamentals. These costumes are to be purchased in Madison.

OPPORTUNITIES FOR RECREATIONAL PARTICIPATION. The Women's Athletic Association in co-operation with the Women's Department of Physical Education, offers a variety of intramural and club activities including co-recreation in softball, swimming, and volleyball. This makes it possible for every woman to enjoy some form of exercise and competition within the range of her ability.

INTRAMURALS. Intramurals are open to any woman interested in playing in the different tournaments sponsored throughout the year. Dormitories, living houses, sororities, church, and independent groups enter teams in these tournaments.

CLUBS. There are two clubs, Dolphin and Orchesis, whose programs run throughout the year. Dolphin Clubs, both junior and senior, stimulate interest in swimming, diving, and water games. Orchesis, junior and senior clubs, offer opportunity for the study of dance beyond regular scheduled class work. Orchesis and Dolphin Clubs have a yearly demonstration or program.

Other clubs such as basketball and hockey clubs have seasonal programs. They promote sport days and interclass competition.

EQUIPMENT AND FACILITIES. Students participating in the recreational program are privileged to use all facilities of the department, including sports equipment, free of charge.

MILITARY SCIENCE

FACULTY

CHESTER F. ALLEN, *B.A.*, Colonel of Infantry, Commandant and Professor of Military Science and Tactics

EMERSON M. MCDERMOTT, *B.A.*, Lieutenant Colonel of Signal Corps, Associate Professor of Military Science and Tactics

FRANK R. HUBBARD, JR., *B.S.*, Lieutenant Colonel, Corps of Engineers, Associate Professor of Military Science and Tactics

CLAUD D. LAFORS, *B.S.*, *Ph.C.*, Lieutenant Colonel of Medical Service Corps, Associate Professor of Military Science and Tactics

WALTER L. RENN, JR., *B.S*, Lieutenant Colonel of Transportation Corps, Associate Professor of Military Science and Tactics

JOHN H. SMITH, Lieutenant Colonel of Military Police Corps, Associate Professor of Military Science and Tactics

WILLIAM H. WIKOFF, *B.A.*, Lieutenant Colonel of Infantry, Associate Professor of Military Science and Tactics

JAMES C. JOHNSON, *B.S.*, Major of Infantry, Assistant Professor of Military Science and Tactics

CARROLL D. BILLMYER, JR., *B.S.*, Major of Military Police Corps, Assistant Professor of Military Science and Tactics

THOMAS W. LOCKE, *B.S.*, Major of Transportation Corps, Assistant Professor of Military Science and Tactics

GEORGE D. BALLENTINE, *B.S.*, Major of Transportation Corps, Assistant Professor of Military Science and Tactics

ROBERT B. KUBE, *B.A.*, Major, Corps of Engineers, Assistant Professor of Military Science and Tactics

WILLIAM J. LOVE, *B.S.*, *M.S.*, Captain, Corps of Engineers, Assistant Professor of Military Science and Tactics

ROBERT N. MACKINNON, *B.S.*, Captain of Infantry, Assistant Professor of Military Science and Tactics

HOWARD C. CHRISTIAN, *B.S.*, Captain of Signal Corps, Assistant Professor of Military Science and Tactics

ROBERT H. PHILIPS, *B.S.*, Captain of Infantry, Assistant Professor of Military Science and Tactics

LONNIE A. DOWELL, Captain of Military Police Corps, Assistant Professor of Military Science and Tactics

JODE R. WILSON, *B.A.*, Captain of Military Police Corps, Assistant Professor of Military Science and Tactics

THOMAS M. BARRY, JR., *B.S.*, Captain, Corps of Engineers, Assistant Professor of Military Science and Tactics

RICHARD L. HAMMEL, *B.S.*, First Lieutenant of Signal Corps, Instructor in Military Science and Tactics

WILLIAM H. RUSTEBERG, Warrant Officer, U.S.A., Adjutant, Military Science and Tactics

MILITARY TRAINING

All male freshmen and sophomores are required to enroll in one branch of the ROTC program at the time of registration. Exceptions are granted only to those students who

are certified as physically unfit by the Department of Student Health, those with prior active duty in the armed forces, those in the University Band, and those who for other reasons are exempted or excluded by the authority of the Board of Regents.

Transfer students who have 55 credits acceptable to the University of Wisconsin are not required to take military training. Transfer students who have less than 55 credits are required to enter one of the ROTC programs and continue therein until such time as 55 credits have been acquired.

BRANCHES

The Department of Military Science comprises Corps of Engineers, Infantry, Medical Service Corps, Military Police Corps, Signal Corps, and Transportation Corps branches of the Reserve Officers' Training Corps.

OBJECT OF INSTRUCTION

The curriculum provides for a progressive course of military training consisting of two years basic and two years advanced study. The object of the training is to prepare students to perform the duties of commissioned officers so that in time of national emergency educated men with a knowledge of military science will be available to help organize, train and command the army units required to defend the United States. A selected number of highly qualified advanced course graduates are appointed as second lieutenants in the Regular Army.

BASIC COURSE

Enrollment in the basic course is compulsory for all male freshman and sophomore students between the ages of 14 and 23 who are citizens of the United States, are physically qualified and have not completed at least three months active service in any of the armed forces of the United States. Aliens and students who have completed at least three months active service in any of the armed forces of the United States, as well as members of the University Band, will be exempt from the basic course upon application to the Professor of Military Science and Tactics.

Students entering the University who have previously completed courses in junior or other senior units of the ROTC, in a school or college conducting military training under an officer of the army detailed as Professor of Military Science and Tactics, or at the United States Military Academy, may apply for advanced standing in the Department of Military Science and Tactics. Such application should be made to the Professor of Military Science and Tactics prior to or at the time of registration.

Three hours of instruction per week are required in the basic course. Each basic course student is issued a regulation uniform, returnable to the Military Property Custodian for the University at the end of each school year.

ADVANCED COURSE

Upon completion of the sophomore year of the basic course or one year's active service in any of the armed forces of the United States, a student may make application for the advanced course of Military Science. This application will be made to the President of the University, through the Professor of Military Science and Tactics. Applicants must not have reached 27 years of age at the time of initial enrollment in the advanced course, with the following exceptions: advanced course Medical Service Corps students must not have reached 28 years of age at time of initial enrollment in that course. All applicants must pass a final type officer's physical examination, and successfully complete the general survey and screening tests prescribed by the Professor of Military Science and Tactics. Students selected for the advanced course are required to sign a written contract wherein they agree to complete the course, five hours a week, over a period of two years, and

attend one summer camp of not more than six weeks duration, and accept a commission in the ORC if tendered.

Upon the execution of this agreement, the Department of the Army furnishes to members of the advanced course, in addition to officer-type uniforms and equipment, commutation of subsistence at the rate of approximately $27.00 per month while they are enrolled in the course. Students enrolling in the advanced course must begin work in the course at least two years prior to normal completion of the student's academic course or graduate work.

Students are paid at the rate of $75.00 per month while attending the advanced course summer camp. Transportation, at a rate of five cents per mile to and from the camp, and all expenses at the camp are paid by the Federal Government.

Upon satisfactory completion of the advanced course, including the prescribed summer camp training, and satisfactory completion of the course of instruction pursued at the University during the period of enrollment in the advanced course, graduates are eligible for appointment by the President of the United States as members of the United States Army Reserve in the grade of Second Lieutenant.

Students designated by the Professor of Military Science and Tactics as Distinguished Military Graduates are eligible for direct appointment as Second Lieutenants in the Regular Army.

PERSONNEL AND EQUIPMENT

Instruction in the Department of Military Science is conducted by army officers and noncommissioned officers selected by the Department of the Army and approved by the University. Equipment and text books necessary to make the course both complete and practical are provided by the Federal Government.

EXTRA-CURRICULAR ACTIVITIES

The Military Department sponsors three rifle teams, the Varsity and Freshman Teams (open to all students in the University) and the ROTC Team (open to cadets only). Members of the ROTC Team are eligible to shoot on the Varsity and Freshman Teams. The coaching staff, rifles, ammunition and all other equipment for the three teams are furnished by the Military Department.

The Military Department also sponsors two pistol teams, the Varsity Team (open to all students in the University) and the ROTC Team (open to cadets only).

Basic course students are eligible for membership in Pershing Rifles. Pershing Rifles is a National Honorary Military Society, founded at the University of Nebraska in 1894 by Lt. John J. Pershing, then commandant of cadets at that institution. The Society was established at the University of Wisconsin in 1936 and now forms Company "C," Second Regiment of Pershing Rifles. The color guard, guard of honor and crack drill squad of the Pershing Rifles have performed and served for many University and state functions and have been commended many times on their high degree of military proficiency.

Advanced course students are eligible for membership in:

Scabbard and Blade

Scabbard and Blade, a National Honorary Military Society, was founded at the University of Wisconsin in 1905, and now has a national membership of over 48,000 in 90 chapters. The Wisconsin chapter, designated as Company "A," First Regiment, is honored as the parent chapter and is the only company entitled to wear the charter Scabbard and Blade Medal.

Provost Corps

Provost Corps is a National Honorary Military Society, founded at Michigan State College in 1949, for the recognition and association of advanced cadets in the Military Police Corps. The Wisconsin chapter, founded in 1950, sponsors a drill team and provides a crack drill squad to serve at University and civic functions.

Society of American Military Engineers

The Society of American Military Engineers was founded at Fort Belvoir, Virginia, in 1920. The Wisconsin chapter, founded in 1951, serves to acquaint outstanding advanced cadets with the special problems and duties confronting them in the Corps of Engineers.

Nation Defense Transportation Association

The student chapter of the NDTA of the University of Wisconsin was activated in May, 1954. The chapter has for its goal the fostering of good relations between the military and commercial transportation concerns, and the imparting of increased knowledge to the students of the transportation industry. Meetings are held bi-monthly and efforts are made to obtain outside speakers who have achieved successful careers in the transportation field. Any person interested in "Transportation" is eligible to become a member, including all Junior and Senior Cadets of TC ROTC, and students pursuing a course of study in some phase of transportation.

NAVAL SCIENCE

FACULTY

D. E. Reeve, *B.S.*, Colonel, USMC, Professor of Naval Science
A. R. Josephson, *B.S.*, Commander, USN, Associate Professor of Naval Science
A. L. Wozniak, Jr., *B.S.*, Lieutenant Commander, USN, Assistant Professor of Naval Science
H. R. Martin, *B.A.*, Major, USMC, Assistant Professor of Naval Science
J. Kaufman, *B.S.*, Lieutenant, USN, Assistant Professor of Naval Science
J. C. Smith, *B.S.*, Lieutenant, USN, Assistant Professor of Naval Science
R. C. Cross, *B.S.*, Lieutenant junior grade, Assistant Professor of Naval Science

OBJECT AND SCOPE OF INSTRUCTION

The Department of Naval Science, established by agreement between the Regents of the University of Wisconsin and the U. S. Navy Department, functions as a unit of the Naval Reserve Officers' Training Corps under the authority of the Act of Congress of March 4, 1925, as amended. Similar units operate in fifty-one other leading colleges and universities. Its purpose is to provide instruction in naval subjects which, in conjunction with the student's other academic work, will qualify him for a regular or reserve commission in the U. S. Navy or U. S. Marine Corps.

Enrollment in the Naval Science course is limited to annual quotas set by the Navy Department.

Applicants must meet the physical requirements for a commission in the Navy, be unmarried, and be less than 25 years of age by July 1 of expected year of graduation.

Students in the Naval ROTC program may be in one of the following classifications:

Regular Students are selected annually by nation-wide competitive examination and selective interviewing. On graduation they are commissioned in the Regular Navy or Marine Corps and are obliged to serve on active duty as officers for three years.

Contract Students are selected on a competitive basis by the Professor of Naval Science from freshman applicants at the beginning of the fall semester. On graduation they are commissioned in the Naval or Marine Corps Reserve. Contract students are currently required to agree to accept a commission, if tendered, and to serve not less than two years on active duty after commissioning.

Naval Science Students receive the same instruction as the above except that they are under no contract or obligation to the Navy. They are in effect alternates for contract students, to fill vacancies in the unit that may occur from time to time.

Enlisted Veterans of any of the armed services who wish to qualify for a commission may apply for advanced standing as contract students. Normally the advanced standing that can be given is limited to two semesters.

DEPARTMENTS OF INSTRUCTION

The complete Naval Science course includes twenty-four semester hours of classroom instruction. Three credits are taken each semester. Two hours of laboratory instruction, of which approximately 25 per cent is infantry drill, is additional, as are the summer cruises.

A bachelor's degree is required for a commission. The several colleges of the University have ruled individually regarding the courses necessary to obtain an established degree in conjunction with the twenty-four credits in Naval Science, or to obtain the degree of Bachelor of Science (Naval Science).

11. EVOLUTION OF SEA POWER. Sem; 3 cr. Influence of sea power upon global history; history of the United States Navy; elementary naval strategy and tactics.

12. NAVAL ORIENTATION. Sem; 3 cr. Naval customs, regulations, and organization; warship construction and characteristics; elementary seamanship and ship-handling.

21. NAVAL WEAPONS. Sem; 3 cr. Ammunition components, major and intermediate caliber gun installations, automatic guns, basic principles of radar, the fire control problem, ballistics, the basic surface and antiaircraft fire control problems, director systems for control of gunfire.

22. NAVAL WEAPONS. Sem; 3 cr. Director systems for control of gunfire, combat information center, shore bombardment, principles of sonar, antisubmarine warfare weapons, guided missiles.

31. NAVAL ENGINEERING.[1] Sem; 3 cr. Marine engineering power plants; boiler, feed water and fuel oil systems; turbine propulsion systems; auxiliary systems, distillers, refrigeration systems, electrical plants; diesel engines; fundamentals of stability; effect of weights on stability; impaired stability and damage control; repair parties and repair of damage.

*31M. EVOLUTION OF THE ART OF WAR, PART I. Sem; 3 cr. Survey of the evolution of weapons, strategy, tactics, and material; illustrates the classic principles of war by a study of selected battles and campaigns up to World War I.

32. NAVIGATION. Sem; 3 cr. The construction and use of charts, gyro and magnetic compasses; sextant; plane, mercator and great circle sailings, inland piloting, nautical astronomy and star identification; theory and basic components of the celestial navigation problem; solution and plot of a celestial triangle to obtain a fix; introduction to electronic navigation.

*32M. EVOLUTION OF THE ART OF WAR, PART II, AND MODERN BASIC STRATEGY AND TACTICS. Sem; 3 cr. Continuation of the study of selected battles and campaigns through the Korean War. Resume of U. S. military and foreign policy, basic strategic concepts, and principles of offensive and defensive combat.

41. NAVAL OPERATIONS.[2] Sem; 3 cr. Maneuvering boards, communications, rules of road, tactical instruction and meteorology.

*41M. AMPHIBIOUS WARFARE, PART I. Sem; 3 cr. History of amphibious warfare and its development; principles of amphibious warfare techniques.

42. NAVAL ADMINISTRATION.[3] Sem; 3 cr. Organization, command arrangement, routine of administration and personnel management, and Uniform Code of Military Justice.

*42M. AMPHIBIOUS WARFARE, PART II, LEADERSHIP AND THE UNIFORM CODE OF MILITARY JUSTICE. Sem; 3 cr. Application of the principles of amphibious warfare techniques in selected examples from modern history; basic psychology of leadership and development of a knowledge of leadership techniques; administration of the Uniform Code of Military Justice.

NROTC students are required to complete a sequence in mathematics through trigonometry, and (regulars only) a year of college physics, by the end of the second year.

PAY AND ALLOWANCES

REGULAR STUDENTS receive retainer pay at the rate of $50.00 per month, and on summer cruises, the pay prescribed by law for midshipmen. Tuition and all textbooks are paid for by the Navy.

---

* Substituted for equivalent navy course by candidates for USMC or USMCR commission.
[1] Also presented as NS 42 fall semester 1955–56 during transition year.
[2] Not presented until year 1956–57.
[3] Presented as NS 41 year 1955–56.

CONTRACT STUDENTS receive money allowance for commuted rations (about $27.00 per month) during their junior and senior years. On summer cruises they are paid at the rate prescribed by law for enlisted men of the first pay grade, $78.00 per month.

NAVAL SCIENCE STUDENTS receive no pay or allowances.

UNIFORMS

Students are furnished, at government expense, a complete outfit of midshipman uniforms and insignia on entrance into the NROTC. The uniform is worn only to drill and laboratory periods, twice a week, and to designated functions.

SUMMER CRUISES

Summer training cruises are made in vessels of the Atlantic or Pacific fleets. REGULAR STUDENTS are required to make three such cruises of six to eight weeks' duration. CONTRACT STUDENTS are required to make one cruise, normally of shorter duration and occurring between the junior and senior years. NAVAL SCIENCE STUDENTS are not eligible to participate in cruises. Transportation to and from cruise embarkation points is defrayed by the Navy.

PERSONNEL AND EQUIPMENT

Instruction in the Department of Naval Science is conducted by officers of the Regular Navy and Marine Corps specially selected for that purpose. Naval equipment and texts for use in Naval Science courses are provided by the Navy Department.

DEPARTMENT OF AIR SCIENCE

FACULTY

EDWIN P. ARCHIBALD, *B.S.*, Colonel, United States Air Force, Professor of Air Science
DARWIN E. SWANSON, *B.S.*, Lieutenant Colonel, United States Air Force, Associate Professor of Air Science
PAUL B. LOFTHUS, *Ph.B.*, Major, United States Air Force, Assistant Professor of Air Science
WILLIAM P. ASPREY, *B.A.*, Major, United States Air Force, Assistant Professor of Air Science
CLIFFORD B. THOMAS, *B.S., LL.B.*, Major, United States Air Force, Assistant Professor of Air Science
RICHARD T. OLDHAM, *B.A., M.A.*, Captain, United States Air Force, Assistant Professor of Air Science
ROBERT J. ULRICH, *B.A., M.A.*, Captain, United States Air Force, Assistant Professor of Air Science
JOHN F. REID, *B.S.*, Captain, United States Air Force, Assistant Professor of Air Science
LESLIE C. KING, JR., Captain, United States Air Force, Assistant Professor of Air Science
BURRITT H. POND, *B.S., M.A.*, Captain, United States Air Force, Assistant Professor of Air Science
ALVIN A. GOTTSLEBEN, *B.S.*, Captain, United States Air Force, Assistant Professor of Air Science
GEORGE J. KUBAL, *B.S.*, 1st Lieutenant, United States Air Force, Instructor

MISSION

The mission of the Department of Air Science is to provide the students with knowledge and understanding of the organization, administration and operation of the United States Air Force and its role in the National Military Establishment; to instill in the students a desire to serve as officers in the Air Force, particularly in rated capacities, and to develop in them the officer-like qualities of integrity, leadership and love of country; to train the students to be able to serve as junior officers of the Air Force and to select those best qualified for commissions in the regular and reserve components of the United States Air Force.

GENERAL INFORMATION

The United States Air Force has an Air Force ROTC unit at the University of Wisconsin. It offers a Basic Course, consisting of Air Science I and II, and an Advanced Course, composed of Air Sciencce III and IV.

BASIC COURSE

The University requirement for military training of freshmen and sophomores may be satisfied by taking the Basic Course. Any student who is required to take, or is eligible for, basic military training may, within quota limitations, elect to take that training in the Air Force ROTC. This Basic Course provides the student with an introduction to aviation, the elements of aerial warfare, and the role of the United States Air Force in national security. It develops by precept and example the attributes of character, personality, leadership and discipline which are indispensable to every officer of the Air Force. It also prepares the student for the Advanced Course. The Basic Course consists of three hours of instruction per week for two academic years. No credits are allowed for this course. Thirty of the ninety hours per year are spent in drill.

ADVANCED COURSE

The number of students selected for the Advanced Course is determined by Headquarters United States Air Force. This course consists of five hours of instruction per week for two academic years. Two credits per semester are allowed providing the student completes the four semesters of the course.

To be selected for the Advanced Course students must:

1. Have successfully completed the Basic Course, or had at least one year of honorable active military service.
2. Execute a written agreement with the Government to complete the Advanced Course, contingent upon remaining in school, and to attend the AF ROTC Summer Camp at the time specified.
3. Be less than 26 years of age at the time of initial enrollment in the Advanced Course.
4. Successfully complete such general survey and screening tests as may be prescribed.
5. Be selected by the Professor of Air Science and the President of the University.
6. Pass the required physical examination.

Members of the inactive Air Force Reserve are eligible for formal enrollment in the Advanced Air Force ROTC program. Members of other Reserve Components can not, at the present time, be formally enrolled, but may take part in the program on an informal basis. It is possible to transfer from such other Reserve Components to the inactive Air Force Reserve and thus become eligible for formal enrollment in the Air Force ROTC program. Subjects taught include communications processes, military law, aircraft engineering, navigation, weather, principles of leadership, military aspects of world political geography and military aviation. In summer camp, the students will study the Air Force in operation.

EXTRA-CURRICULAR ACTIVITIES

Arnold Air Society

The Arnold Air Society is an advanced-course student-interest group dedicated to the purpose of promoting a better understanding of the role of airpower as it affects the national security. This organization meets twice each month and is open to interested juniors and seniors of the Air Force ROTC.

Mitchell Airmen

The Mitchell Airmen is an organization composed of basic AFROTC cadets for the purpose of fostering a closer and more efficient relationship between the cadets and the Air Force ROTC Department. It is designed to promote Air Force ideals, give the members valuable training in leadership and to provide a social organization where the common interest of the members may be developed.

Military Ball

Each spring, all of the Air Force, Army and Navy cadet societies at the University of Wisconsin sponsor an all-campus formal dance, called the Military Ball. This is one of the largest social events of the year. The AFROTC organization plays an important role in making this event the great success it is. The Military Ball offers many men the opportunity to get "in" on an all-campus event. Work on the dance includes Military Ball King elections, Badger Beauty selection, selecting a big name band for the dance and many other committee projects.

Rifle Team

The Department of Air Science sponsors an AFROTC Rifle Team which meets twice weekly at the University rifle range. The cadets fire postal rifle matches against similar

units throughout the United States and make several trips to near-by universities for shoulder-to-shoulder matches. The Detachment has Winchester .22 caliber target rifles for the team's use and the University has one of the best rifle ranges in the country. This combination has, in the past, produced some excellent rifle teams in addition to providing a facility for those who are interested in shooting to practice their sport. Members of the AFROTC Rifle Team may also compete for membership on the University Varsity Rifle Team.

Orientation Flights

The flying indoctrination program of the Air Force ROTC consists principally of flights to Air Force bases. These flights originate at Truax Field, where the 520th Air Defense Group furnishes a C-47 aircraft for this purpose. In the past, these flights have been made to the Primary Flying School at Marianna, Florida, where the cadets are given an organized visit to the different sections of the school. The flights usually last two or three days and are for the purpose of indoctrinating the AFROTC cadets on the operation of a Primary Flying School.

Air Badger

A monthly newsletter is supported and published entirely by AFROTC cadets for the purpose of furnishing news and information about cadet corps activities and general Air Force policy which will better equip students to plan for military service with the Air Force after graduation. The Cadet Information Services Officer on the cadet staff supervises operation of the newsletter.

Drum and Bugle Corps

The Department of Air Science at the University of Wisconsin sponsors a forty-piece Drum and Bugle Corps. The leader of the group is an Air Science IV cadet and the two section leaders are Air Science III cadets. The Drum Major is selected from either the freshman or sophomore cadets. Activities which the Drum and Bugle Corps participates in are: the AFROTC review in the fall and the all-university review in the spring and the Armed Forces Day parade.

Future Service Wives

One of the newest and most interesting organizations on the campus is the "Future Service Wives" club. This group, made up of wives, fiances and girl friends of Army and Air Force ROTC cadets, is dedicated to the mission of making the adjustment to active military service easier for the "Future Service Wife." Their programs include guest speakers from the ROTC staffs and neighboring military units.

UNIFORMS AND PAY

Air Force ROTC students are furnished complete Air Force blue uniforms, including appropriate distinctive Air Force ROTC insignia.

Summer uniforms and special purpose clothing are furnished without cost to Air Force ROTC students of the Advanced Course while attending summer camp.

Each Advanced Course student is paid a monetary allowance of 90¢ per day (subject to change) not to exceed 595 days for the entire course. Textbooks are furnished by the Air Force. While attending summer camp, each Advanced Course student is paid at the rate of $78.00 per month and is furnished travel to and from camp, subsistence, housing, uniforms and medical attention at Government expense.

OTHER ADVANTAGES

Deferments from Selective Service may be given to both Basic and Advanced Course Air Force ROTC Cadets who in the judgment of the Professor of Air Science, have high officer potential.

Students who successfully complete the Advanced Course may, upon graduation, be commissioned as Second Lieutenants in the Air Force Reserve. At the present time, all of the newly commissioned Second Lieutenants are called to active duty within one year after graduation for a period of three years. A few will be integrated into the Regular Air Force.

DIVISION OF SOCIAL EDUCATION

PORTER BUTTS, DIRECTOR

The Division of Social Education was established in 1935 to develop the teaching and guidance functions of the Union, the campus community center. The educational officers of the Union serve as the division staff. The division complements other personnel agencies in planning for the social and recreational welfare of the student body. Specific educational functions include counseling and instructing students in the administrative and professional aspects of community service, and utilizing the building's facilities as laboratories for those academic departments wishing to give credit for field work (in cultural, social, or administrative fields) that is performed under the supervision jointly of the department instructor and the educational officers of the Union.

The division conducts the required recreation laboratory for recreation majors and offers field work opportunities for students in group leadership.

The Union staff also offers noncredit training in community leadership and programming to 500 students working on Union house committees and campus projects.

Included in the noncredit offerings of the division is informal instruction for groups and individuals in social customs, square dancing, skiing, archery, bridge, billiards, bowling, sailing, canoeing, riding, mountaineering, crafts, scene painting, and stage management.

DIVISION OF RESIDENCE HALLS

NEWELL J. SMITH, DIRECTOR

The Division of Residence Halls provides living accommodations for 2,500 men and women students in university-owned residence halls. Standards are high, and a professionally trained staff is responsible for the operation of these living units.

Within the halls is developed a program of social education which endeavors to teach, beyond classroom and laboratory, a useful and intelligent way of life, through which the personality will be strengthened and enriched.

Graduate counselors, or "Fellows," members of the Division's academic staff, live with the students. Along with others of the Division's faculty, they assist the residents in orienting themselves to the demands of university life, promote scholastic attainment, encourage the development of a strong student self-government organization, and are available for consultation with the individual on any problem.

Hobby and recreational facilities are present in photography, woodworking, amateur radio, journalism, chorus, and all sports; these preoccupations and many others, such as libraries and music rooms, encourage healthful, interesting and pleasurable use of the spare hours which intersperse classes, study and routine living.

Social events vary in character from informal exchange dinners between men's and women's houses, to faculty dinners, teas, open houses, formal dances. The intent is to aid residents, through experience, in acquiring a sense of familiarity and ease in normal social situations.

All emphasis is placed upon the healthful development of the individual in a beneficial environment, within the larger pattern of civic group consciousness and responsibility. To this end the Division is staffed with members of mature and capable judgment, who have been schooled in this philosophy of the University of Wisconsin.

In assigning rooms, preference is given to Wisconsin residents. Most of the vacancies are reserved for freshmen; a few assignments are made to new upperclass applicants. Preference in assignment is also given to Wisconsin veterans.

For specific information regarding accommodations, see pages 17–20. Further information about university residence halls can be secured by writing the Assignment Office, Division of Residence Halls, Slichter Hall, Madison 6, Wisconsin.

DIVISION OF RADIO-TELEVISION EDUCATION

HAROLD B. MCCARTY, DIRECTOR

Communication remains man's supreme achievement. His progress depends upon his ability to transfer to others what he has seen, thought, and believed—upon his effective use of the means and instruments of communication.

At the University of Wisconsin students have the opportunity to study, experiment, and work in an environment characterized by deep appreciation of the role of radio and television in man's progress and development.

Wisconsin Pioneering

Early experimenters at Wisconsin conducted successful radio transmissions of voice and music as far back as 1917. By 1919 they had begun broadcasting on a scheduled basis and established the "Oldest Station in the Nation." Alert to the superiority of FM, Wisconsin has developed a state network to augment and extend the service of the University station, WHA. And, with the coming of television, the University established a closed-circuit television laboratory in 1952 and began explorations into the educational, social, and cultural applications of the new medium. In 1954 the University joined with other state agencies to establish WHA-TV, one of the first noncommercial, educational television stations on the air.

Course instruction in broadcasting has also been marked by early recognition of the importance of electronic communication. Through the years since 1929, the University has developed a number of courses emphasizing various aspects of broadcasting. These courses, together with other related courses and co-curricular training opportunities, are described in the following pages.

Course Instruction

Several departments and schools co-operate to present a variety of basic and supplementary courses. These courses are designed to serve the needs and interests of three types of students:

a. Those who want a general understanding of broadcasting and wish to prepare for an occasional radio or television appearance.

b. Those who may make use of broadcasting in connection with another profession or activity (journalism, teaching, advertising, etc.).

c. Those who wish to prepare for a professional career in some phase of broadcasting.

Broadcast Training

In addition to course instruction and research in the principles, problems, and techniques of broadcasting, the University provides excellent training opportunities in actual broadcasting. Skilled students make up a substantial portion of the staffs of the University radio station, WHA, and the University Television Laboratory. They also work on the staffs of WHA-TV and the State FM Network operated by the State Radio Council from studios on the University campus.

I. COURSE INSTRUCTION

Because radio and television embrace so many fields of study, instruction is presented co-operatively by several schools and departments of the University. The student does not get a degree in radio or television as such. Rather, he majors in the school or department

in which he is primarily interested, and he arranges his schedule so that he can elect the basic and related courses that best meet his needs.

This plan of instruction is based on the assumption that radio and television skills (speaking, acting, writing, directing, etc.) are not entirely new skills. They are adaptations of basic skills common to various means of communication. Accordingly, the student can get much of value from courses that do not have the words "radio" or "television" in the title.

A. BASIC COURSES

Three courses provide a foundation for advanced work and are regarded as basic to specialization in either radio or television:

SPEECH 116. RADIO, TELEVISION AND SOCIETY. 2–3 cr. For students who desire an understanding of the historical, social and cultural aspects of broadcasting. Open to all interested students with the proper university qualification; no special technical knowledge or aptitude required; no studio performance involved.

SPEECH 110. ELEMENTS OF RADIO BROADCASTING. 2–3 cr.

SPEECH 161. ELEMENTS OF TELEVISION BROADCASTING. 3 cr. Production courses involving practical studio-laboratory work in the preparation and presentation of broadcast programs.

B. SPECIAL INTEREST GROUPINGS

Students who wish to go beyond the three basic courses may choose one of several areas of emphasis or specialization. Following are a number of suggested "course groupings" to accommodate special interests. Other groupings may be arranged.

1. PROGRAM PRODUCTION. For students desiring professional knowledge of radio and television program production and direction.

   SPEECH 118. RADIO SPEECH FORMS. 3 cr.

   SPEECH 115. RADIO DRAMATIC PRODUCTION. 3 cr.

   SPEECH 161. TELEVISION PRODUCTION AND DIRECTION. 3 cr.

   MUSIC 125. MUSIC IN RADIO. 2 cr.

   SUPPLEMENTARY COURSES:

   SPEECH 119. STAGE DIRECTION. 3 cr.

   EDUCATION 165. METHODS IN AUDIO-VISUAL INSTRUCTION. 3 cr.

2. PROGRAM PARTICIPATION. For students desiring further training in performance skills for various types of programs.

   SPEECH 118. RADIO SPEECH FORMS. 3 cr.

   SPEECH 115. RADIO DRAMATIC PRODUCTION. 3 cr.

   SPEECH 161. TELEVISION PRODUCTION AND DIRECTION. 3 cr.

   SUPPLEMENTARY COURSES:

   SPEECH 18. FUNDAMENTALS OF ORAL INTERPRETATION. 2 cr.

   SPEECH 22. INTERPRETATION OF LITERARY TYPES. 3 cr.

   SPEECH 29. FUNDAMENTALS OF ACTING. 2 cr.

   SPEECH 122. ADVANCED PROBLEMS IN ACTING. 2 cr.

   SPEECH 129. ADVANCED DRAMATIC READING. 3 cr.

3. THE "VIDEO" SIDE OF TELEVISION. For those interested in designing, lighting, and the preparation of visual aids for television.

Speech 40. Fundamentals of Stagecraft. 2 cr.

Speech 106. Stage Lighting. 3 cr.

Art Education and Speech 140. Stage Design (yr). 6 cr.

Supplementary Courses:

Education 165. Methods in Audio-Visual Instruction. 3 cr.

Education 166A. Local Production of Audio-Visual Materials. 2–3 cr.

Education 166B. Local Production of Audio-Visual Materials. 2–3 cr.

Art Education 63. Commercial Design.

4. WRITING FOR RADIO AND TELEVISION. For students desiring instruction and practice in writing continuity, talks, interviews, news, drama, and other types of programs.

Speech 117. Writing for Radio. 2–3 cr.

Speech 162. Writing for Television. 3 cr.

Journalism 122A. Radio and Television News Writing. 2 cr.

Agricultural Journalism 18. Farm and Home Radio Writing. 2 cr.

Supplementary Courses:

Speech 114. Regional Writing, The Story and the Play. 2 cr.

Speech 120. Playwriting. 3 cr.

5. BROADCAST ADVERTISING. For students interested in the business aspects of radio and television.

Commerce-Journalism 118. Radio and Television Advertising. 3 cr.

Supplementary Course:

Commerce 115. Principles of Advertising. 3 cr.

6. EDUCATIONAL PROGRAMS. For students desiring to study non-commercial radio and television, including the use of broadcasts in schools.

Speech 116. Radio, Television and Society. 2–3 cr.

Education 155. Principles of Adult Education. 2–3 cr.

Education 163. Classroom Uses of Radio and Television. 2–3 cr.

Speech 136. Theory and Practice of Group Discussion. 3 cr.

C. OPPORTUNITIES FOR GRADUATE STUDY AND RESEARCH

With a single exception, all courses in radio and television currently offered (1955–56) are in the "100-group" and can be taken for credit by graduate students. Two graduate seminars are available, and special guidance is given graduate students in the selection and conduct of research projects. About 70 masters' essays and 8 Ph.D. dissertations on radio and television are on file in the Memorial Library.

Several graduate students are normally employed each year as project assistants on the broadcasting staff, in both radio and television.

Opportunities and facilities available for graduate study and research include the following:

1. Thirteen courses in radio and television totaling 36 graduate credits.
2. Two graduate seminars:
   a. SPEECH-JOURNALISM 204. COMMUNICATIONS RESEARCH DESIGN. 2 cr. For students interested in experimental studies in radio and television
   b. SPEECH 210. SEMINAR IN RADIO AND TELEVISION. 2 cr. For students who wish to study special types of problems and research methods.
3. Studios and equipment of the broadcasting stations (AM-FM-TV), as well as the closed-circuit Television Laboratory. Included are three image orthicon camera chains, vidicon camera chain, and a kinescope recorder, especially valuable for the control and repeated study of TV research materials.
4. Wisconsin Sequential Program Analyzer, which records in sequence the "likes-dislikes" of as many as 23 observers every few seconds. This instrument is useful in studying audience reactions to programs in the planning stage, as well as analyzing the strengths and weaknesses of programs on the air.
5. An all-University Radio-Television Research Committee, which provides assistance in the selection and development of research projects for the Television Laboratory and co-ordinates studies of different phases of similar problems.

D. GENERAL INFORMATION

Courses and training opportunities described here are concerned mainly with the non-engineering aspects of broadcasting. Technical courses in electronics, communications engineering, and electro-acoustical engineering are offered in the Department of Electrical Engineering.

The study of the special radio and television courses usually begins in the junior year. Freshman and sophomore years are devoted to subjects required of all graduates from the school or college in which they are enrolled and to elementary courses in the major departments. Extra-curricular activity at the broadcasting stations and the Television Laboratory may be started in the second semester of the freshman year.

Certain of the radio and television courses are restricted in enrollment to provide workable performance and production groups. In such cases, students are admitted on the basis of preparation and background. Advanced students and students with experience in radio, television, theatre, or motion pictures are given preference.

II. BROADCAST TRAINING

Because of the scope and extent of the State Broadcasting Service, which originates from studios on the campus, the University of Wisconsin is able to provide unusual opportunities for practical experience in broadcasting under professional conditions.

A. RADIO BROADCASTING

The Wisconsin state radio network is made up of two 5-kilowatt AM stations and eight FM stations ranging from 9 to 114 kilowatts effective radiated power. Transmitters are located in various parts of Wisconsin to provide state-wide coverage. They are linked by a pick-up and rebroadcast system which permits simultaneous transmission of the same programs by all stations.

Radio programs totaling 15¾ hours daily (7:15 a.m.–11:00 p.m.) are presented for listeners of various ages and interests.

For elementary school children the Wisconsin School of the Air provides ten programs weekly to enrich and supplement regular classroom teaching. For adult listeners there is the Wisconsin College of the Air, which makes it possible for listeners to "go to college at home" through broadcasts direct from university classrooms and special studio courses. The daily Farm Program keeps rural Wisconsin abreast of developments coming through

the College of Agriculture and the Experiment Station. The Homemakers' Hour gives housewives information and inspiration. Interviews, forums, book reviews, news, dramas, children's stories, special events, organization broadcasts, discussions of state affairs, foreign language lessons, and similar programs, together with generous periods of fine music are combined to round out the service.

Qualified students gain practical experience in various phases of radio programming—script and continuity writing, announcing, speaking, acting, production, musical performance, and technical operation.

B. EXPERIMENTAL TELEVISION

Broadcasting activities available for student observation, research, and participation include those of WHA-TV, noncommercial, educational television station which began regular broadcasting on May 3, 1954. WHA-TV operates on UHF Channel 21 and broadcasts on a schedule of 3 to 4 hours daily, Monday through Friday.

The current television schedule is made up of a variety of programs of systemaitc instruction, informal education, vocational information, discussions, quizzes, and programs for children. One of the latter, "The Friendly Giant," was given a First Award at the 1955 American Exhibition of Educational Radio and Television Programs and has been booked for broadcast by educational stations throughout the country. Kinescopes are distributed by the Educational Television and Radio Center, with which WHA-TV is affiliated.

Competent students participate in all phases of the television activities—performance as well as production—wherever their skills are adequate to the requirements.

ASSOCIATED SCIENTIFIC INSTITUTIONS

FOREST PRODUCTS LABORATORY

J. A. HALL, DIRECTOR

The Forest Products Laboratory is a scientific institution engaged in research for the Forest Service, United States Department of Agriculture, in co-operation 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. 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 co-operates, both in its research and the application of results, with public and private agencies also interested in the improved utilization of forest products and the development of forest lands. 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 some of its research, the results are carried to the pilot plant stages to develop further their application under more nearly commercial conditions; it also co-operates with various manufacturing establishments in testing out it research on a commercial basis.

The technical investigations of the Laboratory are as follows:

(1) Timber Mechanics and Engineering: Investigations of strength, stiffness, hardness, and other mechanical properties of wood, plywood, and wood-base materials; factors affecting strength, including temperature, moisture, defects, seasoning and treating methods; effects of duration of stress and rate of loading; flat-plate and direct-stress fatigue; methods of testing joints and fastenings; improvements in structural design and fabrication of wood structures; working stresses.

(2) Timber Physics: Fundamentals of wood-moisture relations; physical properties of woods; moisture equilibrium; vapor barriers; improvement in wood-seasoning technique and methods to reduce losses; chemical seasoning; design and operation of dry kilns.

(3) Packing and Packaging: Design and construction of wood and fiber shipping containers; methods of corrosion prevention; interior bracing and cushioning; crate design; fundamental relation of paper sheet properties to properties of fiber board and fiber containers; influence of manufacturing variables.

(4) Plywood, Glues, and Laminated Stock: Study of veneer and plywood manufacturing problems; study of characteristics and application techniques of glues to improve usefulness of glued wood products; study of new uses for laminated construction in commercial work.

(5) 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 practical means of preventing decay of timbers; the efficiency of various wood-preserving processes and preservatives; other processes to modify the properties of wood, such as fire-resistant and antishrink treatments; paints and painting practices.

(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 papermaking processes; chemical and physical studies of pulps and papers.

(8) Microstructure and Ecology: 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) Timber Harvesting and Conversion: 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 use of wood.

(10) Forest Pathology: Research on fungi causing deterioration of wood and wood products, their prevention and control; decay resistance of woods; laboratory evaluation of preservatives.

LECTURE AND LABORATORY COURSES

The staff of the Laboratory co-operates with that of the University of Wisconsin in the courses of lectures and research.

The courses presented 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.

FACULTY

LeRoy O. Anderson, *B.A.*, Lecturer in Forest Products
Roy H. Baechler, *Ph.D.*, Lecturer in Forest Products
Parker Karns Baird, *M.A.*, Lecturer in Forest Products
J. Oscar Blew, *M.S.*, Lecturer in Forest Products
Richard Frederick Blomquist, *Ph.D.*, Lecturer in Forest Products
Kenneth H. Boller, *B.S.*, Lecturer in Forest Products
Don Brouse, *Ph.D.*, Lecturer in Forest Products
Frederick L. Browne, *Ph.D.*, Lecturer in Forest Products
Herbert Dale Bruce, *M.S.*, Lecturer in Forest Products
Gardner Hotchkiss Chidester, *B.S.*, Lecturer in Forest Products
Donald George Coleman, *B.A.*, Lecturer in Forest Products
Edward Manning Davis, *M.F.*, Lecturer in Forest Products
Edwin Carl Olaf Erickson, *B.S.*, Lecturer in Forest Products
Herbert O. Fleischer, *Ph.D.*, Lecturer in Forest Products
Alan D'Yarmett Freas, *M.S.*, Lecturer in Forest Products
Elwin Elmer Harris, *Ph.D.*, Lecturer in Forest Products
John F. Harris, *B.S.*, Lecturer in Forest Products
Bruce George Heebink, *B.S.*, Lecturer in Forest Products
Otto C. Heyer, Lecturer in Forest Products
Victor C. Hobert, *A.B.*, Lecturer in Forest Products
Clarence Earl Hrubesky, *M.S.*, Lecturer in Forest Products
William L. James, *M.S.*, Lecturer in Forest Products
Robert Pilson Albert Johnson, *C.E.*, Lecturer in Forest Products
Kenneth Walter Kruger, *B.S.*, Lecturer in Forest Products
Edward W. Kuenzi, *B.S.*, Lecturer in Forest Products
B. Francis Kukachka, *Ph.D.*, Lecturer in Forest Products
Eugene Fay Landt, *B.S.*, Lecturer in Forest Products
Don F. Laughnan, *B.S.*, Lecturer in Forest Products
Wayne Cuthbert Lewis, *B.S.*, Lecturer in Forest Products
Ralph Melvin Lindgren, *Ph.D.*, Lecturer in Forest Products
Joseph Arthur Liska, *M.S.*, Lecturer in Forest Products
Edward Gibson Locke, *Ph.D.*, Lecturer in Forest Products
Gordon D. Logan, Lecturer in Forest Products
Ronald Floyd Luxford, *C.E.*, Lecturer in Forest Products
L. J. Markwardt, *C.E.*, Assistant Director and Lecturer in Forest Products

VICTOR P. MINIUTTI, *M.F.*, Lecturer in Forest Products
HAROLD L. MITCHELL, *M.F.*, Lecturer in Forest Products
WILLIAM W. MICTHELL, *B.S.*, Lecturer in Forest Products
SPENCER M. MUNSON, *A.B.*, Lecturer in Forest Products
BENSON HOWARD PAUL, *M F.*, Lecturer in Forest Products
EDWARD C. PECK, *M.F.*, Lecturer in Forest Products
MAXON Y. PILLOW, *Ph.D.*, Lecturer in Forest Products
EDMUND FREDERICK RASMUSSEN, *M.S.*, Lecturer in Forest Products
RAYMOND C. RIETZ, *B.A.*, Lecturer in Forest Products
JEROME FRANCIS SAEMAN, *Ph.D.*, Lecturer in Forest Products
EARL ROGERS SCHAFER, *B.S.*, Lecturer in Forest Products
THEODORE COMSTOCK SCHEFFER, *Ph.D.*, Lecturer in Forest Products
JOHN A. SCHOLTEN, *B.S.*, Lecturer in Forest Products
ROBERT J. SEIDL, *B.S.*, Lecturer in Forest Products
FORREST A. SIMMONDS, *B.S.*, Lecturer in Forest Products
ALFRED J. STAMM, *Ph.D* , Lecturer in Forest Products
HAROLD TARKOW, *Ph.D.*, Lecturer in Forest Products
LAURENCE VICTOR TEESDALE, Lecturer in Forest Products
THOMAS ROY TRUAX, *M.S.*, Lecturer in Forest Products
LYMAN WENTCH WOOD, *M.S.*, Lecturer in Forest Products
WALDEMAR GUSTAVE YOUNGQUIST, *B.S.*, Lecturer in Forest Products

*101. PROPERTIES OF WOOD. I; 5 cr. Structure and properties of wood with special reference to its use in light building construction. Mr. Andrews, Mr. Blew, Mr. Blomquist, Mr. Boller, Mr. Brouse, Mr. Browne, Mr. Bruce, Mr. Davis, Mr. Erickson, Mr. Fleischer, Mr. Freas, Mr. Heebink, Mr. Heyer, Mr. James, Mr. Kuenzi, Mr. Kukachka, Mr. Landt, Mr. Laughnan, Mr. Lewis, Mr. Luxford, Mr. Miniutti, Mr. Paul, Mr. Peck, Mr. Pillow, Mr. Rasmussen, Mr. Rietz, Mr. Scheffer, Mr. Scholten, Mr. Wood, Mr. Youngquist.

103. 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, 122, 123. Offered 1955–56 and in alternate years. Mr. Baechler, Mr. Chidester, Mr. E. E. Harris, Mr. J. F. Harris, Mr. Hrubesky, Mr. Locke, Mr. Saeman, Mr. Seidl, Mr. Stamm.

119. FUNGUS DETERIORATION OF FOREST PRODUCTS. I; 2 cr. (Same as PLANT PATHOLOGY 119.) A survey of the cause and prevention of stains and decay in forest products, and control measures. Prerequisites: Plant Pathology 101 and 104. Offered 1956–57 and in alternate years. Mr. Lindgren.

200. RESEARCH IN FOREST PRODUCTS. Yr; *cr. Chemistry of coal tars, wood tars, and wood preservatives, Mr. Baechler. The chemistry of wood hydrolysis and lignin, Mr. E. E. Harris. General wood chemistry, Mr. Saeman. The chemical action of microorganisms on wood and pulp, Mr. Lindgren. Physical and colloidal properties of wood and wood products, Mr. Stamm. Pulp and paper, Mr. Chidester. Wood preservation and glue, Mr. Blomquist, Mr. Truax. Microscopic structure of wood in relation to growth conditions and properties, Mr. Mitchell, Mr. Paul. Fungus deterioration of forest products, Mr. Lindgren. Timber mechanics and engineering, Mr. Johnson, Mr. Luxford, Mr. Liska, Mr. Youngquist, Mr. Freas, Mr. Wood. Timber physics and wood liquid relations, Mr. Rietz.

WASHBURN OBSERVATORY

ALBERT E. WHITFORD, DIRECTOR, PROFESSOR OF ASTRONOMY

The Washburn Observatory was established in the year 1878 through the munificence of the late Governor Cadwallader C. Washburn. The department attempts to provide satis-

factory balance between observational and theoretical astronomy in the courses offered. Traditionally, a great part of the energies of its staff have been directed toward observational research. Current researches are concerned with the photoelectric photometry of eclipsing stars, the determination of absorption in interstellar space from the color of stars, of galactic and extragalactic structure and the energy distribution of stars and galaxies.

The principal instruments of the observatory are a refracting telescope of 15.6-inch aperture and Cassegrain reflector of 12-inch aperture. Both telescopes have been provided with modern mountings constructed in the shops of the College of Engineering. There are precision clocks by Hohwii and by Howard and equipment for the reception of radio time signals.

In the students' observatory is housed the 12-inch reflector and a 3-inch transit instrument of the broken telescope type by Bamberg. The observatory also possesses a 6-inch refractor and a considerable number of subsidiary instruments such as portable telescopes, photometers, chronometers, sextants, engineers' transits, an altazimuth instrument, calculating machines, photographic equipment, and nautical charts and instruments.

A well-equipped electronic laboratory is maintained for experimentation with photoelectric devices. Facilities for development and construction of research apparatus are available in the observatory shop.

The Woodman Astronomical Library, supported from the income of a fund given by the late Cyrus Woodman, contains approximately 6,500 volumes and 3,000 pamphlets. The publications of the leading observatories of the world are received on exchange, and a complete file of current astronomical journals is available.

The results of investigations by the staff have appeared in fifteen volumes of the *Publications of the Washburn Observatory,* and in various astronomical journals.

Students of sufficient technical attainment are admitted to the observatory and take part in the investigations in progress. Such students are encouraged to pursue studies in the Astronomy Department leading to an M.S. or Ph.D. degree, and to use the facilities of the observatory for original research. Course offerings are listed on page 102.

WISCONSIN GEOLOGICAL AND NATURAL HISTORY SURVEY

GEORGE F. HANSON, STATE GEOLOGIST

This Survey has always been closely associated with the University. Its origin dates from a motion offered by Dr. C. R. Van Hise to the Wisconsin Academy of Sciences in 1893, calling for the appointment of a committee to secure legislation establishing such a survey. The committee, with Dr. Van Hise as chairman, took up the task and finally secured the establishment of the Survey by the legislature of 1897. The offices and laboratories of the Survey are in university buildings. In 1931, the Survey was placed under the charge of the Board of Regents of the University.

The Survey was at first organized in two divisions—Geology and Natural History; the legislature of 1909 added a third division by establishing a Soil Survey of the State. From the first, much attention was given to highway improvement, and a Highway Division was organized in 1907. In 1911 the legislature created the Highway Commission and made the State Geologist one of its members. Close co-operation is still maintained between these organizations and each summer the Survey directs investigations of materials available for road construction which have been worth several hundreds of thousands of dollars annually to the state.

The Geology and Soils Survey Divisions are the only two currently active. The Natural History Division was under the immediate charge of Dr. Birge until his death in 1950 but after 1931 no direct state appropriation was available for this work.

The Geology Division, under Mr. G. F. Hanson, maintains co-operative programs with

the U. S. Geological Survey on groundwater investigations, minerals investigations and topographic mapping, in addition to its independent work on the geology and mineral resources of the state.

The Soils Survey Division, under Prof. F. D. Hole, maintains an active program of field and laboratory investigations in order to classify the soils of the state, map them accurately and assess their agricultural potentialities. Much work is done in co-operation with the U. S. Department of Agriculture.

At all times the Survey works closely with University departments on problems of mutual interest. 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 co-operative relationship existing between the University and the Survey is very valuable to both.

UNIVERSITY HOSPITALS

H. M. Coon, *M.D.*, Superintendent

The University Hospitals include the Student Infirmary, the Mary Cornelia Bradley Memorial Hospital, the State of Wisconsin General Hospital, the Wisconsin Orthopedic Hospital for Children, and the Cancer Research Hospital, and all integrated as the teaching hospitals of the Medical School.

The State of Wisconsin General Hospital is designed as a memorial to those who served in World War I, and was built and equipped from balances remaining in the Service Recognition Fund. Recently additions to the hospital have increased the beds available to a total of nine hundred.

The chief purposes of the hospitals are defined as follows: (1) For instruction of medical students, physicians, and nurses; (2) For the care of persons afflicted with a malady, deformity, or ailment of a nature which probably can be remedied by hospital service and treatments, who would be unable otherwise to secure such care; (3) For such scientific research as will promote the welfare of the patients and assist in the application of science to the alleviation of human suffering.

WISCONSIN PSYCHIATRIC INSTITUTE

W. F. Lorenz, *M.D.*, Director Emeritus
L. A. Osborn, *M.D.*, Director, Professor of Psychiatry

The Wisconsin Psychiatric Institute, developed originally under the Board of Control of the State of Wisconsin, was started in 1915 at Mendota State Hospital, where research in mental and nervous diseases was carried on. The Institute was transferred to the University in 1925 by the legislature so that its primary purpose could be preserved with increased opportunities in research through co-operation with the departments of the Medical School and other departments of the University. Basically, its program is designed to develop methods of treatment and prevention in the psychiatric field, more especially as psychiatric disorders become problems for the state and for communities.

The earliest research activities of the Institute centered about syphilis, and in co-operation with the State Board of Health much has been accomplished in the course of 30 years. The Institute pioneered in providing free blood and spinal fluid examinations to the physicians, institutions, and hospitals of the state. At a later date the Institute provided a service in blood chemistry on the same basis. In co-operation with the Department of Pharmacology, the staff of the Institute undertook extensive research in the field of treatment of syphilis, jointly carrying on the experimental phases of such research as new drugs were developed.

Throughout its history, the Institute has been in close relation with the mental hygiene services of the state. It has served clinic consultation through its affiliation with the Neuropsychiatric Department of the Medical School, conducted surveys, advised on developments in psychiatric care, sponsored clinical research in psychiatry and given educational support to institutions. The research carried on in conjunction with the Department of Neuropsychiatry, the Medical School, and the University Hospitals has included: encephalography, shock therapy, the use of barbiturates in the treatment of mental disorders and in methods of examination. As a by-product of certain of these investigations an antidote for barbiturate poisoning was developed.

The Institute has three divisions: diagnostic laboratory service; medical education; and clinical or hospital service in connection with the University Hospitals. All divisions are used in the program of medical education for students, interns, residents, and visiting physicians. When a new building for the Laboratory of Hygiene was constructed, the laboratory function of the Institute was transferred by the 1953 legislature to the Laboratory of Hygiene.

Continuing its historical function in both the University and the State Department of Public Welfare, the Institute was given additional responsibility in 1950 when the Board of Regents and the State Board of Public Welfare, after numerous consultations, decided that the successor to the directorship should also be Director of the Division of Mental Hygiene of the State Department of Public Welfare. By this arrangement, the educational and research strength of the University is still further applied to the clinical needs of the state service, while increasing emphasis on practical experience in psychiatric education makes this arrangement equally advantageous to the University.

With this added linkage, the Institute is carrying on its responsibility for study of the causes and prevention of psychiatric disorders and state care, is sponsoring new research projects in mental deficiency and in speech therapy (in conjunction with the Speech Department) and is increasing its program of special education. The construction of the Wisconsin Diagnostic Center near the University Hospitals provides an additional means whereby the Institute's linkage with the Division of Mental Hygiene is utilized. The Diagnostic Center is operatng as an institution of the State Department of Public Welfare and staffed by members of the Medical School faculty appointed by the Dean. This arrangement insures a clinical function in which the University contributes to the highest possible standards of patient care and further strengthens the educational program of the state service.

These purposes of the Institute are more fully realized by its administration as a department of the University in close affiliation with the Medical School and the University Hospitals.

STATE HISTORICAL SOCIETY

CLIFFORD L. LORD, DIRECTOR

This distinguished and nationally known Society was founded in 1846, two years before Wisconsin became a state. The Society, supported by the State and a trustee of the State, has in its 109 years done much to achieve its aims of preserving and disseminating the history of the State and of the Middle West.

The Library of the Society is today a busy historical laboratory, rendering service to the people of the State, the University, and scholars all over the country. The Society's building is situated on the lower campus of the University, facing the new building of the Memorial Library. The Historical Society's Library is the largest of any historical society in the nation. It includes 700,000 titles, and is growing at the rate of more than 10,000 each year. The museum exhibits occupy the first and fourth floors of the building. The museum collections are especially strong in Wisconsin Indian material, American textiles and clothing, and portraits of early state figures.

The Society conducts an active research and publishing program, issuing several books each year in addition to the quarterly *Wisconsin Magazine of History*. Book-length manuscripts and articles on various phases of Wisconsin history are welcomed. The Society also publishes the *Checklist of Wisconsin Public Documents, Badger History* (issued monthly during the school year for intermediate and junior high-school grades), *Wisconsin Then and Now* (monthly), *The Wisconsin Teacher Newsletter* (mimeographed monthly during the school year), the *Wisconsin Calendar.*

The State Historical Library is unequaled in the field of Middle Western history and has one of the most important newspaper (more than 50,000 volumes) and periodical collections in the United States. In local history and genealogy it is especially well equipped. The printed colonial records and government documents, state and federal, are equally extensive, and the Government Publications section is now the official state depository for such materials, except in the field of law. The manuscript collections of over 1,800,000 items contain a wealth of unexploited primary materials. The Draper Collection alone is the richest collection extant for the study of upland Virginia, North Carolina, Georgia, Kentucky, Tennessee, and the old Northwest during the Colonial and Revolutionary periods. It contains such rare items as thirty-four volumes on the life of Daniel Boone and sixty-five volumes on the career of George Rogers Clark. There are also excellent manuscript collections on the American Fur Company, Wisconsin governors, early settlers, immigration, lumbering, and recent Wisconsin statesmen. The John R. Commons Labor Collection, comprised of books, manuscripts, labor newspapers, convention proceedings, agreements, and the like, is the finest in the country. The McCormick Collection is rich in agricultural history materials and source materials for the study of business, political, social and cultural history. The Society also houses the official archives of the State.

It offers four one-semester courses in the work of historical agencies. These courses, open to the graduate student and the upperclassmen, are the only comprehensive training for professional work in this field given anywhere in the country at this level. The Society annually appoints several graduate Draper Assistantships, offers an annual D. C. Everest Prize of $1,000 for the best book-length manuscript in Wisconsin economic history.

The Society has an adult membership of over 5,000 and a junior membership of some 20,000. Its series of circulating museum exhibits and filmstrips, its radio programs and speakers services, help carry the story of Wisconsin's past to the four corners of the State.

WISCONSIN ACADEMY OF SCIENCES, ARTS AND LETTERS

ROBERT J. DICKIE, SECRETARY-TREASURER; PROFESSOR OF ENTOMOLOGY

The Wisconsin Academy of Sciences, Arts and Letters was established by legislative action on March 16, 1870. Its membership of about 600 people is comprised of men and women who are concerned with the search for and the dissemination of knowledge in the fields of their professional or avocational interests.

The purpose of the Academy is to develop and advance the sciences, arts and letters in Wisconsin. To accomplish that purpose the Academy engages in the following activities: (1) it holds an annual meeting at one of the colleges in the State at which scientific and literary papers are presented by members or their associates, (2) it publishes the papers so presented, together with other papers, in its *Transactions,* (3) it exchanges its publications for those of other learned societies in all parts of the world and makes available to all citizens of the State the valuable and extensive library accumulated by such exchanges, (4) it is affiliated with the American Association for the Advancement of Science and receives from it an annual grant-in-aid for research to be awarded by the Academy to some Wisconsin scientist or scholar, (5) is sponsors, encourages, and supervises the Junior Academies of Science comprised of the Science Clubs in the high schools of Wisconsin, and (6) it publishes a *Wisconsin Academy Review,* a semi-popular quarterly bulletin.

Publications of the *Transactions* of the Academy have been aided quite consistently by modest appropriations from the Wisconsin legislature. During the 85 years of its existence, the Academy has published 44 volumes of its *Transactions*. The library of the Academy contains more than 35,000 volumes at an estimated value slightly over a quarter million dollars.

Annual meetings have been held at almost every college in the State. In 1951, the meetings were held at Milwaukee-Downer College; in 1952 at Ripon College; in 1953 at the University of Wisconsin; and in 1954 at Lawrence College.

The Academy is in close collaboration with the University of Wisconsin. A large proportion of its active members are now, and about one half of its presidents were, members of the faculty of the University; many of the papers published in the *Transactions* were written by members of the university staff; and the library of the Academy is located in the Memorial Library. The Academy also maintains associations with like academies of other states and countries and with various organizations in this State.

ARBORETUM, WILD LIFE REFUGE AND FORESTRY PRESERVE

G. Wm. Longenecker, Executive Director
John C. Curtis, Director of Plant Research
J. R. Jacobson, Supervisor

The University Arboretum, Wild Life Refuge, and Forestry Preserve is a tract of around 1,200 acres of land on the shore of Lake Wingra, on the outskirts of Madison. Its purpose is to serve the University as an outdoor laboratory for the study of plants, birds, mammals, insects, aquatic life, soils, and their interrelation in nature.

An Arboretum is a necessary part of an adequate educational and scientific program where natural sciences, conservation, and nature education are being studied and taught. The indoor laboratory method of instruction must be supplemented by an outdoor laboratory for outdoor instruction, if we are to make progress in these fields. An Arboretum also plays the same role in experimenting with woody plants as the experimental farm plays with agronomic crops.

Types of primitive Wisconsin landscape with their flora and fauna are being preserved and restored at a point near the University. Plants and animals are being studied as individuals and as groups, particular emphasis being made on ecological relationships. These communities include a large prairie area, the principal types of marsh land, and will include the principal types of forest.

Some land is also set aside for displaying, testing, and improving horticultural material, and for experimentation with nut-bearing plants.

To date over 160,000 trees and shrubs and a large quantity of prairie plants have been planted.

The area is administered by a faculty committee, with A. F. Gallistel as Chairman.

MUSEUMS

The museums of the University are principally illustrative collections for use in connection with the work of instruction in the various departments. Worthy of special mention are the collection of chemical products; the extensive drug collection of the Pharmacy Department; the herbarium, containing a rich array of Wisconsin flowering plants, fleshy fungi, and mosses; the geological museum, containing very extensive collections of minerals, rocks, ores, and fossils, including thin sections; and the valuable collections of the Department of Art History and Criticism, which embraces a series of prints illustrating the development of the graphic arts and a 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.

A large pictorial collection contains portraits, paintings, prints and photographs which are also available for study purposes.

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.

FACULTY SUMMARY

1952–53

Rank	Men	Women	Total
Administrative Staff	66	5	71
Professors	371	33	404
Associate Professors	245	43	288
Assistant Professors	331	76	407
Lecturers (including Forest Products)	93	10	103
Associates	73	13	86
Instructors	442	191	633
Assistants (including Proj, Tchng, Resch)	1347	353	1699
Teachers in Wisconsin High School	11	14	25
Total	2979	737	3716

THE ABOVE TABLE INCLUDES:

A. Members of the instructional, research, and administrative staff, including military, naval, and air sciences, and Forest Products lecturers.

B. Extension workers throughout the state, including Milwaukee and other extension centers.

C. County and home demonstration agents.

D. The following who were on leave for the entire year:

Rank	Men	Women	Total
Administrative Staff	1	1	2
Professors	12	1	13
Associate Professors	7		7
Assistant Professors	11	1	12
Total	31	3	34

E. The following who were here for only one semester, because of a one-semester appointment, because of resignation, or because of leave for one semester:

Rank	Men	Women	Total
Professors	23	2	25
Associate Professors	7	2	9
Assistant Professors	20	4	24
Lecturers (including Forest Products)	19	3	22
Associates	19	3	22
Instructors	35	25	60
Assistants	261	98	359
Teachers in Wisconsin High School		3	3
Total	384	140	524

THE ABOVE TABLE DOES NOT INCLUDE THE FOLLOWING EMERITUS FACULTY MEMBERS:

Rank	Men	Women	Total
Administrative Staff	6		6
Professors	72	6	78
Associate Professors	8	4	12
Assistant Professors	4	7	11
Lecturers	3	1	4
Instructors	1		1
Total	94	18	112

1953–54

Rank	Men	Women	Total
Administrative Staff	74	5	79
Professors	377	31	408
Associate Professors	243	43	286
Assistant Professors	335	69	404
Lecturers (including Forest Products)	102	9	111
Associates	93	14	107
Instructors	404	178	582
Assistants (including Proj, Tchng, Resch)	1292	327	1619
Teachers in Wisconsin High School	11	13	24
Miscellaneous	39	13	52
Total	2970	702	3672

THE ABOVE TABLE INCLUDES:

A. Members of the instructional, research, and administrative staff, including military, naval, and air sciences, and Forest Products lecturers.

B. Extension workers throughout the state, including Milwaukee and other extension centers.

C. County and home demonstration agents.

D. The following who were on leave for the entire year:

Rank	Men	Women	Total
Professors	13	2	15
Associate Professors	10	2	12
Assistant Professors	8		8
Instructors	4		4
Total	35	4	39

E. The following who were here for only one semester, because of a one-semester appointment, because of resignation, or because of leave for one semester:

Rank	Men	Women	Total
Professors	15	2	17
Associate Professors	5		5
Assistant Professors	7	1	8
Lecturers (including Forest Products)	15	3	18
Associates	21	1	22
Instructors	30	18	48
Assistants	256	85	341
Teachers in Wisconsin High School	1	2	3
Miscellaneous	2	1	3
Total	352	113	465

THE ABOVE TABLE DOES NOT INCLUDE THE FOLLOWING EMERITUS FACULTY MEMBERS:

Rank	Men	Women	Total
Administrative Staff	7		7
Professors	70	8	78
Associate Professors	7	4	11
Assistant Professors	6	7	13
Lecturers	3	1	4
Instructors	1		1
Total	94	20	114

1954–55

Rank	Men	Women	Total
Administrative Staff	83	8	91
Professors	383	31	414
Associate Professors	237	46	283
Assistant Professors	382	66	448
Lecturers (including Forest Products)	92	14	106
Associates	118	11	129
Instructors	458	190	648
Assistants (including Proj, Tchng, Resch)	1298	338	1636
Teachers in Wisconsin High School	12	15	27
Miscellaneous	43	16	59
Total	3106	735	3841

THE ABOVE TABLE INCLUDES:

A. Members of the instructional, research, and administrative staff, including military, naval, and air sciences, and Forest Products lecturers.

B. Extension workers throughout the state, including Milwaukee and other extension centers.

C. County and home demonstration agents.

D. The following who were on leave for the entire year:

Rank	Men	Women	Total
Professors	19	2	21
Associate Professors	9		9
Assistant Professors	6	4	10
Instructors	4	2	6
Total	38	8	46

E. The following who were here for only one semester, because of a one-semester appointment, because of resignation, or because of leave for one semester:

Rank	Men	Women	Total
Administrative Staff	2		2
Professors	19	3	22
Associate Professors	10	1	11
Assistant Professors	17	5	22
Lecturers (including Forest Products)	14	7	21
Associates	19	1	20
Instructors	38	14	52
Assistants	217	52	269
Teachers in Wisconsin High School		1	1
Miscellaneous	3	1	4
Total	339	85	424

THE ABOVE TABLE DOES NOT INCLUDE THE FOLLOWING EMERITUS FACULTY MEMBERS:

Rank	Men	Women	Total
Administrative Staff	7		7
Professors	77	9	86
Associate Professors	8	4	12
Assistant Professors	7	8	15
Lecturers	2	1	3
Instructors	1		1
Total	102	22	124

THE UNIVERSITY OF

For the First and

	MEN			WOMEN			TOTAL
	Old	New	Total	Old	New	Total	
Extension Centers	710	1199	1909	174	394	568	2477
Madison Campus	6903	3559	10462	2585	1821	4406	14868
TOTAL	7613	4758	12371	2759	2215	4974	17345
COURSE*							
Letters and Science	2973	1964	4937	1456	1258	2714	7651
Agriculture	810	402	1212	39	22	61	1273
Home Economics	2	..	2	423	234	657	659
Commerce	548	117	665	36	10	46	711
Education	391	166	557	550	283	833	1390
Engineering	1173	792	1965	3	2	5	1970
Pharmacy	224	53	277	36	6	42	319
Law	496	51	547	16	3	19	566
Medicine	285	11	296	24	3	27	323
Specials and Unclassified	1	3	4	2	..	2	6
TOTAL	6903	3559	10462	2585	1821	4406	14868
CLASS							
Graduates	1662	872	2534	246	263	509	3043
Law	496	51	547	16	3	19	566
Medicine	285	11	296	24	3	27	323
Seniors	1632	54	1686	772	31	803	2489
Juniors	1290	298	1588	638	182	820	2408
Sophomores	1168	364	1532	733	223	956	2488
Freshmen	368	1883	2251	153	1101	1254	3505
Specials and Unclassified	2	26	28	3	15	18	46
TOTAL	6903	3559	10462	2585	1821	4406	14868
GRADUATES							
Letters and Science	872	408	1280	161	148	309	1589
Agriculture	373	168	541	31	21	52	593
Home Economics	..	..	..	8	26	34	34
Commerce	79	53	132	2	3	5	137
Education	100	89	189	41	63	104	293
Engineering	215	134	349	..	..	..	349
Pharmacy	23	20	43	3	2	5	48
TOTAL	1662	872	2534	246	263	509	3043
LAW	496	51	547	16	3	19	566
MEDICINE	285	11	296	24	3	27	323

* Course and class statistics are Madison campus only.

WISCONSIN ENROLLMENT

Second Semesters, 1952-53

	MEN			WOMEN			TOTAL
	Old	New	Total	Old	New	Total	
SENIORS							
Letters and Science	576	21	597	372	21	393	990
Agriculture	156	12	168	1	..	1	169
Home Economics	..	..	..	152	1	153	153
Commerce	282	16	298	19	1	20	318
Education	145	3	148	209	8	217	365
Engineering	399	2	401	..	..	..	401
Pharmacy	74	..	74	19	..	19	93
TOTAL	1632	54	1686	772	31	803	2489
JUNIORS							
Letters and Science	575	151	726	301	105	406	1132
Agriculture	127	14	141	2	..	2	143
Home Economics	1	..	1	129	14	143	144
Commerce	187	48	235	15	6	21	256
Education	79	8	87	183	57	240	327
Engineering	237	70	307	1	..	1	308
Pharmacy	84	7	91	7	..	7	98
TOTAL	1290	298	1588	638	182	820	2408
SOPHOMORES							
Letters and Science	731	210	941	504	149	653	1594
Agriculture	104	26	130	5	..	5	135
Home Economics	..	..	..	105	35	140	140
Education	49	1	50	111	35	146	196
Engineering	241	101	342	1	..	1	343
Pharmacy	43	26	69	7	4	11	80
TOTAL	1168	364	1532	733	223	956	2488
FRESHMEN							
Letters and Science	219	1152	1371	118	830	948	2319
Agriculture	50	182	232	..	1	1	233
Home Economics	1	..	1	29	158	187	188
Education	17	65	82	5	110	115	197
Engineering	81	484	565	1	2	3	568
TOTAL	368	1883	2251	153	1101	1254	3505
Specials and Unclassified	2	26	28	3	15	18	46
GRAND TOTAL	6903	3559	10462	2585	1821	4406	14868
Resident Students	5220	2591	7811	1894	1286	3180	10991
Non-Resident Students	1683	968	2651	691	535	1226	3877

THE UNIVERSITY OF

For the First and

	MEN			WOMEN			TOTAL
	Old	New	Total	Old	New	Total	
Extension Centers	781	1285	2066	156	389	545	2611
Madison Campus	6786	3433	10219	2671	1835	4506	14725
TOTAL	7567	4718	12285	2827	2224	5051	17336
COURSE*							
Letters and Science	2991	1790	4781	1505	1320	2825	7606
Agriculture	770	358	1128	39	23	62	1190
Home Economics	3	..	3	412	210	622	625
Commerce	490	90	580	41	3	44	624
Education	301	164	465	611	263	874	1339
Engineering	1253	909	2162	5	..	5	2167
Pharmacy	214	52	266	24	6	30	296
Law	471	57	528	10	7	17	545
Medicine	292	11	303	24	..	24	327
Specials and Unclassified	1	2	3	..	3	3	6
TOTAL	6786	3433	10219	2671	1835	4506	14725
CLASS							
Graduates	1570	842	2412	244	250	494	2906
Law	471	57	528	10	7	17	545
Medicine	292	11	303	24	..	24	327
Seniors	1398	75	1473	740	34	774	2247
Juniors	1194	237	1431	660	131	791	2222
Sophomores	1362	393	1755	809	213	1022	2777
Freshmen	490	1812	2302	174	1191	1365	3667
Specials and Unclassified	9	6	15	10	9	19	34
TOTAL	6786	3433	10219	2671	1835	4506	14725
GRADUATES							
Letters and Science	805	394	1199	146	159	305	1504
Agriculture	327	155	482	33	17	50	532
Home Economics	..	..	..	15	21	36	36
Commerce	90	44	134	1	2	3	137
Education	76	88	164	48	51	99	263
Engineering	238	146	384	..	..	..	384
Pharmacy	34	15	49	1	..	1	50
TOTAL	1570	842	2412	244	250	494	2906
LAW	471	57	528	10	7	17	545
MEDICINE	292	11	303	24	..	24	327

* Course and class statistics are Madison campus only.

WISCONSIN ENROLLMENT

Second Semesters, 1953-54

	MEN			WOMEN			TOTAL
	Old	New	Total	Old	New	Total	
SENIORS							
Letters and Science	515	34	549	334	22	356	905
Agriculture	146	17	163	3	1	4	167
Home Economics	3	..	3	134	3	137	140
Commerce	239	13	252	23	..	23	275
Education	107	6	113	236	6	242	355
Engineering	301	4	305	1	..	1	306
Pharmacy	87	1	88	9	2	11	99
TOTAL	1398	75	1473	740	34	774	2247
JUNIORS							
Letters and Science	515	115	630	335	80	415	1045
Agriculture	96	14	110	3	1	4	114
Home Economics	..	..	..	88	11	99	99
Commerce	161	33	194	17	1	18	212
Education	54	9	63	207	38	245	308
Engineering	305	52	357	1	..	1	358
Pharmacy	63	14	77	9	..	9	86
TOTAL	1194	237	1431	660	131	791	2222
SOPHOMORES							
Letters and Science	859	219	1078	562	146	708	1786
Agriculture	135	26	161	..	2	2	163
Home Economics	..	..	..	151	35	186	186
Education	41	3	44	88	26	114	158
Engineering	297	123	420	3	..	3	423
Pharmacy	30	22	52	5	4	9	61
TOTAL	1362	393	1755	809	213	1022	2777
FRESHMEN							
Letters and Science	296	1028	1324	128	912	1040	2364
Agriculture	65	146	211	..	2	2	213
Home Economics	..	..	..	24	140	164	164
Education	18	56	74	22	137	159	233
Engineering	111	582	693	..	..	..	693
TOTAL	490	1812	2302	174	1191	1365	3667
Specials and Unclassified	9	6	15	10	9	19	34
GRAND TOTAL	6786	3433	10219	2671	1835	4506	14725
Resident Students	5152	2575	7727	2012	1201	3213	10940
Non-Resident Students	1634	858	2492	659	634	1293	3785

THE UNIVERSITY OF

For the First and

	MEN			WOMEN			TOTAL
	Old	New	Total	Old	New	Total	
Extension Centers	953	1526	2479	167	430	597	3076
Madison Campus	7126	3734	10860	2783	1734	4517	15377
TOTAL	8079	5260	13339	2950	2164	5114	18453
COURSE*							
Letters and Science	3050	1826	4876	1585	1229	2814	7690
Agriculture	776	427	1203	31	27	58	1261
Home Economics	2	..	2	387	196	583	585
Commerce	526	107	633	44	7	51	684
Education	324	204	528	669	262	931	1459
Engineering	1513	1047	2560	3	2	5	2565
Pharmacy	186	59	245	21	7	28	273
Law	469	50	519	15	1	16	535
Medicine	280	11	291	27	1	28	319
Specials and Unclassified	..	3	3	1	2	3	6
TOTAL	7126	3734	10860	2783	1734	4517	15377
CLASS							
Graduates	1500	930	2430	236	284	520	2950
Law	469	50	519	15	1	16	535
Medicine	280	11	291	27	1	28	319
Seniors	1437	67	1504	804	24	828	2332
Juniors	1400	321	1721	696	120	816	2537
Sophomores	1599	467	2066	871	188	1059	3125
Freshmen	436	1882	2318	120	1099	1219	3537
Specials and Unclassified	5	6	11	14	17	31	42
TOTAL	7126	3734	10860	2783	1734	4517	15377
GRADUATES							
Letters and Science	723	378	1101	146	172	318	1419
Agriculture	316	204	520	23	21	44	564
Home Economics	..	..	..	21	11	32	32
Commerce	79	55	134	3	2	5	139
Education	86	112	198	43	76	119	317
Engineering	269	157	426	..	..	..	426
Pharmacy	27	24	51	..	2	2	53
TOTAL	1500	930	2430	236	284	520	2950
LAW	469	50	519	15	1	16	535
MEDICINE	280	11	291	27	1	28	319

* Course and class statistics are Madison campus only.

WISCONSIN ENROLLMENT

Second Semesters, 1954-55

	MEN			WOMEN			TOTAL
	Old	New	Total	Old	New	Total	
SENIORS							
Letters and Science	530	30	560	386	11	397	957
Agriculture	129	18	147	4	1	5	152
Home Economics	1	..	1	113	4	117	118
Commerce	228	8	236	21	1	22	258
Education	114	8	122	273	5	278	400
Engineering	359	3	362	1	..	1	363
Pharmacy	76	..	76	6	2	8	84
TOTAL	1437	67	1504	804	24	828	2332
JUNIORS							
Letters and Science	613	139	752	324	70	394	1146
Agriculture	127	14	141	2	..	2	143
Home Economics	..	..	..	119	8	127	127
Commerce	219	44	263	20	4	24	287
Education	60	27	87	225	37	262	349
Engineering	335	87	422	2	..	2	424
Pharmacy	46	10	56	4	1	5	61
TOTAL	1400	321	1721	696	120	816	2537
SOPHOMORES							
Letters and Science	951	274	1225	635	139	774	1999
Agriculture	147	25	172	2	..	2	174
Home Economics	..	..	..	117	29	146	146
Education	45	7	52	106	18	124	176
Engineering	419	136	555	..	..	..	555
Pharmacy	37	25	62	11	2	13	75
TOTAL	1599	467	2066	871	188	1059	3125
FRESHMEN							
Letters and Science	233	1005	1238	93	837	930	2168
Agriculture	57	166	223	..	5	5	228
Home Economics	1	..	1	17	144	161	162
Education	15	47	62	10	111	121	183
Engineering	130	664	794	..	2	2	796
TOTAL	436	1882	2318	120	1099	1219	3537
Specials and Unclassified	5	6	11	14	17	31	42
GRAND TOTAL	7126	3734	10860	2783	1734	4517	15377
Resident Students	5531	2797	8328	2050	1155	3205	11533
Non-Resident Students	1595	937	2532	733	579	1312	3844

DEGREES ACCORDING TO COURSES

BACCALAUREATE DEGREES EARNED

	1854–1952	1952
Number of First Degrees Earned, 1854–1952	73,766	2,742
PRESENT DEGREES		
Bachelor of Arts (Classical Humanities) 1934–1952	21	..
Bachelor of Arts (General) 1904–1952	19,743	296
Bachelor of Arts (Journalism) 1914–1952	1,822	24
Bachelor of Arts (Medical Science) 1939–1952	173	5
Bachelor of Arts (Modern Humanities) 1922–1952	99	..
Bachelor of Business Administration, 1945–1952	2,681	281
Bachelor of Laws, 1869–1952	5,161	211
Bachelor of Library Science, 1939–1952	402	7
Bachelor of Music, 1917–1952	704	24
Bachelor of Naval Science, 1947–1952	61	4
Bachelor of Philosophy (General) 1878–1952	2,634	2
Bachelor of Science (Agriculture) 1878–1952	3,900	140
Bachelor of Science (Agriculture and Education) 1932–1952	345	15
Bachelor of Science (Applied Art) 1941–1952	241	33
Bachelor of Science (App. Math. and Mech.) 1944–1952	52	7
Bachelor of Science (Art Education) 1922–1952	907	44
Bachelor of Science (Biochemical Engineering) 1949–1952	14	3
Bachelor of Science (Chemical Engineering) 1903–1952	1,519	57
Bachelor of Science (Chemistry) 1909–1952	1,088	30
Bachelor of Science (Civil Engineering) 1876–1952	2,086	51
Bachelor of Science (Electrical Engineering) 1892–1952	2,944	90
Bachelor of Science (General) 1946–1952	3,617	630
Bachelor of Science (Home Economics) 1909–1952	2,617	96
Bachelor of Science (Home Economics and Education) 1932–1952	789	42
Bachelor of Science (Journalism) 1949–1952	193	37
Bachelor of Science (Light Building Industry) 1947–1952	182	19
Bachelor of Science (Mechanical Engineering) 1876–1952	3,097	114
Bachelor of Science (Medical Science) 1909–1952	1,699	55
Bachelor of Science (Medical Technology) 1939–1952	215	20
Bachelor of Science (Metallurgical Engineering) 1930–1952	243	22
Bachelor of Science (Mining Engineering) 1910–1952	270	5
Bachelor of Science (Naval Science) 1951–1952	7	5
Bachelor of Science (Nursing) 1927–1952	289	24
Bachelor of Science (Occupational Therapy) 1945–1952	126	17
Bachelor of Science (Pharmacy) 1895–1952	898	87
Bachelor of Science (Physical Education) 1920–1952	1,225	42
Bachelor of Science (Physical Medicine) 1947–1952	67	16
Bachelor of Science (Secondary Education) 1932–1952	3,308	187
DEGREES AND COURSES DISCONTINUED		
Bachelor of Arts (Ancient Classical) 1854–1903	470	
Bachelor of Arts (Commerce) 1904–1948	3,067	
Bachelor of Letters (Civil Historical) 1893–1903	383	
Bachelor of Letters (Commerce) 1902–1903	8	
Bachelor of Letters (English) 1887–1903	459	
Bachelor of Letters (Modern Classical) 1876–1903	548	

Bachelor of Metallurgical Engineering, 1876–1896	16	
Bachelor of Philosophy (Commerce) 1932–1949	564	
Bachelor of Philosophy (Normal) 1898–1932	1,151	
Bachelor of Science (Chemistry-Commerce) 1929–1949	48	
Bachelor of Science (Commerce) 1903	1	
Bachelor of Science (General Engineering) 1901–1910	96	
Bachelor of Science (General Science) 1886–1903	722	
Bachelor of Science (Geology) 1914	1	
Bachelor of Science (Industrial Education) 1922–1933	74	
Bachelor of Science (Manual Arts) 1921	2	
Graduate in Agriculture, 1910–1950	269*	
Graduate in Agriculture (2-Year Course in Home Econ.) 1920–1922	8*	
Graduate in Music, 1898–1916	134	
Graduate in Music (2-Year Course for Supervisors) 1910–1925	173*	
Graduate in Music (3-Year Course for Supervisors) 1925	4*	
Graduate in Normal Course, 1865–1868	25	
Graduate in Nursing, 1927–1950	537*	
Graduate in Pharmacy, 1884–1940	558	

HIGHER DEGREES EARNED

Number of Higher Degrees Earned, 1875–1952	23,368	1,346

PRESENT DEGREES

Doctor of Juridical Science, 1934–1952	18	2
Doctor of Medicine, 1927–1952	1,445	72
Doctor of Philosophy, 1892–1952	4,837	337
Engineer, 1875–1952	522	2
Master of Arts, 1879–1952	6,831	164
Master of Business Administration, 1946–1952	155	24
Master of Laws, 1946–1952	13	3
Master of Music, 1938–1952	55	7
Master of Science, 1882–1952	6,868	695
Master of Science (Engineering) 1922–1952	896	40

DEGREES DISCONTINUED

Doctor of Public Health, 1912 and 1915	2	
Master of Agriculture, 1893	1	
Master of Letters, 1882–1903	97	
Master of Pharmacy, 1894–1902	2	
Master of Philosophy, 1902–1948	1,622	
Master of Public Health, 1915–1916	4	

KINDS OF DEGREES EARNED

Number of First Degrees Earned, 1854–1952	73,766	2,742
Bachelor of Arts, 1854–1952	25,395	325
Bachelor of Business Administration, 1945–1952	2,681	281
Bachelor of Laws, 1869–1952	5,161	211
Bachelor of Letters, 1876–1903	1,398	..
Bachelor of Library Science, 1939–1952	402	7
Bachelor of Metallurgical Engineering, 1876–1896	16	..
Bachelor of Music, 1917–1952	704	24

Bachelor of Naval Science, 1947–1952	61	4
Bachelor of Philosophy, 1898–1952	4,349	2
Bachelor of Science, 1873–1952	32,882	1,888
Graduate in Agriculture, 1910–1952	279*	2*
Graduate in Music, 1898–1916	134	..
Graduate in Music (Courses for Supervisors) 1910–1925	177*	..
Graduate in Normal Course, 1865–1868	25	..
Graduate in Nursing, 1927–1952	567*	30*
Graduate in Pharmacy, 1884–1940	558	..
Number of Higher Degrees Earned, 1875–1952	23,368	1,346
Engineer, 1875–1952	522	2
Doctor of Juridical Science, 1934–1952	18	2
Doctor of Medicine, 1927–1952	1,445	72
Doctor of Philosophy, 1892–1952	4,837	337
Doctor of Public Health, 1912–1915	2	..
Masters, 1879–1952	16,544	933
Grand Total of First and Higher Degrees Earned, 1854–1952	97,134	4,088

* Not included in totals because not considered degrees.

HONORARY DEGREES

Bachelor of Arts, 1885	1	..
Bachelor of Mechanical Engineering, 1887	1	..
Civil Engineer, 1877–1915	4	..
Doctor of Engineering, 1939	1	..
Doctor of Laws, 1866–1952	191	2
Doctor of Letters, 1910–1949	37	..
Doctor of Medicine, 1856	1	..
Doctor of Music, 1934 and 1949	2	..
Doctor of Philosophy, 1883–1887	4	..
Doctor of Science, 1910–1952	48	2
Master of Arts, 1867–1938	35	..
Master of Science, 1877	1	..
Mechanical Engineer, 1898–1928	2	..
Total Honorary Degrees	328	4

DEGREES ACCORDING TO COURSES

BACCALAUREATE DEGREES EARNED

	1854–1953	1953
Number of First Degrees Earned, 1854–1953	76,237	2,471
PRESENT DEGREES		
Bachelor of Arts (General) 1904–1953	19,980	237
Bachelor of Arts (Humanities) 1953	2	2
Bachelor of Arts (Journalism) 1914–1953	1,841	19
Bachelor of Arts (Medical Science) 1939–1953	173	..
Bachelor of Business Administration, 1945–1953	2,948	267
Bachelor of Laws, 1869–1953	5,304	143

Bachelor of Library Science, 1939–1953	408	6
Bachelor of Music, 1917–1953	721	17
Bachelor of Naval Science, 1947–1953	67	6
Bachelor of Philosophy (General) 1878–1953	2,635	1
Bachelor of Science (Agriculture) 1878–1953	4,031	131
Bachelor of Science (Agriculture and Education) 1932–1953	358	13
Bachelor of Science (Applied Art) 1941–1953	279	38
Bachelor of Science (App. Math. and Mech.) 1944–1953	61	9
Bachelor of Science (Art Education) 1922–1953	939	32
Bachelor of Science (Biochemical Engineering) 1949–1953	14	..
Bachelor of Science (Chemical Engineering) 1903–1953	1,584	65
Bachelor of Science (Chemistry) 1909–1953	1,115	27
Bachelor of Science (Civil Engineering) 1876–1953	2,136	50
Bachelor of Science (Electrical Engineering) 1892–1953	3,007	63
Bachelor of Science (General) 1946–1953	4,183	566
Bachelor of Science (Home Economics) 1909–1953	2,737	120
Bachelor of Science (Home Economics and Education) 1932–1953	820	31
Bachelor of Science (Journalism) 1949–1953	228	35
Bachelor of Science (Light Building Industry) 1947–1953	202	20
Bachelor of Science (Mechanical Engineering) 1876–1953	3,204	107
Bachelor of Science (Medical Science) 1909–1953	1,750	51
Bachelor of Science (Medical Technology) 1939–1953	231	16
Bachelor of Science (Metallurgical Engineering) 1930–1953	260	17
Bachelor of Science (Mining Engineering) 1910–1953	274	4
Bachelor of Science (Naval Science) 1951–1953	9	2
Bachelor of Science (Nursing) 1927–1953	314	25
Bachelor of Science (Occupational Therapy) 1945–1953	152	26
Bachelor of Science (Pharmacy) 1895–1953	989	91
Bachelor of Science (Physical Education) 1920–1953	1,271	46
Bachelor of Science (Physical Medicine) 1947–1953	79	12
Bachelor of Science (Secondary Education) 1932–1953	3,484	176

DEGREES AND COURSES DISCONTINUED

Bachelor of Arts (Ancient Classical) 1854–1903	470
Bachelor of Arts (Classical Humanities) 1934–1952	21
Bachelor of Arts (Commerce) 1904–1948	3,067
Bachelor of Arts (Modern Humanities) 1922–1952	99
Bachelor of Letters (Civil Historical) 1893–1903	383
Bachelor of Letters (Commerce) 1902–1903	8
Bachelor of Letters (English) 1887–1903	459
Bachelor of Letters (Modern Classical) 1876–1903	548
Bachelor of Metallurgical Engineering, 1876–1896	16
Bachelor of Philosophy (Commerce) 1932–1949	564
Bachelor of Philosophy (Normal) 1898–1932	1,151
Bachelor of Science (Chemistry-Commerce) 1929–1949	48
Bachelor of Science (Commerce) 1903	1
Bachelor of Science (General Engineering) 1901–1910	96
Bachelor of Science (General Science) 1886–1903	722
Bachelor of Science (Geology) 1914	1
Bachelor of Science (Industrial Education) 1922–1933	74
Bachelor of Science (Manual Arts) 1921	2
Graduate in Agriculture, 1910–1950	269*
Graduate in Agriculture (2-Year Course in Home Econ.) 1920–1922	8*

Graduate in Music, 1898–1916	134	
Graduate in Music (2-Year Course for Supervisors) 1910–1925	173*	
Graduate in Music (3-Year Course for Supervisors) 1925	4*	
Graduate in Normal Course, 1865–1868	25	
Graduate in Nursing, 1927–1950	537*	
Graduate in Pharmacy, 1884–1940	558	

HIGHER DEGREES EARNED

Number of Higher Degrees Earned, 1875–1953	24,638	1,270
PRESENT DEGREES		
Doctor of Juridical Science, 1934–1953	19	1
Doctor of Medicine, 1927–1953	1,519	74
Doctor of Philosophy, 1892–1953	5,191	354
Engineer, 1875–1953	524	2
Master of Arts, 1879–1953	6,971	140
Master of Business Administration, 1946–1953	177	22
Master of Laws, 1946–1953	16	3
Master of Music, 1938–1953	63	8
Master of Science, 1882–1953	7,459	591
Master of Science (Engineering) 1922–1953	971	75
DEGREES DISCONTINUED		
Doctor of Public Health, 1912 and 1915	2	
Master of Agriculture, 1893	1	
Master of Letters, 1882–1903	97	
Master of Pharmacy, 1894 and 1902	2	
Master of Philosophy, 1902–1948	1,622	
Master of Public Health, 1915–1916	4	

KINDS OF DEGREES EARNED

Number of First Degrees Earned, 1854–1953	76,237	2,471
Bachelor of Arts, 1854–1953	25,653	258
Bachelor of Business Administration, 1945–1953	2,948	267
Bachelor of Laws, 1869–1953	5,304	143
Bachelor of Letters, 1876–1903	1,398	..
Bachelor of Library Science, 1939–1953	408	6
Bachelor of Metallurgical Engineering, 1876–1896	16	..
Bachelor of Music, 1917–1953	721	17
Bachelor of Naval Science, 1947–1953	67	6
Bachelor of Philosophy, 1898–1953	4,350	1
Bachelor of Science, 1873–1953	34,655	1,773
Graduate in Agriculture, 1910–1953	280*	1*
Graduate in Music, 1898–1916	134	..
Graduate in Music (Courses for Supervisors) 1910–1925	177*	..
Graduate in Normal Course, 1865–1868	25	..
Graduate in Nursing, 1927–1953	602*	35*
Graduate in Pharmacy, 1884–1940	558	..
Number of Higher Degrees Earned, 1875–1953	24,638	1,270
Engineer, 1875–1953	524	2
Doctor of Juridical Science, 1934–1953	19	1

Doctor of Medicine, 1927–1953	1,519	74
Doctor of Philosophy, 1892–1953	5,191	354
Doctor of Public Health, 1912–1915	2	..
Masters, 1879–1953	17,383	839
Grand Total of First and Higher Degrees Earned, 1854–1953	100,875	3,741

*Not included in totals because not considered degrees.

HONORARY DEGREES

Bachelor of Arts, 1885	1	..
Bachelor of Mechanical Engineering, 1887	1	..
Civil Engineer, 1877–1915	4	..
Doctor of Engineering, 1939	1	..
Doctor of Laws, 1866–1953	195	4
Doctor of Letters, 1910–1953	37	..
Doctor of Medicine, 1856	1	..
Doctor of Music, 1934 and 1949	2	..
Doctor of Philosophy, 1883–1887	4	..
Doctor of Science, 1910–1953	49	1
Master of Arts, 1867–1938	35	..
Master of Science, 1877	1	..
Mechanical Engineer, 1898–1928	2	..
Total Honorary Degrees	333	5

DEGREES ACCORDING TO COURSES

BACCALAUREATE DEGREES EARNED

	1854–1954	1954
Number of First Degrees Earned, 1854–1954	78,450	2,213
PRESENT DEGREES		
Bachelor of Arts (General) 1904–1954	20,182	202
Bachelor of Arts (Humanities) 1953–1954	2	..
Bachelor of Arts (Journalism) 1914–1954	1,852	11
Bachelor of Arts (Medical Science) 1939–1954	182	9
Bachelor of Business Administration, 1945–1954	3,183	235
Bachelor of Laws, 1869–1954	5,444	140
Bachelor of Library Science, 1939–1954	409	1
Bachelor of Music, 1917–1954	744	23
Bachelor of Naval Science, 1947–1954	70	3
Bachelor of Philosophy (General) 1878–1954	2,635	..
Bachelor of Science (Agriculture) 1878–1954	4,152	121
Bachelor of Science (Agriculture and Education) 1932–1954	376	18
Bachelor of Science (Applied Art) 1941–1954	307	28
Bachelor of Science (App. Math. and Mech.) 1944–1954	69	8
Bachelor of Science (Art Education) 1922–1954	965	26
Bachelor of Science (Biochemical Engineering) 1949–1954	16	2
Bachelor of Science (Chemical Engineering) 1903–1954	1,636	52
Bachelor of Science (Chemistry) 1909–1954	1,124	9

Bachelor of Science (City Planning) 1954	1	1
Bachelor of Science (Civil Engineering) 1876–1954	2,182	46
Bachelor of Science (Electrical Engineering) 1892–1954	3,055	48
Bachelor of Science (Elementary Education) 1954	2	2
Bachelor of Science (General) 1946–1954	4,695	512
Bachelor of Science (Home Economics) 1909–1954	2,828	91
Bachelor of Science (Home Economics and Education) 1932–1954	855	35
Bachelor of Science (Journalism) 1949–1954	269	41
Bachelor of Science (Light Building Industry) 1947–1954	215	13
Bachelor of Science (Mechanical Engineering) 1876–1954	3,271	67
Bachelor of Science (Medical Science) 1909–1954	1,807	57
Bachelor of Science (Medical Technology) 1939–1954	253	22
Bachelor of Science (Metallurgical Engineering) 1930–1954	281	21
Bachelor of Science (Mining Engineering) 1910–1954	277	3
Bachelor of Science (Naval Science) 1951–1954	15	6
Bachelor of Science (Nursing) 1927–1954	334	20
Bachelor of Science (Occupational Therapy) 1945–1954	183	31
Bachelor of Science (Pharmacy) 1895–1954	1,081	92
Bachelor of Science (Physical Education) 1920–1954	1,315	44
Bachelor of Science (Physical Medicine) 1947–1954	93	14
Bachelor of Science (Secondary Education) 1932–1954	3,643	159

DEGREES AND COURSES DISCONTINUED

Bachelor of Arts (Ancient Classical) 1854–1903	470
Bachelor of Arts (Classical Humanities) 1934–1952	21
Bachelor of Arts (Commerce) 1904–1948	3,067
Bachelor of Arts (Modern Humanities) 1922–1952	99
Bachelor of Letters (Civil Historical) 1893–1903	383
Bachelor of Letters (Commerce) 1902–1903	8
Bachelor of Letters (English) 1887–1903	459
Bachelor of Letters (Modern Classical) 1876–1903	548
Bachelor of Metallurgical Engineering, 1876–1896	16
Bachelor of Philosophy (Commerce) 1932–1949	564
Bachelor of Philosophy (Normal) 1898–1932	1,151
Bachelor of Science (Chemistry-Commerce) 1929–1949	48
Bachelor of Science (Commerce) 1903	1
Bachelor of Science (General Engineering) 1901–1910	96
Bachelor of Science (General Science) 1886–1903	722
Bachelor of Science (Geology) 1914	1
Bachelor of Science (Industrial Education) 1922–1933	74
Bachelor of Science (Manual Arts) 1921	2
Graduate in Agriculture, 1910–1950	269*
Graduate in Agriculture (2-Year Course in Home Econ.) 1920–1922	8*
Graduate in Music, 1898–1916	134
Graduate in Music (2-Year Course for Supervisors) 1910–1925	173*
Graduate in Music (3-Year Course for Supervisors) 1925	4*
Graduate in Normal Course, 1865–1868	25
Graduate in Nursing, 1927–1950	537*
Graduate in Pharmacy, 1884–1940	558

HIGHER DEGREES EARNED

Number of Higher Degrees Earned, 1875–1954	25,988	1,350
PRESENT DEGREES		
Doctor of Juridical Science, 1934–1954	23	4
Doctor of Medicine, 1927–1954	1,599	80
Doctor of Philosophy, 1892–1954	5,597	406
Engineer, 1875–1954	527	3
Master of Arts, 1879–1954	7,124	153
Master of Business Administration, 1946–1954	203	26
Master of Laws, 1946–1954	17	1
Master of Music, 1938–1954	68	5
Master of Science, 1882–1954	8,078	619
Master of Science (Engineering) 1922–1954	1,024	53
DEGREES DISCONTINUED		
Doctor of Public Health, 1912 and 1915	2	
Master of Agriculture, 1893	1	
Master of Letters, 1882–1903	97	
Master of Pharmacy, 1894 and 1902	2	
Master of Philosophy, 1902–1948	1,622	
Master of Public Health, 1915–1916	4	

KINDS OF DEGREES EARNED

Number of First Degrees Earned, 1854–1954	78,450	2,213
Bachelor of Arts, 1854–1954	25,875	222
Bachelor of Business Administration, 1945–1954	3,183	235
Bachelor of Laws, 1869–1954	5,444	140
Bachelor of Letters, 1876–1903	1,398	..
Bachelor of Library Science, 1939–1954	409	1
Bachelor of Metallurgical Engineering, 1876–1896	16	..
Bachelor of Music, 1917–1954	744	23
Bachelor of Naval Science, 1947–1954	70	3
Bachelor of Philosophy, 1898–1954	4,350	..
Bachelor of Science, 1873–1954	36,244	1,589
Graduate in Agriculture, 1910–1954	281*	1*
Graduate in Music, 1898–1916	134	..
Graduate in Music (Courses for Supervisors) 1910–1925	177*	..
Graduate in Normal Course, 1865–1868	25	..
Graduate in Nursing, 1927–1954	629*	27*
Graduate in Pharmacy, 1884–1940	558	..
Number of Higher Degrees Earned, 1875–1954	25,988	1,350
Engineer, 1875–1954	527	3
Doctor of Juridical Science, 1934–1954	23	4
Doctor of Medicine, 1927–1954	1,599	80
Doctor of Philosophy, 1892–1954	5,597	406
Doctor of Public Health, 1912–1915	2	..
Masters, 1879–1954	18,240	857
Grand Total of First and Higher Degrees Earned, 1854–1954	104,438	3,563

* Not included in totals because not considered degrees.

HONORARY DEGREES

Bachelor of Arts, 1885	1	..
Bachelor of Mechanical Engineering, 1887	1	..
Civil Engineer, 1877–1915	4	..
Doctor of Engineering, 1939	1	..
Doctor of Laws, 1866–1954	196	1
Doctor of Letters, 1910–1954	39	2
Doctor of Medicine, 1856	1	..
Doctor of Music, 1934 and 1949	2	..
Doctor of Philosophy, 1883–1887	4	..
Doctor of Science, 1910–1954	51	2
Master of Arts, 1867–1938	35	..
Master of Science, 1877	1	..
Mechanical Engineer, 1898–1928	2	..
Total Honorary Degrees	338	5

INDEX

Academic teaching majors and minors, 362
Academic year, calendar of, xii
Academy of Sciences, Arts and Letters, 588
Accounting
  Instruction in, 322
  Major in, 310
Activities, Campus (see Student Handbook)
  Agriculture, 250
  Air science, 571
  Commerce, 303
  Home economics, 453
  Military science, 564
Adams Hall, 21
Administration, Business, curriculum in, 81, 309
Administration, correctional, curriculum in, 223
Administration, Public, instruction in, 201
Administrative officers, ix
Admission, 7
  Adult special, 10
  Advanced standing, 7, 10, 37
  Agriculture, College of, 8, 12
  Auditor, 12
  Commerce, School of, 307
  Education, School of, 333
  Engineering, College of, 8, 408
  Entrance examinations, 10
  Filing dates, 7
  Foreign language requirement, 11
  Freshman, 7
  Graduate School, 551
  High-school certificate, 8
  Home economics, 266
  Journalism, School of, 85
  Law School, 477
  Letters and Science, College of, 7
  Library School, 89
  Mathematical preparation, 8, 38
  Medical and physical examinations, 561
  Medical School, 7, 490
  Methods of, 7
  Music, School of, 90
  Nonresident, 8
  Nursing, School of, 7, 514
  Pharmacy, School of, 524
  Summer Session, 7
  War veterans, 10
Adult special admission, 10
Advanced credit examinations, 11, 39
Advanced degrees, 5
Advanced independent work
  Engineering, 418
  Letters and Science, 41
Advanced standing
  Admission with, 7, 10, 37
  Law School, 477
  Letters and Science, 37
  Medical School, 497
Advertising sequences, 88
Advisers, 2, 32, 306, 455
  Foreign student, 42
Aeronautical engineering, 421
Agricultural
  Bacteriology, 66, 276
  Economics, 118, 267
  Engineering, 271
  Extension education, 270
  Journalism, 273
  Library, 274
Agricultural science, majors in, 294, 296
Agriculture, College of, 250
  Admission, 7
  Advisers, 2
  Agricultural science, majors in, 296
  Animal science, major in, 294
  Campus activities, 258
  Conservation, major in, 298
  Departments of instruction, 267
  Election of studies by Letters and Science students, 39
  Faculty, 250
  Food industry, Dairy and, major in, 279
  Functions and opportunities, 257
  Graduate work, 266
  Home economics course, 266
  Honors, 264
  Loan funds and undergraduate scholarships, 258
  Long course, 259
  Majors, 260, 264, 294
  Middle course, 261
  Military training requirement, 264
  Naval science and agriculture curriculum, 300
  Opportunities in, 257
  Physical education requirement, 264
  Plant science, major in, 295
  Pre-forestry training, 262
  Pre-theological training, 297
  Pre-veterinary training, 263
  Recreation, major in, 299
  Rules and regulations, 264
  Short course, 266
  Short service courses, 266
  Social science, major in, 295
  Teaching major, 379
  Winter dairy course, 266
Agronomy, instruction in, 274
Air science, 571
  Advanced course, 572
  Basic course, 571
  Extracurricular activities, 572
  Faculty, 571
  Mission, 571
  Requirements, 571
  Uniforms and pay, 573
America and world problems, 65, 366
American development, 65, 365, 366
American foreign service, 71
American government and public law, instruction in, 199
American history, instruction in, 161
American institutions, major in, 61, 100, 363
American life
  Old world contributions to, 65, 366
  Opportunities in, 64
  Rural, 63, 364
  Security in, 64, 366
  Urban, 63, 365
American public law, instruction in, 199
American resources, Conservation of, 64, 365
American social development, interpretations of, 365
Anatomy, instruction in, 505
Ancient history, instruction in, 157
Andersen House, 20
Anesthesiology, instruction in, 510
Animal husbandry, instruction in, 275
Animal science, major in, 294
Anthropology
  Cultural, 221
  Instruction in, 219
  Linguistics, 222
  Physical, 220
  Teaching major in, 377
Applied art, 82
  Course in, 348

Instruction in, 388
Applied mathematics and mechanics, course in, 50
Applied **music, 92, 93, 94**
Arboretum, 589
Archaeology, instruction in, 220
Area studies
American institutions, 61, 100, 363
French, 75, 134
Hispanic studies, 68, 370
Humanities, 53
Integrated Liberal Studies, 48, 166
International relations, 70, 72, 203
Latin-American region, 73
of the United States, 65, 364
Regional planning, 78
Scandinavian, 210
Sociology, 215
Art, applied, 82, 346, 348, 388
Art education, 82
Course in, 388
Election of courses by Letters and Science students, 40
Instruction in, 388
Art history, instruction in, 100
Art, related, 475
Arts degree, 42
Assistantships, 17
Associated Scientific Institutions, 582
Astronomy, instruction in, 102
Astrophysics, instruction in, 103
Athletic coaching for men, 352
Athletics, 562
Attainment examinations, 38
Attendance, 5
Audio-Visual Instruction, Bureau of, 338
Auditors, 12

B.A. general course, 42
B.S. general course, 45
Babcock House, 21
Bachelor of arts degree, 42
Bachelor of science degree, 45
Bacteriology, 103
Instruction in
Agricultural, 276
Major in ,66
Badger Club, 19
Badger, yearbook, 1
Bands, 99
Banking and finance, instruction in, 311, 323
Barnard Hall, 19
Biochemical engineering curriculum, 422
Biochemistry, instruction in, 278
Biological aspects of conservation, major in, 77, 369
Biological sciences, division of, 35
Biology, instruction in, 104
Board of Regents, viii
Board of Visitors, viii
Board, Room and, 18, 259
Botany
Instruction in, 104
Teaching major in, 367
Broadcasting, instruction in, 242, 577
Bureau of business research and service, 304
Business (see Commerce, 302)
Business administration curriculum, 81, 309
Business education, teacher preparation in, 311, 325
Business ethics, instruction in, 331
Business information, bureau of, 541
Business law, 325
Business officers, xi
Business policy, instruction in, 332
Business research and service, bureau of, 304

Calendar, xii
Cancer research (see Oncology, 511)
Cartography, instruction in, 145
Certificate
Admission by, 8
Graduate nurse, 515, 521
Junior graduate, 37
Occupational therapy, 513
Physical medicine, 513
Teachers', 41, 42, 53, 82, 94, 97, 270, 342, 343, 344, 345
Chadbourne Hall, 18
Cheesemaking, 280
Chemical engineering
Course in, 421
Instruction in, 432
Chemistry
Biochemistry, 278
Course in, 51
Forest products, 582
Instruction in, 107
Pharmaceutical, 529
Physiological, 509
Plant, 529
Teaching major in, 368
Child development, major in, 466
Chinese, 111
Instruction in, 173
Chorus, 98
City planning
Combined with civil engineering, 420, 425
Instruction in, 436
Civil engineering
Combined with city planning, 420, 425
Course in, 423
Electives in specialized branches of, 424
Instruction in, 434
Civil Service positions, preparation for, 202
Classical humanities, 54
Classics, instruction in, 111
Classification of students, 37
Clinic
Psycho-educational, 338
Reading, 338
Speech, 240
Student health, 2
Clinical pathology, instruction in, 507
Clothing and textiles
Instruction in, 474
Major in, 464
Coaching, athletic, course in, 352
College
Agriculture, 250
Engineering, 408
Letters and Science, 23
Commerce, School of, 302
Accounting
Instruction in, 322
Major in, 310
Admission, 307
Advisers, 306
Banking and finance
Instruction in, 323
Major in, 311
Bureau of business research and service, 304
Business administration curriculum, 81, 309
Business ethics, instruction in, 331
Business law, instruction in, 325
Business policy, instruction in, 332
Business Teacher Education, 325
Combined majors, 317
Credits, grades, and points, 306
Departments of instruction, 322
Doctor of philosophy degree, 321
Election of studies by Letters and Science students, 39
Engineering and commerce, combined course in, 317, 419
Expense, student, 303
Faculty, 302
Fellowships, scholarships, and assistantships, 304
Foreign trade, instruction in, 325
Honors in scholarship, 307
Independent reading and research, 326
Industrial engineering, instruction in, 446
Industrial management

Instruction in, 326
Major in, 312
Irregular programs, 308
Labor management
Instruction in, 326
Major in, 312
Law and commerce, combined course in, 317
Light building industry curriculum, 81, 318
Marketing
Instruction in, 327
Major in, 313
Masters' degrees, 319
Naval Science curriculum, 318
Placement bureau, 303
Public service, 303
Public utilities and transportation
Instruction in, 328
Major in, 314
Purchasing, 314
Real estate
Instruction in, 330
Major in, 315
Residence requirements, 308
Risk and insurance
Instruction in, 331
Major in, 315
Statistics
Instruction in, 331
Major in, 316
Student activities, 304
Teacher preparation in business education, 311, 325, 397
Transfer students, 308
Transfer to, 81
Commercial law, instruction in, 325
Community development, bureau of, 541
Community leadership in recreation, major in, 82, 98, 299, 359, 470
Comparative government, instruction in, 202
Comparative literature
Instruction in, 114
Teaching major in, 368
Composition, instruction in, 128
Conditions, General, 41
Conservation, biological aspects of
Major in, 77
Teaching major in, 369
Conservation major, 298
Conservation of American resources, 64, 365
Contemporary trends, course in, 117
Contents, table of, ii
Co-operation, 121, 268
Co-operative houses, 20, 259
Co-operative management, 121, 268
Correctional administration, curricula in, 226
Correspondence study, credits in, 32, 33, 544, 545
Country magazine, 1, 258
Courses of study
Agriculture, long course, 259
Agriculture, middle course, 261
Agriculture, short course, 266
Applied art, 348, 349, 388
Applied mathematics and mechanics, 49
Art education, 388
Biochemical engineering, 422
Chemistry, 51
Chemical engineering, 421
Civil engineering, 423
Commerce, 302
Education, 82, 390
Electrical engineering, 427
General (B.A. degree), 42
General (B.S. degree), 45
Home economics, 460
Humanities, 53
Integrated liberal studies, 48
Journalism, 85
Law, 82, 482
Library science, 89
Mechanical engineering, 429
Mechanics, 448
Medical course (M.D. degree), 499
Medical science, 83, 182, 497
Medical technology, 54, 513
Metallurgical engineering, 431
Mining engineering, 430
Music, 90, 399
Naval science, 33, 56, 568
Nursing, 57, 517
Occupational therapy, 351, 513
Pharmacy, 527
Physical education for men, 352
Physical education for women, 354
Physical medicine, 59, 513
Credits
Advanced standing, 11, 39
Correspondence, 544, 545
Examinations for, 10, 32, 33, 39
Extension, 33, 34, 544, 545
General statement of, 34
Required for graduation (see courses)
Veterans, 3
Cultural anthropology, instruction in, 221
Cultural geography, instruction in, 142
Curricula (see courses of study)
American foreign service, 71
American institutions, 61
Bacteriology, 66
Business administration, 81, 309
Correctional administration, 226
Economic phases of international relations, 71
French area studies, 75
Hispanic studies, 68
International relations, 70
Latin-American region, 73
Light building industry, 81, 318
Regional planning, 78
Scandinavian area studies, 210

Daily Cardinal, 1
Dairy
Husbandry, 281
Industry, 279
Winter course, 266
Dance major, 357
Debating
Forensic groups, 1, 240, 541
Instruction in, 240
Deficiencies, 36
English, 47
Degrees
Advanced, 5
Arts, 45
Bachelors', 4
Doctor of Juridical Science, 481
Doctor of Medicine, 503
Doctor of Philosophy, 555
Masters', 554
Requirements for (see courses of study)
Summary of degrees granted, 600
Dermatology, instruction in, 507
Descriptive geometry, instruction in, 438
Dietetics
Major in hospital dietetics, 462
Disorganization, social, instruction in, 220
Division of language and literature, 66
Division of radio-television education, 577
Division of residence halls, 576
Division of social education, 575
Divisions, 35
Dormitories, 18
Dramatics, 240
Drawing, 40
Instruction in, 438

East Asian Studies, major in, 66
Ecology, instruction in, 104, 245
Economic geology, 147
Economic history, instruction in, 163
Economic history and institutions, instruction in, 122
Economic phases of international relations, 72
Economic theory, instruction in, 119

Economics
Agricultural, instruction in, 120, 267
Instruction in, 119
International, 124
Teaching major in, 370
Education, Agricultural, 270
Education, School of, 333
Academic teaching majors and minors, 362
Admission and registration, 340
Agriculture and Home Economics teachers, courses for, 379, 380, 381, 460
American institutions, major in, 363
Art education and applied art, courses in, 388
Business education, teacher preparation in, 311, 325, 382
Community leadership in recreation, major in, 359
Degrees, 341
Departments of instruction, 388
Elementary School Teachers, Program for preparation of, 361
Faculty, 333
Field services, 337
Foreign students, 340
Graduation, requirements for, 342
Health Education, minor in, 385
Honorary professional organizations, 339
Laboratories, 338
Library, 338
Occupational therapy, course in, 351, 513
Physical education course for men, 352
Instruction in, 402
Physical education course for women
Dance major, 356
General major, 355
Instruction in, 403
Recreation Leadership, course in, 359
Scheders, 339
Statutory requirements for graduation, 344
Teachers' certificate, 342, 343, 344
Transfer to, 42, 82
Election of studies outside the College of Letters and Science, 39
Electrical engineering
Course in, 427
Instruction, in, 438
Elementary School Teachers, Program for preparation of, 361
Elizabeth Waters Hall, 19
Embryology, instruction in, 246, 247
Employment, Student, 16, 259
Endocrinology, instruction in, 247
Engineering, Agricultural, 271
Engineering, College of, 408
Admission, 7, 415
Aeronautical engineering, 421
Agricultural engineering, 271
Algebra, required preparation in, 415
Biochemical engineering, curriculum in, 422
Chemical engineering
Course in, 421
Instruction in, 432
Civil engineering
Combined with city planning, 425
Course in, 423
Instruction in, 434
Combined courses, 419
Commerce and engineering, 419
Degrees, 411
Departments of instruction, 432
Drawing, instruction in, 438
Election of studies by Letters and Science students, 39
Electrical engineering
Course in, 427
Instruction in, 438
Experiment station, 412
Faculty, 408
Foreign students, 417
Forest Products Laboratory, 418
Freshman lectures, 417
Grade-point system, 416
Graduate work, 411
Honors, 416
Hydraulic engineering, 437
Independent study, 418
Industrial engineering, 446
Inspection trips, 418
Institutes, Extension Division, 541
Laboratories, 412
Law and engineering, 420
Library, 412
Mechanical engineering
Course in, 429
Instruction in, 443
Mechanics, instruction in, 448
Military training requirement, 417
Mining and metallurgical engineering
Course in, 430, 431
Instruction in, 450
Naval science course, 417
Physical activity requirement, 417
Physics option, 419
Professional Problems course, 452
Sanitary engineering, course in, 424
Thesis, 418
English
Deficiency, 47
Exemption tests, 41, 47
Freshman studies in, 47
Instruction in, 128
Language and literature courses, 128
Language test for foreign students, 41
Placement, 47
Teaching major in, 370
Enrollment (see statistical tables, 594)
Entomology, instruction in, 282
Entrance examinations, 10
Entrance requirements (see Admission)
Ethics, instruction in, 190, 331
Examinations
Advanced credit, 11
Attainment, 38
Condition, 32
Entrance, 10
Exemption, 38
Final, 32
For credit, 39
Foreign language, 38, 39
Incomplete, 36
Intermediate knowledge, 39
Medical, 561
Physical, 561
Placement, 38
Proficiency, 39
Exemption, 40
English, 41, 47
Military training, 33, 561
Physical Education, 33, 561, 562
Expenses, Student, 13
Experiment station, Engineering, 412
Experimental foods, major in, 463
Extension credits, 32, 33, 544, 545
Extension Division, 531
Centers, Extension, 539
Classes, Special, 539
Community Development, Bureau of, 541
Correspondence study, 539
Courses of instruction, 545
Economics and Sociology, Bureau of, 541
Engineering Institutes, 541
Faculty, 531
Fees, 544
Field organization, 542
High-school credit courses, 545
Industrial Management Institutes, 541
Industrial Psychology, Bureau of, 541
Information and Program Services, Bureau of, 541
Institutes, 540
Lectures and Concerts, Bureau of, 541
Milwaukee Extension Division, 536, 540
Organization and Aims, 540
Photographic laboratory, 541
School for Workers, 541

Supervised correspondence study, 545
University credit, 544
Visual Instruction, Bureau of, 541
Wisconsin Idea Theatre, 541

Faculty
Agriculture, 250
Air Science, 571
Commerce, 302
Education, 333
Engineering, 408
Extension Division, 531
Forest Products, 583
Home Economics, 453
Law School, 477
Letters and Science, 23
Medical School, 490
Military Science, 564
Naval Science, 568
Nursing, 514
Pharmacy, 524
Radio Education, 577
Faculty summary, 591
Failures, 36
Fees
Exceptions, 13
Exemptions, 14
Extension Division, 544
General, 13
Law School, 13
Medical School, 13
Nonresident, 13
Payment of, 15
Penalties for late registration, 15
Per-credit, 13
Refunds, 15
Remissions, 13
Resident, 13
Summer Session, 559
Fellowships, graduate, 17, 558
Fermentation chemistry course, 52
Field organization, 542
Final examinations, 5, 32
Finance
Banking and, 311, 324
Instruction in, 123
Financial aids, student, 16
Fine arts (see Art History, 100)
Food chemist course, 52
Food industry
Instruction in, 279
Major in, 297
Foods and nutrition
Instruction in, 472
Major in, 462
Foreign language
Attainment examinations, 38
Intermediate knowledge of, 39, 111
Literatures in translation, 116, 117
Placement examinations, 38
Proficiency in, 38
Requirements, 11, 43, 45, 49, 82
Foreign service, preparation for, 71
Foreign students, 43, 340, 417
Adviser, 2, 42
Degree requirements, 42
English Language Test for, 42
Foreign trade, instruction in, 325
Forensics, 1, 240, 550
Forest Products Laboratory, 418, 582
Election of studies by Letters and Science students, 39
Faculty, 583
Instruction in, 133, 284, 584
Pre-forestry, 262
Forestry preserve, 589
Forum, Freshman, 140
French
Area studies, 75, 134
Club, 135
House, 20, 135
Instruction in, 135
Teaching major in, 371
Freshman
Admission, 7
Forum, 140
Lectures, Agriculture, 264, 285
Lectures, Engineering, 417
Studies, 47

General classics, 111
General courses
Bachelor of Arts course, 42
Bachelor of Science course, 45
General regulations, 31
Integrated Liberal Studies course, 48
General information, 1
General regulations, 5, 31
General Science, 372
Genetics, instruction in, 285
Geography
Cultural, 141
Historical, 143
Instruction in, 141
Physical, 144
Regional, 141
Teaching major in, 372
Geological and natural history survey, 585
Geology, instruction in, 146
German
Instruction in, 151
Teaching major in, 372
Glacial geology, instruction in, 149
Government
Comparative, 202
Instruction in, 199
Government service, 71
Government, student, 1
Grade-point average, definition of (see Student Handbook)
College of Engineering, 416
School of Commerce, 306
Grade-points, 34, 35, 36, 37, 306, 416
Grades
Conditions, 35
Failures, 36
Incompletes, 36
Graduate nurse course, 519
Graduate School, 551
Admission, 551
Doctor of Philosophy degree, 555
Fellowships, scholarships, and assistantships, 17, 558
Loan funds, 558
Masters' degrees, 554
Off-campus study, 554
Organization and purposes, 551
Registration, 553
Summer Session, 554
Graduation, requirements for (see Courses)
Greek
Attainment and placement examinations, 39
Examinations, 39
Instruction in, 111
Intermediate knowledge of, 39
Proficiency in, 39
Group status, 37
Guidance and special services, instruction in, 401
Gynecology, instruction in, 511

Health education, minor in, 387
Health service, 2
Heat power, instruction in, 445
High school
Accredited, 8
Admission from, 8
Foreign language, 11, 43
Wisconsin, 337
Higher degrees (see Graduate School, 551)
Highway branch of civil engineering, 435
Hispanic studies
Instruction in, 68
Teaching major in, 373

Historical geology, 148
Historical Society, 587
History
  American, 161
  Ancient and Medieval, 157
  Art, 100
  Economic, and institutions, 122
  Economic and Social, 165
  Instruction in, 155
  Introductory courses, 156
  Modern, 158
  Teaching major in, 373
History of medicine, instruction in, 505
History of science, instruction in, 164
Holidays (see Calendar, xii)
Home Economics, 453
  Admission, 7, 455
  Advisers, 455
  Applied bacteriology, major in, 468
  Child development, major in, 466
  Clothing and textiles
    Instruction in, 474
    Major in, 464
  Community leadership in recreation and home economics, major in, 470
  Curricula in, 461
  Departments of instruction, 472
  Election of studies by Letters and Science students, 39
  Experimental foods, major in, 463
  Extension service, 461
  Facilities for Instruction, 454
  Faculty, 453
  Foods and nutrition
    Instruction in, 472
    Major in, 462
  General professional major, 461
  Graduate work, 471
  Graduation requirements, 456
  Home economics education
    Instruction in, 476
    Major in, 459
  Home Management and Family Living, instruction in, 473
  Honors, 458
  Hospital dietetics, course in, 462
  Housing, 455
  Institution management
    Course in, 463
    Instruction in, 473
  Journalism, major in, 466
  Majors, 455
  Minors, 461, 471
  Non-professional major, 469
  Nursing major, 467, 521
  Organizations, 459
  Professional majors, 461
  Related art
    Instruction in, 475
    Major in, 465
  Scholarships, fellowships, and loan funds, 458
  Summer Session, 471
  Thesis, 457
  Vocational school certification, 460
Home Management and Family Living, instruction in, 473
Home Management House, 454
Honors
  Agriculture, 264
  Commerce, 307
  Engineering, 416
  Home Economics, 458
  Letters and Science, 36
Horticulture, instruction in, 286
Hospital
  Dietetics, 462
  Service, 2
  State of Wisconsin General, 504
    University, 504
Housing, 18
  Application for residence halls, 19
  Bureau, 18
  Co-operative, 20, 259
  Fraternity, 21
  Graduate women, 20
  Housekeeping rooms, 21
  Married couples and families, 21
  Men students, 20
  Off-campus, for men, 21
  Off-campus, for women, 20
  Residence halls for men, 20, 259
  Residence halls for women, 18
  Sorority, 20
  Special interest, 20
  Temporary projects, 21
  Undergraduate women, 18
  Women students, 18
Humanities
  Classical, 54
  Course in, 53
  Division of, 35
  Modern, 54
  Teaching major in, 374
Hydraulic course in civil engineering, 424
Hydraulic engineering, instruction in, 437
Hygiene
  Instruction in, 506
  Public health nursing major, 57, 519
  State Laboratory of, 590
  Ward management and teaching major, 57, 58, 519

Incompletes, 36
Independent reading and research
  Business subjects, 326
  Engineering, 418
  Letters and Science, 41
Individual reading, 66
Industrial cost accounting 310
Industrial engineering, instruction in, 445
Industrial management institutes, 303, 541
Industrial management, instruction in, 312, 326
Industrial Psychology, Bureau of, 541
Industrial relations, 118
Infirmary, 2
Information and Program Services, Bureau of, 541
Institution management, 463, 473
Institutions, American, major in, 61, 100
Instructional materials center, 339
Instructional organization, 3
Insurance, instruction in, 127, 315
Integrated Liberal Studies, 48, 49
  Instruction in, 166
Intercollegiate athletics, 562
Intellectual development, courses in, 64, 365
Intermediate knowledge of languages, 39
International economics, 124
International law, instruction in, 203
International relations
  Economic phases of, 72
  Instruction in, 203
  Major in, 70
Interpretations of American social development, 365
Italian
  Instruction in, 139
  Teaching major in, 372

Journalism, School of, 85
  Admission, 86
  Advertising sequences, 88
  Agricultural, instruction in, 273
  Course in, 86
  Education, combined major with, 374
  Home economics, combined major with, 466
  Instruction in, 168
  Organizations and practical experience, 85
  Special fields, 87
  Teachers, 88
  Teaching major in, 374
  Transfer to, 82
Junior graduate, certificate of, 37

Kinesiology, instruction in, 404, 405, 406
Kronshage Unit, 21

Labor, instruction in, 125
Labor management, instruction in, 313, 326
Laboratories, Engineering, 412
Laboratory
  Educational, 337
  Learning, 338
  Photographic, 541
  Statistical, 338
Laboratory of Hygiene, State, 590
La Maison Francaise House, 20
Land economics, instruction in, 120, 268
Landscape architecture, instruction in, 286
Language
  Examination, 38
  Placement, 38
  Requirements, 43
Language and Literature Division, 66
Latin, 54
  Instruction in, 112
  Intermediate knowledge of, 38
  Proficiency in, 38
  Teaching major in, 375
Latin America, specialization in, 73
Law, American public, instruction in, 199
Law, Business, 325
Law, International, instruction in, 203
Law Review, 1
Law School, 477
  Admission, 478
  Admission to the bar, 481
  Advanced standing, 479
  Combined courses, 479
  Commerce and law, combined course in, 317, 479
  Course of instruction, 483
  Election of studies by Letters and Science students, 39
  Engineering and law, 479
  Faculty, 477
  Graduate Minors in Law, 482
  Graduation, requirements for, 480
  Letters and Science and law, combined course in, 40, 41, 47
  LL.M. degree, 481
  Pre-legal studies, 40, 41, 480
  S.J.D. degree, 481
  Summer Session, 482
  Transfer to, 82
Learning laboratory, 338
Lectures and Concerts, Bureau of, 541
Letters and Science, College of, 23
  Admission, 7
  Advisers, 32, 42
  American Institutions, major in, 61
  Applied mathematics and mechanics, course in, 50
  Attainment examinations, 38, 43
  Bacteriology, major in, 66
  Certificate of junior graduate, 37
  Chemistry course in, 51
  Courses of study, 31
  Credits, 32, 34
  Deficiencies, 36, 47
  Degrees, 31
  Departments of instruction, 100
  Divisions, 35
  Election of studies outside the college, 39
  Faculty, 23
  Failures, 36
  Freshman studies, 47
  General courses, 42, 45
  General regulations, 31
  Hispanic studies, major in, 68
  Honors, 36
  Humanities, course in, 53, 166
  Incompletes, 36
  Independent work, 41
  Integrated Liberal Studies, 48, 166
  International relations, major in, 70
  Journalism, School of, 85
  Law, combined course in, 478
  Library School, 89
  Major study, 35
  Mathematical preparation, 35
  Medical technology, course in, 54, 55
  Military training requirement, 33
  Music, School of, 90
  Naval science, course in, 56
  Nursing, combined course with, 41, 57
  Physical education requirement, 33
  Physical medicine, course in, 59, 505
  Placement examinations, 38
  Pre-commerce, 81, 307
  Pre-education, 82
  Pre-legal studies, 40, 82, 480
  Pre-medical course, 83
  Pre-pharmacy, 84
  Program load, 32
  Quality of work, 34
  Residence requirements, 34
  Special majors, 61
  Special students, 10, 37
  Thesis, 36
  Transfers
    To Commerce, 79
    To Education, 82
    To Journalism, 82
    To Law, 82
    To Medicine, 83
    To Music, 84
    To Pharmacy, 84
  Twenty-credits rule, 39
Liberal studies
  Certificate in, 37
  Integrated, 48, 166
Library Science
  Admission, 90
  Course of study, 89
  Instruction in, 171, 274
  Library School, 89
  Library service, 375
  Teaching major in, 375
Library, Agricultural, 274
Library, Education, 338
Light Building Industry curriculum, 81, 318
Limnology, instruction in, 247
Linguistics, instruction in, 172
Literature
  Comparative, 114
  English, 129
  French, 137
  German, 152
  Introductory courses in English, 129
  Italian, 139
  Spanish, 237
Literatures in translation, instruction in, 116
Loan funds, 16
  Agriculture, 258
  Graduate School, 558
  Home Economics, 458
  Medical School, 512
Logic, instruction in (see Philosophy), 191, 192
Long course in agriculture, 260
Lower-group status, 37

Machine design, instruction in, 444
Major study, 35
Management
  Co-operative, 268
  Industrial, 312, 326
  Industrial, Institutes, 541
  Institution, 463, 473
  Labor, 313, 326
Mapping, 145
Marketing, instruction in, 313, 328
Masters' degree, 554
Mathematical preparation, 8, 33
Mathematics
  and mechanics, course in, 50
  Freshman studies in, 47
  Instruction in, 176
  Preparation for engineering, 9, 415
  Requirement for admission, 8
  Teaching major in, 375

Maxillo-facial and plastic surgery, instruction in, 511
Meals, 18, 22
Mechanical engineering
  Course in, 429
  Instruction in, 443
Mechanics
  Instruction in, 448
  Mathematics and, 50
Medical and physical examinations, 561
Medical Microbiology, instruction in, 66, 506
Medical Pathology, 507, 508
Medical School, 490
  Admission, 7, 497
  Advanced standing, 497
  Anatomy, instruction in, 505
  Clinical division, courses in, 500
  Curricula in, 497
  Degrees, 503
  Departments of instruction, 505
  Election of studies by Letters and Science students, 39
  Faculty, 490
  Graduate and post-graduate instruction, 503
  History of medicine, instruction in, 505
  Hygiene, instruction in, 506
  Laboratory and hospital facilities, 504
  Lectureships, 512
  Loan funds, 512
  Medical courses, 499
  Medical division, instruction in, 507
  Medical microbiology, instruction in, 506
  Medical science major, 499
  Medical technology, course in, 54, 513
  Medicine, course in, 499
  Obstetrics and gynecology, instruction in, 511
  Occupational therapy, course in, 513
  Oncology, instruction in, 511
  Physical medicine, course in, 59, 507
  Pre-clinical division, courses in, 499
  Radiology, instruction in, 511
  Scholarships and awards, 512
  Scientific investigation, 504
  Surgical division, instruction in, 510
  Transfers to, 83
  X-ray technology, course in, 513
Medical Science, major in, 77, 83, 499
Medical Technology
  Course in, 55, 513
  Instruction in, 182
Medicine
  Course in, 499
  History of, 505
  Instruction in, 507
Medicine, Physical
  Course in, 59, 513
  Instruction in, 193
Medieval history, instruction in, 157
Memorial Union, Wisconsin, 1, 259, 575
Men's dormitories, 20
Metallurgical engineering
  Course in, 431
  Instruction in, 450
Metamorphic geology, 147
Meteorology, instruction in, 183
Middle course in agriculture, 261
Military Science, 564
  Advanced course, 565
  Air science, 571
  Basic course, 565
  Exemption, 33, 564
  Extracurricular activities, 566
  Faculty, 565
  Naval science, 568
  Object of instruction, 565
  Personnel and equipment, 566
  Requirement, 33, 565
  Reserve Officers' Training Corps, 565
  Uniforms, 565
Milwaukee Extension Division, 536
Mineralogy, instruction in, 149
Mining engineering
  Course in, 430
  Instruction in, 450
Mining geology
  Course in, 430
  Instruction in, 450
Modern history, instruction in, 158
Modern humanities, 54
Municipal course in civil engineering, 424
Museums, 589
Music, School of, 90
  Admission, 91
  Applied, 92, 97
  Concerts and recitals, 99
  Course in, 92, 352
  Election of studies in Music School, 92
  Instruction in, 184
  Requirements for B.M. degree and Teachers' Certificate, 94
  Requirements for B.A. degree with a major in Music, 95
  Teaching major in, 352, 383
Musical organizations, 98

Natural history survey, 585
Natural science, 44, 45, 47, 376
Naval Science, 41, 56, 57, 189, 568
  Agricultural and Naval Science, combined curriculum, 300
  Commerce and Naval Science, combined curriculum, 318
  Course in, 57
  Engineering and Naval Science, combined curriculum, 417
  Faculty, 568
  Instruction in, 189, 568
  Object and scope of instruction, 568
  Pay and allowances, 569
  Personnel and equipment, 570
  Summer cruises, 570
  Uniforms, 570
Neuropsychiatry, instruction in, 508
New Student Program, 11
Non-departmental courses
  Contemporary Trends, 117
  Freshman Forum, 140
Nonresident
  Admission, 8
  Exemption from nonresident tuition, 14
  Tuition, 13
Norse (see Scandinavian Studies), 211
Nursery school, 454
Nursing, course in, 57
Nursing, School of, 41, 514
  Admission, 7, 516
  Combined courses, 521
  Curricula, 517
  Departments of instruction, 522
  Expense, 516
  Facilities, 515
  Faculty, 514
  Graduate nurse course, 517
  Graduation requirements, 517
  History and organization, 515
  Home economics, combined course with, 467, 517
  Letters and Science, combined course with, 517
  Nursing, instruction in, 522
  Public health nursing, major in, 58, 519
  Student activities, 516
  Ward management and teaching, major in, 58, 520
Nutrition major, 462

Observatory, 584
Obstetrics and gynecology, instruction in, 511
Occupational information center, 338
Occupational therapy, course in, 82, 98, 351, 513
Octopus, humor magazine, 1
Officers
  Administrative, ix
  Business, xi
Old World contributions to American life, 65, 366

Oncology, instruction in, 511
Opthalmology, instruction in, 510
Opportunities in American life, 64, 366
Orchestra, 98
Orthopedic surgery, instruction in, 511
Otolaryngology and rhinology, instruction in, 510
Outside studies, 39

Painting (see Art Education and Applied Art, 346)
Paleontology, instruction in, 148
Pathology
  Medical, instruction in, 508
  Plant, instruction in, 288
Payment of fees, 15
Pedagogy (see School of Education, 333)
Pediatrics, instruction in, 507
Period study of American development, 65, 366
Personnel, Guidance and, instruction in, 401
Personnel services, 1
Petrology, instruction in, 149
Pharmaceutical and plant chemistry, instruction in, 529
Pharmacognosy, instruction in, 530
Pharmacology and toxicology, instruction in, 508
Pharmacy, School of, 524
  Admission, 526
  Curriculum, 527
  Degree requirements, 527
  Departments of instruction, 528
  Faculty, 524
  General statement, 525
  Graduate study, 526
  Pharmaceutical and plant chemistry, instruction in, 529
  Pharmacognosy, instruction in, 530
  Pharmacy, instruction in, 528
  Transfer students, 526
  Transfer to, 84
Pharmacy, instruction in, 528
Philology (see language in question)
Philosophy, instruction in, 190
Philosophy, Doctor of, 555
Phonetics (see Speech and the various languages)
Photographic laboratory, 541
Photography, instruction in, 168
Physical anthropology, instruction in, 220
Physical education, 33, 82
  Course for men, 352
  Course for women, 354
  Division of, 561
  Examinations, medical and physical, 561
  Exemption, 33, 561, 562
  Instruction for men, 402
  Instruction for women, 403
  Intercollegiate athletics, 562
  Required work, 33, 561, 562
Physical examinations, 3, 561
Physical geography, 144
Physical medicine
  Certificate, 513
  Course in, 59, 513
  Instruction in, 193, 507
Physical sciences, division of, 35
Physical therapy (see Physical Medicine)
  Certificate Course in, 59
Physics
  Instruction in, 194
  Option in engineering, 419
  Teaching major in, 376
Physiography, instruction in, 149
Physiological chemistry, instruction in, 509
Physiology
  Instruction in, 193
  Teaching minor in, 376
Physiology, plant, instruction in, 289
Placement bureau, commerce, 303
Placement examinations, 38
Planning, regional, major in, 78
Plant chemistry, 529
Plant pathology, instruction in, 288
Plant science, major in, 293
Plastic surgery, instruction in, 511
Point-credit ratio (see Student Handbook)
Polish
  Instruction in, 212
  Teaching major in, 377
Political Science
  Instruction in, 199
  Teaching minor in, 377
Political theory, instruction in, 199
Population, instruction in, 229
Portuguese
  Instruction in, 239
  Teaching major in, 378
Poultry husbandry, instruction in, 289
Pre-commerce curriculum, 81, 307
Pre-education curriculum, 82
Pre-forestry training, 262
Pre-legal studies, 40, 82, 480
Pre-pharmacy course, 82
Pre-theological major in agriculture, 297
Preventive medicine, instruction in, 508
Pre-veterinary training, 263
Professional problems course, Engineering, 452
Proficiency examinations, 39
Program load, 32
Psychiatric Institute, 586
Psycho-educational clinic, 338
Psychology
  Educational, 393
  Instruction in, 204
  Social, 207
Public Administration, instruction in, 201
Public Health Nursing, major in, 58, 519
Public law, instruction in, 199
Public relations, major in journalism, 89
Public service, 303
Public speaking, instruction in, 241
Public utilities and transportation
  Instruction in, 328
  Major in, 314
Public utilities, instruction in, 328
Publications, student, 1

Quality of work, 34

Radio
  Education by, 577
  Education, Division of, 577
  Instruction, 577
  Journalism, Field in, 88
  News writing, 170
  Speaking, instruction in, 242
  Station WHA, 240, 577
  Television Laboratory, 581
Radiology, instruction in, 511
Rank, 37
Reading Clinic, 338
Real estate
  Instruction in, 329
  Major in, 315
Recreation, community leadership in, major in, 82, 98, 299, 359, 470
Refunds, 15
Regents, Board of, viii
Regional geography, instruction in, 141
Regional planning, major in, 78
Registration days (see Calendar, xii)
Registration period, 11
Related Art
  Instruction in, 475
  Major in, 465
Remission of fees, 13
Requirements
  Admission, 8
  Graduation (see Courses of Study)
Reserve Officers' Training Corps, 564
Residence Halls, 17, 20, 259
  Division of, 576
Residence requirements, 34
Resources, conservation of, 64, 369
Rhetoric and composition, instruction in, 128
Rhinology, instruction in, 510
Risk and insurance
  Instruction in, 330
  Major in, 315

Room and board, 17, 259
Room application, 19
Rural life, 63, 364
Rural sociology, instruction in, 226
Russian
  Instruction in, 213
  Teaching major in, 377

Sanitary engineering
  Course in, 424
  Instruction in, 437
Scandinavian languages, instruction in, 211
Scandinavian studies, instruction in, 210
Scheders, 339
Scholarship, honors in, 36, 264, 307, 416, 458
Scholarships
  Agriculture, 258
  Commerce, 304
  Graduate, 558
  Home economics, 458
  Library School, 82
  Medical School, 512
  Undergraduate, 17
School for Workers, 541
Schools
  Commerce, 303
  Education, 333
  Graduate, 551
  Journalism, 85
  Law, 477
  Library, 89
  Medical, 490
  Music, 90
  Nursing, 514
  Pharmacy, 524
  Social Work, 99
Science, Agricultural, majors in, 294
Science, Animal, major in, 294
Science, degree, 47
Science, History of, instruction in, 164
Science, Library, instruction in, 171
Science, Political, instruction in, 199
Sciences, Arts and Letters, Wisconsin Academy of, 588
Second baccalaureate degree, 34
Security in American life, 64, 366
Sedimentation, instruction in, 148
Self-government, 1
Senior honors
  Agriculture, 264
  Engineering, 416
  Home economics, 458
  Letters and Science, 36
Short courses in agriculture, 266
Slavic languages, instruction in, 212
  Polish, 212
  Russian, 213
  Teaching major in, 377
Slichter Hall, 19
Social and intellectual development, courses in, 64, 365
Social disorganization, instruction in, 222
Social education, division of, 575
Social history, instruction in, 163
Social organization, instruction in, 217
Social psychology, instruction in, 227
Social science, major in, 295
Social studies
  Division of, 35
  Instruction in, 230
Social welfare, instruction in, 233
Social Work
  Instruction in, 230
  Major in, 230
  Organization, 99
  School of, 99
Sociological theory, instruction in, 216
Sociology and Anthropology
  Area courses in, 219
  Instruction in, 215
  Rural, 226
  Teaching major in, 377
Soils, instruction in, 291

Sophomore honors
  Agriculture, 264
  Engineering, 416
  Home economics, 458
  Letters and Science, 36
Spanish
  Club, 235
  Corridor, 20
  Instruction in, 235
  Teaching major in, 378
Special advisers, 42
Special majors, 61
  American institutions, 61, 363
  Bacteriology, 66, 468
  Biological aspects of conservation, 77, 369
  Child development, 466
  Community leadership in recreation, 82, 98, 299, 359, 470
  Hispanic studies, 68, 373
  International relations, 70
  Language and literature division, 66
  Medical science, 77, 83, 182, 499
Special services, Extension Division, 541
Special students (non-degree candidates), 10, 37
Speech
  Clinic, 2, 240
  Instruction in, 240
  Teaching majors, 378
State Historical Society, 587
State Laboratory of Hygiene, 590
Statistical laboratory, 338
Statistical tables, 591
Statistics, instruction in, 126, 179, 227, 316, 331, 394
Stratigraphic geology, instruction in, 148
Stratigraphy, instruction in, 148
Structural course in civil engineering, 424
Structural engineering, instruction in, 436
Structural geology, 147
Student Association, Wisconsin, 1
Student Board, 1
Student classification, 37
Student clinic, 2
Student employment, 16, 259
Student Employment Bureau, 15
Student enrollment summary, 594
Student expense, 13
Student financial aids, 16, 17
Student government, 1
Student health, 2
Student life, 1
Student loans, 16, 258, 458, 512, 558
Student personnel services, 1
Studies outside the college, 39
Summary, Faculty, 591
Summary of degrees granted, 600
Summary of student enrollment, 594
Summer Session
  Admission, 559
  Fees, 560
Supervised reading, 66
Surgery, instruction in, 510
Survey courses in science, 47
Surveying, instruction in, 435

Tabard Inn, 20
Teachers' certificate, 41, 42, 53, 82, 94, 97, 270, 342, 343, 344, 361, 362, 380, 460
Teaching majors and minors, 362
Technology, implications of for American life, 64, 365
Technology, Medical, 54, 182
Television
  Education by, 577
  Instruction in, 579
  Laboratory, 581
Television Education, Division of Radio and, 577
Textiles, Clothing and, 464, 474
Theater, Wisconsin Union, 240
Theatre, Wisconsin Idea, 541
Theological, Pre-theological major, 297
Therapy
  Occupational, 351, 513

Physical, 59, 60, 513
Thesis
Engineering, 418
Home economics, 457
Honors, 36
Incomplete in, 37
Toxicology, instruction in, 508
Trade, foreign, instruction in, 325
Transfers, 37
To Commerce, 81
To Education, 82
To Journalism, 82
To Law, 82
To Medicine, 83
To Music, 84
To Pharmacy, 84
Within the University, 37
Transportation, instruction in, 126, 314, 328
Trends, Contemporary, course in, 117
Tripp Hall, 21
Tuition, 13
Twenty-credits rule, 39

Union, Wisconsin Memorial, 1, 259, 575
United States, Area Study of, 65, 364
United States Forest Products Laboratory, 582
United States History and Institutions, Requirement in
Agriculture, 261
Commerce, 309
Education, 342
Engineering, 416
Home economics, 456
Letters and Science, 43, 45
University Hospitals, 586
University teachers' certificate, 41, 42, 53, 82, 94, 97, 270, 342, 343, 344, 345, 361, 362, 380, 460
Upper-group status, 37
Urban land economics, 330
Urban life, 63, 365
Urban regions, planning of, 79
Urology, instruction in, 511

Vacations (see Calendar, xii)
Veterans, 2
Admission, 10
Veterinary science
Curriculum, 263
Instruction in, 292
Pre-veterinary course, 263
Visitors, Board of, vii
Visual instruction, bureau of, 338, 541
Vocational guidance and education, instruction in, 401

Ward Management and Teaching, 48, 519
Washburn Observatory, 584
WHA, radio station, 240, 577
Wildlife management, instruction in, 284
Wildlife refuge, 589
Winter dairy course, 266
Wisconsin Academy of Sciences, Arts and Letters, 588
Wisconsin Engineer, 1
Wisconsin General Hospital, 504, 586
Wisconsin Geological and Natural History Survey, 585
Wisconsin High School, 337
Wisconsin Idea, 1
Wisconsin Idea Theatre, 541
Wisconsin Memorial Union, 1, 259, 575
Wisconsin Men's Association, 1
Wisconsin Psychiatric Institute, 586
Wisconsin Student Association, 1
Wisconsin Union, 1, 575
Women's dormitories, 18
Women's Self-Government Association, 1
World problems, courses in, 65, 366

X-ray technology, course in, 513

Zoology
Instruction in, 245
Teaching major in, 379