THE GEORGE FRANKLIN AND SARAH CATHRINE GETTY
College of Liberal Arts

MARION E. TINSLER, Dean

DIVISIONS AND DEPARTMENTS

DIVISION I: HUMANITIES. (M. SCHMITZ, Director)
  1) Art
  2) English and Speech
  3) Foreign Language
  4) Music
  5) Philosophy and Religion

DIVISION II: NATURAL SCIENCES. (ROBERT BOWDEN, Director)
  1) Biology
  2) Chemistry
  3) Mathematics
  4) Physics

DIVISION III: SOCIAL SCIENCES. (W. E. BINKLEY, Director)
  1) Economics and Business Administration
  2) History and Political Science
  3) Psychology
  4) Sociology

DIVISION IV: TEACHER EDUCATION. (C. C. ROBERSON, Director)
  1) Elementary Education, including Public School Art
  2) Secondary Education
  3) Business Education
  4) Industrial Arts Education
  5) Physical Education
  6) Public School Music

A description of all courses in each department of each division will be found on subsequent pages of the catalog, beginning page 42, and listed under the departments in the alphabetical order of the department.
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OBJECTIVES

The objectives of the College of Liberal Arts are: to develop in each student a philosophy which gives meaning to life, apart from its material accomplishments; to cultivate comprehensiveness of thought; to share in the intellectual achievements of mankind; to encourage critical thinking, continued reflection and re-examination of basic ideas and values; to develop skill in finding information and in evaluating such information so as to distinguish fact from opinion; to contribute to knowledge by research and by re-interpretation of the old in the light of the new.

Such a well-rounded, liberal education with stress on moral and spiritual values is designed to develop in the student poise and perspective with which to meet and evaluate life situations; to fit him for responsible citizenship; to give him a scholarly foundation for further study or professional training; and to afford him a rich and full personal life.

ADMISSION STANDARDS

In general, students of good character who show evidence of a capacity to profit by college experience and do the quality of work acceptable for graduation are admitted. To judge this each applicant for admission must be considered on his individual merits. Character, personality traits, attitudes, and desire for learning will be taken into consideration as well as the high school record.

Graduates of first-grade high schools, or the equivalent, and non-graduates with 15 acceptable units of high quality work and recommendation of the high school principal may be admitted. Applicants ranking low in their high school record may be admitted on the basis of the results of achievement and aptitude tests or upon presentation of other evidence of fitness for college work. Those deficient in entrance requirements for the work of their choice may make up the deficiencies by taking the work during their Freshman year either in college or from other approved agencies.

COURSE OF STUDY

From the numerous offerings of courses students may select special groups of studies of curricula which meet their needs, interests and abilities. The student should keep in mind that his later
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adjustment to changing conditions will depend largely on the insights and skills developed by a broad general education which emphasizes the fundamental principles involved in the understanding of the various areas of today's complex life.

**THE DEGREE OF BACHELOR OF ARTS**

*General and Advanced Courses.* The curricula leading to the degree of Bachelor of Arts may be divided into two general divisions, general education and advanced education. The first two years are devoted largely to general education, presenting the courses which will furnish the foundation and background for advanced education. The advanced education will consist of the courses which presuppose the completion of the general education as necessary for successfully pursuing these studies. Work in the field of concentration is taken largely on the advanced level, together with advanced electives.

*Prescribed:* Certain courses are prescribed in the program of general education. These include English Composition, core courses in Social Studies and in Religion-Philosophy, two one-year courses in two of the Natural Sciences, one year of advanced work in the Humanities, chosen according to the student's interests, and one year of a foreign language.

*The Field of Concentration.* At the beginning of the third year the student is ready to choose, if he has not already done so, one division and the department or departments within this division in which he desires to complete his field of concentration. For example, a prospective chemist would choose Division II — Natural Sciences, Department of Chemistry.

The candidate for a degree must complete in a logical sequence a field of concentration of not less than forty-five quarter hours. The adviser will assist the student in planning the field of concentration. Candidates for the degree of Bachelor of Arts who expect to teach in the public school must meet the requirements as specified in the Division of Teacher Education.

The following are fields in which a field of concentration may be established in work for the Bachelor of Arts degree in the College of Liberal Arts:
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FIELDS OF CONCENTRATION

Biology                   Mathematics
Chemistry                 Music
Economics                 Philosophy-Religion
English                   Physics
Foreign Language          Political Science
History                  Psychology
                          Sociology

Sample Curriculum Plan

This is only a suggestion to illustrate the manner in which the Division Prescribed, General Prescribed, field of concentration and elective courses may be distributed in a four year plan of study leading to the degree of Bachelor of Arts.

FRESHMAN YEAR.

English Composition, C-1, 2, 3.
Principles of Social Science, C-11, 12, 13.
A year of Natural Science.
A Foreign Language.
An elective (which may be chosen according to his objective, if the student has already chosen his objective).

SOPHOMORE YEAR.

Second Year of Natural Science.
One year of a Humanities Course on the Sophomore Level.
Historical Study of Philosophy and Religion, C-31, 32, 33.
*One course in the field of concentration.
One free elective.

THIRD YEAR.

Two courses in the field of concentration.
One course in the Division of his field of concentration, but not in the department.
One course outside the department of his field of concentration.
One free elective.

FOURTH YEAR.

Two courses in the field of concentration.
One course in the Division of the field of concentration, but not in the department.
One course outside the Division of the field of concentration.
A free elective.
*If the student has not chosen a major field by his Sophomore year, he may take a free elective here, then take an additional course in the field of concentration during either the Junior or Senior year in place of the free elective of that year—45 quarter hours being considered a field of concentration.

To avoid too great a concentration on the major area this stipulation is made:

The student is required to have at least 120 quarter hours of work outside the department of his major. (This will permit 60 hours in the major field; any number of additional hours may be taken in the major field providing that the student takes an equal number of additional hours beyond the minimum required for graduation.)

THE DEGREE OF

BACHELOR OF SCIENCE IN EDUCATION

The curricula of candidates for the degree of Bachelor of Science in Education are set up in accordance with the requirements of the State Department of Education for certification. The Director of the Division of Teacher Education, the Professor in Elementary Education and the Professor of Early Childhood Education carefully advise the student in setting up a curriculum of courses to meet his goal.

The general principles involved in the requirements for the degree of Bachelor of Science in Education are much the same as for the Bachelor of Arts degree. The prescribed courses are the same, with the exception of Foreign Language and the amount of Natural Science; English Composition, core courses in Social Studies and in Religion-Philosophy, at least twelve quarter hours in Natural Science and one year advanced work in the Humanities.

The second two years—those of advanced education— are taken in professional courses and in the student’s chosen teaching field. Instead of a field of concentration, the candidate for the Science in Education degree selects “teaching fields”, which may be broader fields of concentration than in the case of the candidate for the B.A. degree.

The Division of Education in cooperation with the other divisions within the College of Liberal Arts offers a program of education including the professional and educational course requirements leading to certification in the following fields:
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1. Elementary Education
   a) Four-Year Degree Program. The Bachelor of Science degree in Elementary Education and a Provisional Elementary Certificate may be obtained by completing 180 quarter hours in courses that are appropriate for an elementary teacher. This Certificate may be renewed upon evidence of satisfactory character and successful teaching experience.
   b) Two-Year Cadet Program. Cadet certification is permitted with two years of teacher preparation. To be eligible for such a certificate, the student must have completed ninety-five quarter hours of training in the Elementary Teacher Education program. This Certificate may be renewed only upon evidence of the completion of thirty-six quarter hours of additional training applicable to the degree in Elementary Education.

2. Physical Education leading to a Provisional High School Certificate or a Professional Special Certificate.

3. Industrial Art Education leading to a major or minor in the field of Industrial Arts and the Provisional Certificate.

4. Public School Music:
   a. Four year Provisional in Instrumental Music
   b. Four year Provisional in Vocal Music
   c. Four year Special in Vocal and Instrumental

5. Secondary Education
   a. Biological Science
   b. English
   c. General Science
   d. History
   e. Language
   f. Mathematics
   g. Science (Comprehensive major)
   h. Social Science (Comprehensive major)
   i. Speech

6. Secretarial
   a. Special in Business Education
   b. Bookkeeping-Social Business
   c. Stenography-Typing
   d. Typing

Any additional information about the teacher education program can be obtained from the Department of Education, Ohio Northern University, Ada, Ohio.
ASSOCIATE IN ARTS CERTIFICATE

A Certificate of an Associate in Arts is awarded to students enrolling in the special two-year course established in the College of Liberal Arts. At present, special curricula of two nine-month academic years are offered in certain of the Liberal Arts Departments. A student who is enrolled in one of these two-year curricula will receive college credit which may be transferred to any other university or college and is eligible to transfer to a full four-year degree program at any time he desires. If the student transfers to the degree program, he is expected to complete the Freshman and Sophomore requirements for the Bachelor's degree which are not all included in the two-year program. The Associate in Arts Certificate is at present offered in special secretarial fields, industrial supervision, medical technology, recreational direction, and in commercial art. Further two-year courses with college credit may be developed on sufficient demand. For further information regarding these courses write to the Dean of the College of Liberal Arts.

COMBINATION CURRICULA

ARTS-ENGINEERING

During the first three years the student is registered in the College of Liberal Arts and must secure a minimum of 145 quarter hours of credit. Upon the successful completion of the fourth and fifth years in the College of Engineering, with a quality point average of one or better, the degree of Bachelor of Arts is granted. Upon fulfilling the requirements as specified in his selected Engineering curriculum, the student will also be awarded the appropriate degree in Engineering.

Students entering with advanced credits from another college must be in residence three quarters (the third year) and complete a minimum of forty-five quarter hours in the College of Liberal Arts in this University.

Students entering the Arts-Engineering curriculum must conform to the rules and regulations of the College of Liberal Arts. By complying with these regulations it will be possible for the student to secure both the degree of Bachelor of Arts and the appropriate Engineering degree in five years.

ARTS-NURSING

For the student who is preparing to enter a school of nursing the following program is suggested: The completion of three years of
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work at Ohio Northern and graduation from an accredited school of nursing. The University then awards the Bachelor's degree.

Graduate nurses who complete this curriculum will also be awarded the Bachelor's degree. Some modification of the curriculum may be made to fit their interests and objectives.

Arrangements have been made for a combined curriculum in Liberal Arts and Nursing with Memorial Hospital, Lima, Ohio. Students who elect this combination curriculum will be expected to do better than average quality work while in college and to have those personal and social qualities which are so essential to success in the field of nursing. This curriculum should be of special interest to young women of northwestern Ohio.

Arts-Law

Law schools require a minimum of three years of college work for admission. It is strongly recommended that the student plan to complete a total of 135 quarter hours, exclusive of Physical Education, and to cover the prescribed and group elective courses as well as a major of "300" or "400" courses in the Social Sciences. A broad liberal education is the best foundation for the study of Law. The fourth year is taken as the Freshman year in Law School. Upon the successful completion of the Freshman year in Law with a cumulative quality point average of 2.0 or better the degree of Bachelor of Arts is granted. After two more years of successful work in the College of Law, the degree of Bachelor of Laws is granted.

It should be noted that a student admitted upon advanced credit from another college must be in residence three quarters (the third year) and complete a minimum of forty-five quarter hours in the College of Liberal Arts in this University.

Students entering upon the Arts-Law curriculum must meet the regular entrance requirements and conform to the rules and regulations of the College of Liberal Arts.

Arts-Medical Technology

Students completing a two-year non-degree program meeting the requirements of the National Registry of Medical Technologists and administered by the Departments of Biology and Chemistry qualify for entry into an Approved School of Medical Technology.

Students completing a minimum of 135 quarter hours of work in the College of Liberal Arts, including all Division requirements and those requirements prescribed by the Departments of Biology and
Chemistry for field of concentration, will be awarded the Bachelor's degree on presentation of evidence of registration as a Medical Technologist by the National Registry. The Departments of Biology and Chemistry allow one-fourth of the total number of credit hours required for a field of concentration (biology or chemistry) for work completed during the one-year internship required for registration.

Copies of the curricula outlined for these two programs may be secured from the Departments of Biology and Chemistry.

PRE-PROFESSIONAL CURRICULA
LEADING TO THE BACHELOR OF ARTS DEGREE

DENTISTRY AND MEDICINE

With a steadily increasing number of qualified applicants applying for admission to colleges of Dentistry and of Medicine, it is strongly recommended that the student looking forward to professional training in these fields plan to complete four years of undergraduate work with a high scholastic average. We offer curricula leading to the Bachelor of Arts degree which afford the appropriate foundation courses for later professional training in these professional fields.

Our counseling follows the recommendation of the many professional schools which advise a well-rounded Liberal Arts education with emphasis on social studies as well as on courses specifically preparatory to the study of medicine.

RELIGIOUS EDUCATION AND PRE-THEOLOGY

The suggested outline of studies which we offer will be found to meet the pre-professional requirements of practically all theological schools. Many seminaries urge that the student have a thorough knowledge of the social sciences and include in their suggestions at least one natural science. This outline includes a broad and liberal course which will enable the student to appreciate his graduate studies to the fullest extent. The courses given plus the emphasis throughout upon Christian idealism will bring about a realization of the most important aim of this department which is to produce for the world well equipped, spiritually-minded young men who will minister to the needs of their communities in every possible way.
FOREIGN AND PUBLIC SERVICE

The demand for well-prepared officials in the United States Foreign Service and in the Public Service of the federal and state governments is at the greatest peak in American peace-time history. To properly prepare for work in these fields a student should plan to continue with graduate education after receiving his degree of Bachelor of Arts. Ohio Northern University offers an inter-departmental concentration in International Relations and a departmental concentration in Political Science to prepare students for the Foreign Service and for Public Service. The Dean of the College of Liberal Arts should be consulted for the curricula outline in these fields.

GENERAL REGULATIONS

1. The student may not register for more than eighteen hours of academic work unless he has received a rating of "B" or better in the preceding quarter, in which case the Dean may grant permission for extra hours.

2. The student must notify the Dean of his choice of a field of concentration before registering for the Junior year. The Dean will then name an advisor for the student.

3. No course for which the student has received a "D" is acceptable toward a field of concentration.

4. Seniors taking courses in the "100" series in other than Foreign Languages or Mathematics will not receive full credit. Seniors selecting "100" courses should consult the Dean.

5. Juniors and Seniors are required to schedule eighty percent of their courses from the "300" and "400" group.

6. Not more than one-fourth of any curriculum leading to a degree may be taken in extension courses.

7. Application for Senior rating and graduation must be made to the Registrar during the third quarter of the Junior year.

HOW COURSES ARE NUMBERED

Courses are numbered in "100", "200", "300" and "400" series. With the exception only of students who have had special prerequisites, Freshmen may take courses only in the "100" series. Students of Sophomore rank are not permitted to take "300" and "400" courses unless it is recommended by the advisor and allowed by the
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Dean of the college. Students of Junior and Senior rank are required to take at least eighty percent (80%) of their schedule among courses of "300" and "400" classification unless modification of this requirement is permitted by the Dean in an individual case upon the recommendation of the advisor.

The last digit of the course number designates the quarter in which the course is given: "1" indicates it is given in the Fall; "2" indicates a Winter Quarter course; and "3" indicates a Spring Quarter course. When a course ends in "0" it may be given any quarter.

The middle digit identifies the course in the series in the department.

CLASSIFICATION OF STUDENTS

For purposes of classification the minimum requirements for Sophomore standing are thirty-eight quarter hours of academic work; for Junior standing, eighty-four hours; for Senior standing, 130 credit hours.

WARNING AND PROBATION

A quality point average of 1.8 is required throughout the Freshman year as the minimum level of satisfactory work.

A 1.9 accumulative is required for admission to Sophomore rank on good standing and shall be the quality point average required for satisfactory standing throughout the Sophomore year.

A 2.0 accumulative is required for admission to Junior rank on good standing and shall be the quality point average for satisfactory standing throughout the Junior and Senior years.

Should a student's point average for any quarter fall below that designated for satisfactory standing in that quarter, the student shall be placed on warning and shall remain on warning until his accumulative point average shall rise to the level required for satisfactory standing in that quarter.

Should a student on warning receive a quality point average for the quarter less than that stipulated for satisfactory standing in that quarter, he shall be placed on probation and shall remain on probation until his accumulative quality point average shall rise to the level stipulated for satisfactory standing in that quarter.

A student who is on probation with his accumulative point average below that of satisfactory standing and who fails to make a quality point average in that quarter on probation, shall be considered for possible dismissal from the University.
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A student who has been on probation and returns to satisfactory status shall be placed directly on probation in any subsequent quarter in which his quality point average drops below the satisfactory level for that quarter.

GRADUATION

As a condition of graduation with the Bachelor's degree, a student must complete 186 quarter hours (including six hours of Chapel), and six credits of Physical Education. The student must have a cumulative qualitative point average of at least 2.0.

A residence period of the last three quarters and the completion of at least forty-five quarter hours, with at least ninety quality points, elected largely from "300" and "400" courses in the College of Liberal Arts of this University are minimum requirements for a student admitted on advanced standing.

Students of unusual ability may, upon petition and with the consent of the Faculty of the College of Liberal Arts, complete their work in less than twelve quarters. Applicants for this privilege should have an average of 2.6 quality points per hour: high distinction rank. No student, however, shall be allowed to graduate unless he has at least eleven quarters work and has been in residence with Ohio Northern University the last three quarters before graduation.

THE CORE CURRICULUM

C-1, C-2, C-3. ENGLISH COMPOSITION

These three quarters, constituting a year's course for the Freshman, are designed to develop in the student the basic skills of writing and speaking the English language. The three quarters are required of all Freshmen.

C-11, C-12, C-13. BASIC PRINCIPLES OF SOCIAL SCIENCE

An integrated study of the fields of sociology, economics, political science and anthropology.

C-31, C-32, C-33. HISTORICAL STUDY OF PHILOSOPHY

AND RELIGION

A study of religion and philosophy as a developing body of convictions by which man has attempted, in every age, to solve the problems and mysteries of life. A one-year unit of study designed and recommended for meeting the Philosophy-Religion requirements for graduation.
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THE DEPARTMENTAL COURSES

The staff member first named in each department serves as chairman.

Art

MRS. YOUNKMAN

The department strives to develop within the student an appreciation of the fine arts. An introduction to the techniques involved with the media used in creative expression is presented as a necessary means to this end.

101-102-103. Art Education 2 hours

These courses are designed to meet the needs of teachers in the primary grades, various media of expression are used: pencil drawing, color, lettering, posters, projects, perspective, design, diction and appreciation. The work is integrated with other elementary school activities, dramatics, athletics, music and social activities.

111-112-113. Freehand Drawing 3 hours

Work in life, still life and the antique as a means of expression, emphasizing the various possibilities and limitations of the black and white mediums, with problems in composition.

121-122. Design 3 hours

Course is planned to present basic elements of design, using line and two- and three-dimensional design problems, in black and white and color as a means of expression. Six periods per week.

Special problems in design, theory, and presentation. Ceramic, textile, metallic, stone, wood, and combined materials are considered for decorative and structural elements.

201-202-203. History and Appreciation of Art 3 hours

(201) Prehistoric Art to Byzantine Art, 500,000 B.C. to 313 A.D.
(202) Early Christian Art to Italian Renaissance, Fourth to Fifteenth Centuries
(203) Flemish Art to Twentieth Century Art, Fourteenth Century to Twentieth Century

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231-232-233. **Painting**  
1–3 hours  
Still life, models and landscape. Emphasis on composition and color. Both oil and water.

251-252. **Commercial Art**  
3 hours  
Principles of lettering and its application to commercial design. Illustrative drawing with pen and ink, pencil, wash and other mediums. Composition and introduction to the various phases of commercial art. **Prerequisite:** 111-112.

321*. **Northern Painting**  
3 hours  
Flemish paintings from the Van Eycks to the beginning of the sixteenth century; German painting from the early fifteenth century through Duerer, Gruenewald and Holbein.
- Given upon sufficient demand.

440. **Special Art Problem**  
1–4 hours  
Open only to the advanced student who is adequately prepared, in the opinion of the instructor, to pursue special work under the instructor’s supervision.

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**Biology**

**Assoc. Prof. Stauffer, Asst. Prof. Yingling, Asst. Prof. Bowden, Asst. Prof. Pennabacker**

The aims of this Department are to enable the student to understand better the living world of which he is a part, to prepare for the teaching field, to obtain a biological foundation for the study of medicine, dentistry, nursing, and other professional courses requiring a knowledge of biology, and to qualify for admission to graduate work.

Students concentrating in Biology must complete a minimum of forty-five hours in this Department including Courses 111, 112, 113, 201, 202, 223, (331, 332) or (301, 302), 303, 402, 430, and 440. If graduate work is anticipated, students concentrating in Biology are expected to include a year of Chemistry, a year of Physics, Statistics, courses in Psychology and Sociology, and should have a reading knowledge of German and French.
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111-112-113. General Biology

A study of some of the biological principles and concepts manifested in plant and animal life with considerable emphasis on their application to man. Discussion in the presence of laboratory materials, 5 hours.

201, 202. Botany

These courses deal with some advanced concepts and principles concerning plant life. Special emphasis is given to the general classification, the life cycles, and the environmental relationships of representative members of the plant kingdom.

These courses are of fundamental importance to all students concentrating in biology and students who, from a cultural standpoint, wish to know something of the origin and development of plants. Discussion in the presence of laboratory materials, 5 hours.

Prerequisite: General Biology 111-113.**

213. Local Flora

A systematic study of vascular plants, both native and introduced. A field course supplemented by greenhouse and herbarium studies. To be arranged. Permission of the instructor. (Formerly 110).

223. Invertebrate Zoology

A course dealing with a series of invertebrates. Discussion in the presence of laboratory materials, 5 hours.

Prerequisite: General Biology 111-113.**

301, 302, 303. Vertebrate Anatomy and Embryology

A comparative study of the anatomy and embryology of vertebrates.

In anatomy careful dissections are made of the different systems in representative forms; embryological laboratory work is confined largely to the frog and chick, with occasional reference to the pig.

The course is fundamentally important to biology majors and to students who expect to teach biology, study medicine, or who from a cultural standpoint, wish to know something of the origin and development of the human body. Lecture, discussion, laboratory, 6 hours.

Prerequisite: General Biology 111-113.**
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*311. PLANT ANATOMY  4 hours
A course dealing with the development and structure of the plant body. Lecture, discussion, laboratory, 6 hours.
Prerequisite: Botany 201, 202.**

*312. PLANT PHYSIOLOGY  4 hours
A critical study of some of the functional processes of Plants. Lecture, discussion, laboratory, 6 hours.
Prerequisite: Botany 201, 202.**

331, 332. PHYSIOLOGY AND ANATOMY  4 hours
All sessions held in the Julius and Fannie Rogoff Laboratory of Physiology.
A course designed to develop in the student an appreciation and understanding of the structure and function of the human body.
The lectures include a few by guests who lecture in fields of their specialization.
The laboratory includes dissection of a representative mammal and experiments illustrating physiological principles. Lecture, discussion, laboratory, 6 hours.
Prerequisite: General Biology 111-113.**

342. ANATOMY AND PHYSIOLOGY OF MUSCLE  1 hour
A thorough dissection of the muscles of the cat with a comparison to human musculature. One half the time is spent on representative muscle physiology experiments. Laboratory, 3 hours.
Prerequisite: General Biology 111-113 and permission of the instructor.

402. LABORATORY TECHNIQUE  3 hours
Methods of collecting, killing, preserving, and preparing materials for demonstration and laboratory purposes are considered. A microscopic study of various plant and animal tissues is made. Lecture and class work, 1 hour; laboratory, 6 to 8 hours. Time schedule to be arranged. Permission of instructor. (Formerly 219).

*423. ECeology  3 hours
A study of the general principles of bio-ecology. Field studies are emphasized.
Prerequisite: Botany 202, Invertebrate Zoology 223.**
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430. Heredity 3 hours

A study of the principles of inheritance in plants and animals with considerable emphasis on human inheritance and the problems of eugenics. *Lectures and discussions in the presence of hereditary materials.*

*Prerequisite: General Biology 111-113.*

433. Evolution 3 hours

A study of the development of the organic world, and an examination of the evidences of evolution and the theories attempting to explain the method of evolution.

*Prerequisite: General Biology 111-113 and permission of the instructor.*

440. Biological Problems

Minor investigations for qualified Juniors and Seniors who are concentrating in Biology. By arrangement any quarter. (Formerly 240).

* Not given in 1955.
** or permission of the instructor.

Chemistry

Assistant Professor R. Bradley, Assistant Professor W. Bradley, Mrs. Wagner and Dr. Weaver, Visiting Professor

The objectives of this Department are to provide the fundamental principles and techniques of chemistry for those students who require such knowledge as a foundation for study in related fields such as pharmacy, medicine, dentistry, engineering, biology, etc., and to provide adequate technical training for students who contemplate industrial work or graduate study in Chemistry.

Students concentrating in Chemistry must complete 111, 112, 123, 211, 212, 213, 311, 312, 313, 411, 412, 413. Mathematics through Calculus and a year of college Physics are required. A reading knowledge of German is advisable.

101-102-103. Survey of Chemistry 4 hours

These courses consist of brief introductions to the major concepts of chemistry and include surveys of the applications of chemistry to everyday life; food, textile, and body chemistry and the more im-
important industrial processes are discussed. Frequent demonstrations illustrate the subject matter presented. These courses may be elected to fulfill a part of the requirements of the Division of Natural Sciences of the College of Liberal Arts. Discussion and demonstration, 3 lectures and one 3-hour laboratory.

111-112. GENERAL CHEMISTRY 4 hours
These courses constitute a careful study of the fundamental laws of chemistry and of the common elements and their compounds; the mathematical approach is utilized with emphasis on the development of the scientific method of reasoning. The laboratory experiments are designed to illustrate the major concepts discussed. Designed primarily for Physical Science, pre-Medical and pre-Pharmacy students. Lecture and quiz, 3 hours; laboratory, 3 hours per week.

Prerequisites: 1 Unit of High School Algebra or permission of instructor. Chemistry 111 is prerequisite to Chemistry 112.

123. Qualitative Analysis 5 hours
An introductory study in the semi-micro qualitative analysis of acids, bases, and salts, with emphasis on the salts of the common metallic elements. The theory is based on the principles of ionization, mass action and chemical equilibria; laboratory work is arranged to accompany and illustrate the classroom discussion of these and other principles. Lecture and quiz, 3 hours; laboratory, 6 hours per week.

Prerequisite: Chemistry 112.

201-202-203. CHEMICAL CALCULATIONS 1 hour
A course designed to give chemistry majors a working knowledge of the metric system; gas laws; molar and equivalent relations, both gravimetric and volumetric; phase relations; enthalpy; redox reactions; and the control of reactions through solubility, ionization, buffer solutions and amphoterism. Discussion 1 hour per week.

Prerequisites: Chemistry 123. Chemistry 201 and 202 are prerequisites for Chemistry 202 and 203, respectively.

211-212-213. ORGANIC CHEMISTRY 4 hours
Course 211 is an introductory course devoted principally to a study of organic nomenclature and the simpler saturated and unsaturated open chain carbon compounds. Course 212 is a continuation of 211 including aliphatic compounds of multiple and mixed func-
tions; stereochemistry and the carbohydrates are discussed briefly and aromatic compounds are introduced. Course 213 includes the discussion of aromatic compounds, alicyclic and heterocyclic compounds including dyes, proteins and physiologically active substances. Lecture and quiz, 3 hours; laboratory, 3 hours per week.

Prerequisites: Chemistry 123. Chemistry 211 and 212 are prerequisites for Chemistry 212 and 213, respectively.

301-302-303. ELEMENTARY PHYSICAL CHEMISTRY 2 hours

A study of the theoretical principles of chemistry with occasional problem assignments illustrating the various physical concepts discussed. These include atomic and molecular structure and properties, the gas laws, chemical equilibria, pH and buffer systems and hydrolysis, thermo-chemistry, and introductory material in connection with chemical kinetics and colloid chemistry. Lecture and quiz, 2 hours per week.

Prerequisites: Chemistry 123 or permission of instructor. Chemistry 301 and 302 are prerequisites for Chemistry 302 and 303, respectively.

311-312-313*. QUANTITATIVE ANALYSIS 4 hours

Course 311 is a study of the fundamentals of volumetric methods of chemical analysis. Neutralimetric, precipitimetric and redoximetric titrations are followed with indicators and instruments. Course 312 covers the theory and fundamentals of gravimetric methods of analysis, including some alloy and rock analysis. More advanced techniques of chemical analysis are introduced in Course 313, with special emphasis on instrumental methods including colorimetric, potentiometric and polarographic methods as well as electrodeposition. Lecture and quiz 2 hours; laboratory, 6 hours per week.

Prerequisites: Chemistry 203. Chemistry 311 and 312 are prerequisites for Chemistry 313, but 311 is not required for 312.

321. ADVANCED QUALITATIVE ANALYSIS 2 hours

A study of the laboratory techniques and theoretical principles governing the qualitative analysis of many of the less familiar elements. Laboratory work is done on the semi-micro scale and the applications of spot tests and special reagents are introduced. Discussion, 1 hour; laboratory, 3 hours per week.

Prerequisites: Chemistry 123.
322. Chemical Literature
2 hours

A library problem course designed to familiarize the student with the history of chemistry and to provide experience in the use of a scientific library. Discussion, 2 hours per week.

Prerequisite: Chemistry 213.

323. Advanced Inorganic Chemistry
3 hours

A course devoted to the discussion of the chemical and physical properties of compounds of elements other than carbon with emphasis on those elements forming complex compounds. The laboratory work is primarily concerned with the preparation of many of the types of compounds discussed. Lecture and quiz, 2 hours; laboratory, 3 hours per week.

Prerequisites: Chemistry 311, 312.

332. Organic Qualitative Analysis
3 hours

An introductory study in the qualitative analysis of organic compounds based primarily on separation by class reactions. Identifications are confirmed by preparation of derivatives and determination of their physical properties. Discussion, 1 hour; laboratory, 6 hours per week.

Prerequisite: Chemistry 213.

341-342-343. Elementary Biochemistry
2 hours

A chemical approach to the field of physiological chemistry with emphasis on the physical chemistry involved in biochemistry; the electronic theory of organic chemistry; optical activity; the chemistry of proteins, carbohydrates, lipids, steroids, isoprenoids; and a survey of the aromatic compounds of medicinal significance. Lecture and quiz, 2 hours per week.

Prerequisite: Chemistry 213.

411-412-413. Physical Chemistry
4 hours

These courses are primarily concerned with the solution of problems arising in the field of chemical physics, with emphasis on chemical thermodynamics, electrochemistry, chemical kinetics and the phase rule. The laboratory work is designed to illustrate the major concepts studied. Lecture and quiz, 3 hours; laboratory, 3 hours per week.

Prerequisites: Chemistry 213, 313, Mathematics 203, Physics 223 or 243.

* Offered in alternate years.
421. Advanced Quantitative Analysis 2 hours
A laboratory course in which more advanced methods of analysis are performed than those encountered in Courses 311, 312 and 313. Complex analyses are emphasized, including water, steel and organic elemental analysis. Laboratory, 6 hours per week.

440. Chemistry Problems 1–3 hours
Minor investigations in chemistry for qualified seniors. Consult the Department Chairman.

Economics

Associate Professor Pinola, Associate Professor Ritz, Assistant Professor Hughes

The objective of the Department is to acquaint the student with a general rather than a specialized training in economics and business administration. Emphasis is placed upon a comprehensive view of economics as a whole rather than upon some of the specialized functions in economics and business administration.

Students concentrating in the Department of Economics and Business Administration are required to take 45 quarter hours within the Department. This must include Economics 201, 202, and 203, which is a prerequisite for several other advanced courses. Other required courses are: Economics 120, 131, 132, 133, 323, 352, and 353. Students concentrating in the department will be individually advised on their area of intra-department concentration.

120. Statistics 5 hours
See Mathematics.
Prerequisite: Sophomore standing or consent of adviser.

131-132-133. Principles of Accounting 3 hours
Fundamental process of accounting applied to service, trading and manufacturing concerns; preparation of working papers and financial statements from properly arranged accounts in general ledger; practice sets for representative business concerns completed. (Required of all Economics majors)

201-202-203. Principles of Economics 3 hours
A survey course with an analytic description of our economic system. An introduction is made to the price system, supply and demand factors, money and banking, government in the economy,
the role of producers and consumers, and the analysis of income and employment. (Required of all Economic majors)

213. Business Organization

A study of the various types of business and industrial organizations, both simple and complex. Throughout the course, emphasis is placed on recent trends in management, and methods required for administrative, managerial and industrial control. (Formerly 312).

222. Office Machines and Practice

The purpose of this course is to learn to operate a variety of devices designed to handle the arithmetical work of the office. It includes instruction on listing and non-listing adding machines, registering, calculating and bookkeeping machines. A study will be made of the applications of the accounting machines, the punch card systems and the electronic computers.

301. Intermediate Accounting

General financial accounting theories with problem illustrations and applications. Classification of accounts, balance sheet forms, items and analysis of balance sheet, depreciation, goodwill, bonds and sinking funds, amortization, surpluses and reserves, statement of affairs, partnerships, and insurance.

Prerequisite: Economics 133.

312*. Cost Accounting

Accounting for manufacturing enterprises with emphasis on job order process and standard costs accounting. (Formerly 382).

Prerequisite: Economics 301.

323. Business Law

The legal aspect of common business transactions involved in the making of contracts, the formation and legal results of agencies, and various employment relationships, the law governing the marketing of goods as it relates to personal property, and negotiable instruments. (Required of all Economic majors) (Formerly 313, 321).

341. Labor Problems

Traces the historical development of trade unions in their economic setting and evaluates the effects unionism has had on the social evolution of American society. Special problems, such as the economics of the guaranteed-annual wage, productivity, escalator clauses, pension and welfare plans and labor injunctions are given considerable attention. (Formerly 342).
342. Social Legislation 3 hours

Studies the evolution of our protective and labor relations legislation along with the economic implications arising therefrom. Students will be required to familiarize themselves with the broad legal points of the various federal and state laws on poor relief — unemployment compensation, minimum wages, fair employment practices and Taft-Hartley.

351. Marketing 3 hours

The function of marketing in the Economic system will be studied in its institutional aspects, its efficiencies, and its current trends of development. The problems creating government regulation and the regulative agencies will be considered. The students will evaluate a local business on the basis of the principles covered in this course.

352-353. Money and Banking 3 hours

A study of the organization and operation of the American banking institutions. Includes theories of money and credit; commercial banking practices; reserve banking; monetary and banking laws; money market; money and credit in the world economy.

Prerequisite: Economics 203. (Required of all Economic majors)

362. Corporation Finance 3 hours

The issuance of corporation securities and their regulation will be related to the problems of fixed and working capital, income level, dividend policy and the use of borrowing. Case analysis will be used to consider the problems of expansion, recapitalization, and failure.

363*. Personnel Management 3 hours

A course analyzing the functions of the personnel department in industry, its development, and techniques. Text will be supplemented by case analysis of problems in selection, training, and incentives. Course is designed to broaden student's appreciation of the human factor in industry.

381. Federal Income Tax 5 hours

Federal taxation and income tax reporting.

383. Intermediate Economy Theory 3 hours

Advanced theory considering special problems of pricing, production, and distribution under perfect competition, oligopoly, duopoly
and monopoly. An attempt is made to relate theory to practices in existence in the American economy.

400. Economic Workshop  1–3 hours
A special workshop on current economic problems to be offered upon sufficient demand. Program of study subject to approval of the department chairman and credit to be granted according to university standards.

No prerequisite but consent of instructor required.

403*. Auditing  5 hours
Principles and accepted procedures of auditing accounting records and statements, with special emphasis given to making of working papers and the writing of audit papers for making a complete audit.

Prerequisite: Economics 301. (Formerly 402).

411*. Comparative Economic Systems  3 hours
Critically evaluates capitalism, socialism, facsim, and communism as they touch on the economics of pricing, production and distribution. Welfare implications of each will be weighed against pure theoretical concepts.

413. Budgeting  5 hours
Procedure for estimating income and expenses; the organization for controlling those expenditures and measuring the operating efficiency of the organization.

Prerequisite: Accounting 301. (Formerly 401).

421. International Economics  3 hours
Combines both the theory with world problems in foreign trade. Point four, multi-lateral trade, tariffs, exchange rates and economic development will be evaluated in conjunction with problems of population, scarce resources and full employment.

423*. Public Finance  3 hours
Emphasis on shifting and incidence of taxes, fiscal policy and debt management and the ethics connected with the raising of local, state and national revenues.

432*. Government Regulation of Business  3 hours
Traces the development of regulation considering the economic philosophy of changing times. Leading court opinions and provisions of the constitution will be reviewed. The more important legislation will be evaluated on the basis of the successes or failures which seems to be manifested in their legal nature.
442-443. **History of Economic Thought** 3 hours
A critical analysis of the development of economic thought from Greek and Hebrew writers to modern economists. Particular emphasis given to the works of Adam Smith, Malthus, Ricardo, Marx, Marshall, Keynes and our modern day American economists. Attention is given to the influence of environment and political thought. Text and original sources.

**Prerequisite:** Economics 203 or permission of the Instructor. *(Formerly 391-392).*

452. **Advanced Accounting** 5 hours
Departmental accounting, manufacturing accounting, branch and consignment accounting, contractor's accounting, real estate development accounting, receivership accounting, estate accounting, statement of application of funds and consolidated statements. *(Formerly 302).* **Prerequisite:** 311.

* Will be offered, 1956-57.

**SECRETARIAL**

101-102-103. **Typewriting** 3 hours
A series of courses designed to give the student a practical working knowledge of the typewriter combined with a study of the business letter, office forms, compositions, rough drafts, and tabulation. A high degree of accuracy and speed is required.

111-112-113. **Shorthand** 3 hours
Basic courses in Gregg Simplified Shorthand, designed to give the student a thorough foundation in principles, and practice in reading and writing at a satisfactory rate.

†211-212. **Shorthand and Transcription** 3 hours
Advanced courses with emphasis on speed and accuracy in production. High degree of efficiency is required. *(Formerly 115, 116, 117).*

**Prerequisite:** Shorthand 113.

222. **Office Machines and Practice** 3 hours
Study and use of such office machines as dictaphone, mimeograph, and calculator. Theory and practice in office work both in class and laboratory. See Economics 222.
College of Liberal Arts

223. SECRETARIAL PRACTICE 3 hours
A study of the secretarial profession with special emphasis on office mail, communication, travel, business reports, office organization, and the financial and legal duties of the secretary combined with the application of theory in a University office. Three class meetings and the clock hours of work experience each week.
Prerequisites: Shorthand 211, Typewriting 103, and Office Practice 222 or equivalents.
† Offered on sufficient demand.

Education

ASSOCIATE PROFESSOR ROBERSON
ASSOCIATE PROFESSOR HANSON (On Leave)
ASSOCIATE PROFESSOR GALL
ASSOCIATE PROFESSOR MARKLE

See page 34 for description of curricula and degrees.

INTER-DEPARTMENTAL COURSES

121. INTRODUCTION TO EDUCATION 1 hour
To help prospective teachers make intelligent decisions relating to their own qualifications in the various fields of teaching. The teaching profession; personal and social qualifications essential to good teaching; relative supply and demand in various fields.
Required of all Freshmen in the Division of Education.

213. EDUCATIONAL PSYCHOLOGY 3 hours
See Department of Psychology.
Prerequisite: Psychology 202 or permission of the Instructor.

223. CHILD DEVELOPMENT 3 hours
Characteristics of the child at different levels of maturity; physical, mental and emotional growth; growth and organization of meanings; control of social and ethical behavior; development of personality. (Formerly 136).
Prerequisite: Psychology 201 or permission of the Instructor.

360. EDUCATIONAL TESTS AND MEASUREMENTS 3 hours
A study of the basic problems of evaluation and measurement as they apply to instruction; construction of tests for use in the classroom and a survey of standardized tests and their uses.
College of Liberal Arts

400. PHILosophy of Education 3 hours
A critical study of the conflicting theories of education. Specifically, this course is designed to help the student evaluate and choose in all matters of school life and management.

401. PReIncLes of Teaching 5 hours
Fundamental principles of teaching and learning. Attention is given to current trends in education; developing units of work; utilizing latent creative abilities; meeting individual needs; managing the daily program, evaluating pupil growth and development.

402. School Administration and Organization 5 hours
Designed to give an introductory overview of the administration and organization of education in the United States; federal, state and local administration; financing public education; the teaching staff; pupil personnel; administration and organization of the elementary, junior, and senior high schools; Ohio school laws; buildings and equipment. (Formerly 252).

403. History of Education 3 hours
A study of the historical background of modern school theory and practice.

Courses 401, 402, and 403 make a logical sequence which should be completed during the Junior year. These three Courses follow the series in Educational Psychology completed during the Sophomore year.

ELEMENTARY EDUCATION

101-102-103. Art Education 2 hours
See Department of Art.

111. Music Literature and Appreciation 3 hours
See Department of Music.

112. Introduction to Music 3 hours
See Department of Music.

113. Music Education 3 hours
See Department of Music.

210. Elementary Handwork and Hobbies 3 hours
See Industrial Arts. (Formerly 233).
College of Liberal Arts

233. CHILDREN'S LITERATURE 3 hours
A study from the literary and educational point of view of the best of literature for the elementary school children; the place of literature in the education of the child; principles involved in the teaching of Literature with stress on its integration with other school activities. (Formerly 138).

241. TEACHING OF READING 5 hours
Principles and techniques of teaching Reading in the elementary grades. Attention will be given to reading readiness, phonics, oral and silent reading, diagnostic and remedial measures, evaluation of textbooks and tests. (Formerly 241-242).

251. FUNCTIONAL ARITHMETIC 3–5 hours
A comprehensive study of the basic concepts in Arithmetic. A survey of the fundamental processes with special emphasis upon problem solving. Not required of students who pass a comprehensive examination in Arithmetic.

252. TEACHING ARITHMETIC 5 hours
Methods and principles underlying the teaching of Arithmetic in the elementary grades; diagnosis and remedial work; preparation and evaluation of materials of instruction.

283. SCIENCE FOR THE ELEMENTARY TEACHER 3 hours
Content, methods and principles underlying the teaching of Science in the elementary grades. Special emphasis will be given to the organization and use of materials in the teaching of Elementary Science.

301. THE ELEMENTARY SCHOOL CURRICULUM 3 hours
Designed for student teachers (in order) to help them develop learning situations in the classroom that are in harmony with basic psychological principles of learning.

312. TEACHING OF THE LANGUAGE ARTS 3 hours
Problems and methods of teaching oral and written expression, handwriting and spelling and their relation to other subjects in the curriculum. Attention is given to the organization and administration of a functional language arts program; diagnostic and remedial measures preparation and evaluation of materials of instruction. (Formerly 239).
313. Teaching of the Social Studies in the Elementary Schools 3 hours

Objectives, methods, modern tendencies and evaluation in History, Geography, Civics, and related fields, planning of experience units and materials of instruction.

320. Arts — Crafts 3 hours

See Industrial Arts. (Formerly 235).

330. Kindergarten Methods and Materials

A study of programs and practices in the kindergarten of four and five-year-olds. Open to advanced students in education and to cadets by special permission. Given upon sufficient demand.

340. Primary Methods and Materials

Study of programs and practices in the primary grades required of all students who are candidates for the Kindergarten-Primary Certificate.

380. Student Teaching in the Elementary Schools 9—12 hours

Ten hours student teaching is required of all candidates for the State Elementary Four-Year Provisional Certificate. The work consists of planning and teaching under supervision in the elementary grades. The following prerequisites are required. 1. Have a minimum scholarship rating of 2 quality points per scheduled hour. 2. Approved by Director of Teacher Education. (Formerly 268).

410. Remedial Reading 3 hours

Causes of reading difficulties; the diagnosis and remedial treatment of each type of disability; a study of diagnostic tests. (Formerly 242).

SECONDARY EDUCATION

350. Teaching Methods in the Secondary School

Senior standing. (Formerly 250).

Teaching of English 3 hours

Effective devices and methods employed in teaching English in the high school; methods of teaching Literature, Grammar, oral English, and Composition; evaluation and selection of textbooks, visual materials and library references; extra-curricular programs; objective tests. Winter
Teaching of History and Social Sciences 3 hours

Purposes and aims in the teaching of History and the Social Sciences; evaluation of integrated courses in the Social Sciences; selecting and organizing materials; methods of procedure; objective tests. Winter

Teaching of Mathematics 3 hours

Reorganization of Mathematics in secondary schools; evaluation of Arithmetic, Algebra, Geometry and unified Mathematics; selecting and organizing materials; objective tests. Fall

Teaching of Languages 3 hours

Work is adapted to meet the needs of students majoring in the different languages. Aims and methods of teaching languages; study of direct and indirect methods, recent trends; evaluation of textbooks; suggestions for projects; organizing language clubs; objective tests. Spring

Teaching of the Natural Sciences 3 hours

Designed for students who are preparing to teach one or more of the natural sciences. The work is adapted to meet the needs of the individual student. Selection and organization of subject matter; planning of laboratories; choice of equipment and textbooks; improvised equipment; selected projects in the different sciences; objective tests. Spring

Teaching of Speech 3 hours

Effective methods of teaching Speech in the elementary and secondary schools. Special attention is given to the place of speech in extra-curricular programs, debate, dramatics and radio. Fall

420. Workshop on Curriculum Improvement 1–3 hours

Designed primarily for students who wish to work on individual and group problems growing out of their own school situations. Open only to those with teaching experience. The class meets several times a day every day, and no other course can be taken concurrently. Credit: 1½ quarter hours per week of instruction.

430. Audio-Visual Aids in Education

A study of audio and visual materials and their uses in the promotion of the learning process. Open for credit to advanced students in education who have not had audio-visual education as a part of the material offered in their courses in Methods. Permission of instructor.
440. Problems in Teacher Education 1–3 hours

This course provides for individual study, investigation, or project in the field of professional teacher education. Limited to advance students concentrating in the field of teacher education.

450. Driver Education

A course designed for those who plan to teach driving in the public schools. The course will consist of a number of classes and driving demonstrations daily. No other course can be taken concurrently. The credit will be approximately 1½ hours per week of instruction.

480. Student Teaching—Junior and Senior High Schools 6–12 hours

Student teaching is required of all candidates for the State Secondary Four-Year Provisional Certificate. The following prerequisites are required:

1. Have a Senior rank. 2. Have a minimum scholarship rating of 2 quality points per scheduled hour. 3. Have completed courses in Educational Psychology, Principles, and Special Methods. 4. Teach either major or minor subjects. 5. Approved by the Director of Teacher Education.

The work consists of planning and teaching under supervision either in the junior or senior high school, at least one hour a day or the equivalent of six hours a week for one quarter. Six hours credit is given for approximately seventy-two hours of teaching and two one-hour conference periods per week throughout the quarter. Student teaching is offered during the Fall, Winter and Spring Quarters. By arrangement.
ENGLISH

The work is arranged with three chief ends in view: first, to provide the student with such skill in writing and speaking that he may express his ideas clearly and effectively; second, to give the student a knowledge of literature so that he may read with critical ability, understanding, and appreciation; and third, to offer advanced work to those who are planning to specialize in the teaching of English.

Students concentrating in English are advised to take French or German and to elect a year of English History. The English Composition sequence does not count toward the field of concentration.

A field of concentration in English consists of a minimum of forty-five hours, including the following courses: English 201, 202, and 203 (Introduction to English Literature); English 311, 312, and 313 (Shakespeare); and English 322 (Chaucer). Two years of a modern foreign language is required for candidates for the A.B. degree.

99. ENGLISH REVIEW Non-Credit

This course is required of all students who need special instruction in English.

C-1, C-2, C-3. COMPOSITION 3 hours

These three quarters, constituting a year's work for the freshman, are designed to develop in the student the basic skills of writing and speaking the English language. The three quarters are required of all freshmen.

201-202-203. INTRODUCTION TO ENGLISH LITERATURE 3 hours

In these three quarters some of the principal works of the major English writers are studied. This course may be used to fulfill the requirement of a second year in the Humanities for Liberal Arts sophomores.
211-212-213. American Literature

In these three quarters some of the principal works of the major American writers are studied. This course may be used to fulfill the requirement of a second year in the Humanities for Liberal Arts sophomores.

221-222-223*. Journalism

These are practical courses providing basic knowledge of newspaper organization, procedures, and techniques.

Prerequisites: English 221 or consent of the Instructor for English 222; English 222 or consent of the Instructor for English 223.

231-232-233. Appreciation of Literature

This course is designed to develop skill in understanding and evaluating all types of imaginative literature. It may be used to fulfill the requirement of a second year in the Humanities for Liberal Arts sophomores.

Prerequisites: English 231 is prerequisite for both English 232 and English 233.

311. Shakespeare

The early comedies and histories are studied. Some attention is also given to the poet’s life and the medium in which he worked.

312. Shakespeare

The sonnets, the later histories, the early tragedies, and the foremost comedies are treated.

Prerequisite: English 311 or consent of the Instructor.

313. Shakespeare

In this quarter the realistic comedies, the later tragedies, and the dramatic romances are studied.

Prerequisite: English 312 or consent of the Instructor. English 311, 312, and 313 are required for a concentration in English.

322. Chaucer

The Canterbury Tales and some of the shorter poems are read. The lingual, social, and historical backgrounds of the poems are also treated.

Prerequisite: English 201 or consent of the Instructor. English 322 is required for a concentration in English.
323. MILTON

Paradise Lost is studied in detail. Paradise Regained, Samson Agonistes, and the minor poems are treated as fully as time will allow.

Prerequisite: English 201 or consent of the Instructor.

331. THE DRAMA

This quarter is devoted to a study of representative plays of the Classic, Medieval, and Renaissance periods, the seventeenth and eighteenth centuries, and the Romantic era.

Prerequisite: English 331 or consent of the Instructor.

332. THE DRAMA

In the first half of the second quarter, the development of realism and naturalism is studied. The second half comprises plays representing a departure from realism.

Prerequisite: English 332 or consent of the Instructor.

333. THE DRAMA

A study of modern drama in England, Ireland, and America constitutes the final quarter.

Prerequisite: English 332 or consent of the Instructor.

371. WORLD LITERATURE

A study in English translation of the masterpieces of Greek and Roman writers.

372. WORLD LITERATURE

A study in English translation of some of the principal works of the major Italian, Spanish, German, and French writers from the Middle Ages to the middle of the eighteenth century.

373. WORLD LITERATURE

A study in English translation of some of the principal works of the major German, French, Norwegian, and Russian writers from the middle of the eighteenth century to the present day.

380. COLLEGE GRAMMAR

This is an intensive study of descriptive English which includes diagramming. It is recommended for English majors and prospective teachers of English.

400. ENGLISH PROBLEMS

A qualified Senior concentrating in English may undertake a research project supervised by a member of the Department. Total credit may not exceed three hours.

College of Liberal Arts

SPEECH

Courses in Speech are designed:

1. To enhance the student's use of the tools of oral communication in order that he may be better enabled to participate as an active member in a democratic community.

2. To provide an opportunity for the student to experience a variety of activities which make a direct contribution to satisfactory living.

3. To direct the training of selected students in the various areas of speech education.

A field of concentration is offered in Speech. The requirements for this concentration are Courses 201, 301, 303, English 331, 332, 333, and additional courses selected from the departmental offerings to complete a total of forty-five hours.

S-1, S-2, S-3. Basic Speech 1 hour

These three quarters, constituting a basic course in practical speaking, stress individual speech proficiency. All three units must be completed for credit.

124. Make-up 1 hour

The art and use of contemporary stage make-up. Laboratory fee.

150. Speech Improvement 3 hours

Designed to aid those who wish to improve the individual speech pattern. Attention is given to the elements of voice and diction, and the elimination of speech defects. (Formerly 107).

201. Elements of Speech 3 hours

A first course designed to explore the various areas of oral language with emphasis on speaking as an art.

202. Public Speaking 3 hours

An introduction to the study of public address. Famous speakers and their speeches are to be studied and applied in speech construction, principles, and practices. An analysis of speaking conditions is made. Emphasis is on delivery.

203. Public Speaking 3 hours

A continuation of 202 with the emphasis on organization of materials using outstanding speeches as a guide.

231-232-233. Theatre Workshop 1–3 hours

A study of the basic elements of production from the standpoint of the producer-director. The special problems of the elementary
and secondary school are given special consideration. One hour recitation and one hour laboratory. Credit per quarter, one hour.

240. CHURCH DRAMA

A study of the history of religious drama; an outline of play direction (choosing, casting, planning the action of, and constructing the simple setting for the play) as applied to dramas presented in churches; a study of plays suited for religious occasions. Emphasis is placed on the development of materials for use in church dramatic activities.

251. SPEECH RE-EDUCATION

A study of the problems of defective speech, causes, and diagnosis. Students are required to observe speech work in the Ada schools. Speech re-education areas of value to the elementary and secondary school classroom teacher are given special consideration.

260. RADIO WORKSHOP

An opportunity for students interested in the various areas of radio to project individual solutions through the medium of a group project. The work of the course provides for the participation of WLOK, Lima. Credit per quarter, one hour; maximum, three hours.

262. LITERARY INTERPRETATION

A study of narrative, dramatic, and poetic literature for oral interpretation. An analysis of the materials for meaning and interpretative potential for the student.

301. DEBATE

Intensive study and debate of a contemporary problem or the intercollegiate debate question. The forms of debate are reviewed and evaluated. Credit per year 3 hours, maximum 3 years, 9 hours. (Formerly 212).

302. ADVANCED PUBLIC SPEAKING

A study of the advanced elements of audience analysis, speech organization, and contemporary speakers.

Prerequisite: 201, 202, 203.

303. DISCUSSION

An analysis of the forms of discussion, round table, panel, forum and the techniques of discussion, research, fact, opinion. The work of the quarter centers about the discussion of a contemporary problem. (Formerly 211).
341. **Play Production: Acting** 3 hours

342. **Play Production: Design** 3 hours

343. **Play Production: Direction** 3 hours

The sequence is designed to explore the problem of the actor in voice and diction; to detail the problems of set design, construction, and stage lighting; to study the problems of the director in theatrical presentations.

**Prerequisites:** Theatre Workshop or consent of the Instructor. Speech 341 and 342 are prerequisites for Speech 342 and 343, respectively.

440. **Speech and Theatre Problems** 1–3 hours

Individual study, investigation, or project within the speech area. Registration is limited to those concentrating in Speech.

**Foreign Language**

**Professor Schmitz, Mr. Bishopp and Mrs. Zucker**

The ultimate educational value of knowing foreign languages and literatures is that it helps the student to cultivate a greater breadth and comprehensiveness of thought, to arrive at a more thorough understanding of a foreign culture, and to lead to a deeper knowledge of the English language and the American cultural heritage.

The various courses in French, German, Spanish, and Italian are designed to meet both cultural and practical needs, promoting proficiency in understanding, speaking and writing the foreign language. Lectures, discussions and written work in the majority of the courses are carried on in the foreign language, so that linguistic proficiency may be acquired along with the study of literature.

The Schoonover Language Laboratory provides opportunity for practice with recording machinery. If a student expects to do graduate work or to specialize in Science, he should have a working knowledge of German or French, or both.

Elementary and intermediate courses in French, German, Spanish and Italian may be counted as Upper Division Courses if taken during the Junior or Senior year. Students desiring to take a field of concentration in foreign languages should arrange details with Professor Schmitz.
LANGUAGE LABORATORY

Two hours of scheduled activities in the Schoonover Laboratory are required with each Foreign Language course.

FRENCH

101-102-103. ELEMENTARY FRENCH

Pronunciation and the essentials of grammar. Basic vocabulary and idioms. Elementary reading, based on French life, customs and manners. Ear training and oral practice; simple conversation suited to the needs and abilities of the class.

201-202-203. INTERMEDIATE FRENCH

Review and further elements of grammar. More advanced reading (short stories, plays and novels), with abundant conversational practice. Occasional lectures about French life, history, architecture, art and civilization, illustrated through films or lantern slides.

301-302-303. ADVANCED FRENCH CONVERSATION AND COMPOSITION

Discussion of selected topics to develop diction, and free composition to acquire command of an idiomatic everyday vocabulary. Recorded conversational dialogues on a variety of topics useful to the student or traveler in France, and transcribed drills in pronunciation are made available for individual practice. Current French periodicals are read and discussed. Laboratory exercises and phonetic apparatus are employed.

Prerequisite: French 201-203.

311-312-313. SURVEY OF FRENCH LITERATURE

A study of the main literary currents and characteristic monuments of French literature. Lectures, class discussions, reading of representative masterpieces, reports.

Prerequisite: French 201-203, 301-303.

321-322-323. NINETEENTH CENTURY LITERATURE

A study of the main literary currents in the nineteenth century, both in prose and poetry, such as Romanticism, Realism, Naturalism, the Parnassus, Symbolism, etc., through typical and selected texts, accompanied by illustrated lectures on French life, history, art, and civilization, intended as a background for assigned readings.

Prerequisite: French 201-202-203, 311-312.
331-332-333. **History of French Civilization** 3 hours

Conducted in English. Open to all upper-classmen.

General survey of the development of French civilization from the Roman conquest to modern times. The political, artistic, literary, and scientific activities of the French people in the formation of their national life and their contribution to human progress. Class conducted in English.

**GERMAN**

101-102-103. **Elementary German** 3 hours

Pronunciation and spelling. Oral approach, leading to a thorough study of the essentials of German grammar with written exercises. Basic vocabulary. Elementary reading, based on German life, customs and manners. Simple conversation suited to the needs and abilities of the class.

201-202-203. **Intermediate German** 3 hours

Review of grammar, vocabulary and idioms. More advanced reading (short stories, novels, easy scientific material) with conversation. Occasional lectures about German history, music, architecture, painting, etc., illustrated through films or lantern slides.

221-222-223. **Scientific German** 3 hours

The objective is to enable the student to use German in professional or graduate work. The technique of reading advanced German and its application; abundant practice in intensive and extensive reading of scientific material. Emphasis on special needs and interests of each individual student according to his field of study.

*Prerequisite:* German 101-103.

301-302-303. **German Conversation and Composition** 3 hours

Discussion of selected topics to develop diction, and free composition to acquire command of an idiomatic everyday vocabulary. Recorded conversational dialogues on a variety of topics useful to the student or traveler in Germany, and transcribed drills in pronunciation are made available for individual practice. Current German periodicals are read and discussed. Laboratory exercises and phonetic apparatus are employed.

*Prerequisite:* German 101-103; 201-203.
College of Liberal Arts

311-312-313. LESSING, GOETHE, SCHILLER 3 hours

Although the course emphasizes literary appreciation rather than practice in the language, considerable opportunity is offered in the discussions for such practice.

Prerequisite: German 201-203, 301-303.

321-322-323. MODERN GERMAN LITERATURE SINCE 1890 3 hours

Reading and discussion of plays, fiction and poetry of such authors as Hauptmann, Schnitzler, Kaiser, Thomas Mann, Werfel, Hesse, Dehmel, Rilke and George.

Prerequisite: German 201-203, 301-303.

331, 332, 333. SURVEY OF GERMAN LITERATURE 3 hours

Basic monuments of German literature from the earliest times to the present. Lectures, class discussions, reading of representative masterpieces, reports.

Prerequisite: German 101-103, 201-203, 301-303.

341-342-343. HISTORY OF GERMAN CIVILIZATION 3 hours

Conducted in English. Open to all students, except freshmen.

A survey of the main contributions to Western civilization as represented by characteristic periods and movements. The English lectures, illustrated by slides, motion pictures, music recordings etc., though diverse in nature, have sufficient unity to constitute a connected picture of German civilization in many of its aspects, and display a correlation between German history, philosophy, literature, music, art, science, etc.

SPANISH

101-102-103. ELEMENTARY SPANISH 3 hours

Pronunciation and spelling. The essentials of grammar, basic vocabulary and idioms. Elementary reading, based on Spanish and Latin-American life, customs and manners. Ear training and oral practice; simple conversation suited to the needs and abilities of the class.

201-202-203. INTERMEDIATE SPANISH 3 hours

Review and further elements of grammar. More advanced reading (short stories, plays and novels), with abundant conversational practice, review, vocabulary and idioms. Occasional lectures about Spanish and Latin-American life, history, architecture, art and civilization, illustrated through films and lantern slides.
301, 302, 303. SPANISH CONVERSATION AND COMPOSITION 3 hours
Discussion of selected topics to develop diction, and free composition to acquire command of an idiomatic everyday vocabulary integrated; will be a study of commercial Spanish and practice in correspondence. Recorded conversational dialogues on a variety of topics useful to the student or traveler in Spain, Mexico and Latin America, and transcribed drills in pronunciation are made available for individual practice. Current Spanish periodicals are read and discussed. Laboratory exercises and phonetic apparatus are employed.
Prerequisite: 201-203.

311, 312, 313. SURVEY OF SPANISH LITERATURE 3 hours
A study of the background, main trends and chief authors in the literature of Spain, from the beginnings to the present, with special emphasis on the Golden Age, lectures, class discussions, outside reading and reports.

321, 322, 323. SPANISH-AMERICAN LITERATURE 3 hours
Main currents of Spanish-American literature with relation to their European background.

331-332-333. THEATRE OF THE GOLDEN AGE 3 hours
A study of the origin, formation and development of the Spanish comedia. Representative works of Lope de Vega, Calderon, Tirso de Molina, and Alarcon will be analyzed with special emphasis on individual characteristics.
Prerequisites: 201-203, 301-303.

341-342-343. HISPANIC CIVILIZATION 3 hours
Conducted in English. Open to all students, except freshmen.
An integrated picture of the political, economic, social, geographical, and cultural forces which have shaped Spain and Latin America.

ITALIAN

101-102-103. ELEMENTARY ITALIAN 3 hours
Introductory Italian grammar, including vocabulary and readings in Italian, based on Italian life and customs. Ear-training, diction, and oral practice, especially designed for voice-students; simple conversation suited to the needs and abilities of the class.

201, 202, 203. INTERMEDIATE ITALIAN 3 hours
Grammar review; intensive and extensive reading; vocabulary and oral practice. Designed to prepare the student for more advanced study of spoken and literary Italian.
LATIN

101-102-103. ELEMENTARY LATIN 3 hours
These courses are designed for those who have not had Latin in high school. Given upon sufficient demand.

201-202-203. INTERMEDIATE LATIN 3 hours
Reading from various Latin writers. Given upon sufficient demand.

Prerequisite: Elementary Latin 101, 102, 103 or two units of high school Latin.

GEOGRAPHY

Instructors from the Social Studies Division.

201, 202, 203. GLOBAL GEOGRAPHY 3 hours
The study of world geography to the end of discovering the relationship of the physical environment to the economic, social and political problems of mankind.

400*. HUMAN GEOGRAPHY 3 hours
A study of the adaptation of man to his environment.
* Offered upon sufficient demand.

History and Political Science

PROFESSOR BINKLEY, PROFESSOR HILLIARD,
MR. COIL

The History Courses stress the evolution of human institutions with a view to developing an understanding of our present civilization. Students majoring in History must take courses in both American and European History and electives in the allied social sciences, particularly Political Science, Sociology, Psychology and Economics. It is the policy of the Department to recommend no graduate for the teaching of History who has not taken nine hours in American Government in addition to the hours of his History major.

HISTORY

The most appropriate sequence of courses for a field of concentration in History would be History of Western Civilization 111, 112, 113; History of the United States 211, 212, 213; History of England 321, 322, 323; Recent American History 361, 362; or Constitutional History of the United States 331, 332, 333; and Recent European
History 371, 372, 373. In addition to the forty-five hours required for the field of concentration in History the student must complete nine hours in American Government.

111. History of Western Civilization to 1517  
112. History of Western Civilization: 1517 to 1815  
113. History of Western Civilization: 1815 to the Present Time  
   An introductory survey of European history. The Mediaeval background, the Renaissance, the rise of international rivalry, the World Wars and their aftermath. Open to Freshmen.

211. History of the United States to 1829  
212. History of the United States: 1829 to 1876  
213. History of the United States: 1876 to the Present  
   A study of the political, social and economic development of the United States from the colonial period to the present time. Not open to Freshmen. (Formerly 113, 114, 115).

303. History of Ohio  
   The political and cultural evolution of the state from prehistoric times to the present. (Formerly 212).

   Prerequisite: History 211, 212, 213, or consent of the Instructor.

321. English History to 1603  
322. English History: 1603-1815  
323. English History: 1815 to the Present Time  
   A general introductory study of the English people in their political, social and institutional development, followed by a survey of the growth of the British Empire and evolution of the British Commonwealth of Nations. (Formerly 104, 105, 106).

331-332-333. Constitutional History of the United States  
   A survey of the constitutional development of the United States from the colonial period to the present time. (Formerly 224, 225, 226).

   Prerequisite: Political Science 201, 202, 203, and History 211, 212, 213.

341-342. American Foreign Relations  
   The inception, development and present interpretation of the
outstanding foreign policies of the United States; the emergence of the United States as a world power; the trend from isolationism. (Formerly 245, 246).

Prerequisite: History 211, 212, 213.

343*. MODERN HISTORY OF THE FAR EAST 3 hours
A study of China and Japan since 1840 with attention given to other neighboring nations as they affect the overall political and cultural development of the Far East.

Prerequisite: History 111, 112, 113.

351-352. ANCIENT HISTORY 3 hours
The development of civilization from pre-history to the fall of Rome. Emphasis is placed upon the early pre-Greek Oriental civilization and the cultural and political contributions of the period.

353. LATIN AMERICA 3 hours
The conditions in Spain and Portugal leading to Latin American colonization, and the growth of the cultural and political institutions of Latin America. The struggle for independence, and the rise of the modern Latin American Republics.

361-362. RECENT AMERICAN HISTORY 3 hours
An investigation and intensive study of some of the major movements of United States history since 1900. (Formerly 216, 217, 218).

Prerequisite: History 211, 212, 213.

371-372-373. RECENT EUROPEAN HISTORY 3 hours
Europe and its relations with the rest of the world since 1914: imperialism; the alliance system; World War I; the war debt and reparations problems; the rise of the Soviet Union and the fascist powers; the great depression; relations with the Middle-East and the Far-East; World War II; the Cold War.

Prerequisite: 111, 112, 113.

440. HISTORY PROBLEMS 3 hours
Individual investigation on a specific problem. Open to qualified Seniors majoring in History. (Formerly 254).


POLITICAL SCIENCE

The courses in Political Science are designed to prepare the student for the intelligent performance of the functions of citizenship, for entrance into public service, for the study of Law, and for grad-
uante study in this field. Those majoring in Political Science are advised also to pursue courses in Sociology, Psychology, History and Economics.

201-202-203. American Government 3 hours
A study of the origin, development, structure, and functions of national, state and local governments in the United States. Sophomore course. (Formerly 101, 102, 103).

312*. Municipal Government 3 hours
A study of the principal problems of municipal government in the United States. (Formerly 204).
Prerequisite: Political Science 201, 202, 203.

331-332. Comparative Government 3 hours
A study of the governments of England, France, Germany, and Russia. (Formerly 208, 209).
Prerequisite: Political Science 201, 202, 203, or consent of the Instructor.

341. American Political Parties 3 hours
A brief survey of the development of political parties in the United States followed by an investigation of the psychological, sociological, and practical aspects of the phenomena of political parties. (Formerly 210).
Prerequisite: Nine hours of Political Science or the consent of the Instructor.

353. American Political Theories 3 hours
The development of American political theories from the colonial period to the present with a view to providing a basis for rational approach to the solution of our present political problems. (Formerly 212).
Prerequisite: Nine hours of Political Science or the consent of the Instructor.

363. Public Administration 3 hours
A study of the problems and fundamental principles of administration in modern governments, national, state and local. (Formerly 214).
Prerequisite: Political Science 201, 202, and 203 or the consent of the Instructor. M.W.F. 10:00.

371. International Relations 3 hours
372. INTERNATIONAL RELATIONS 3 hours
A study of the forces which determine the foreign policies of the major world powers. An introduction to diplomatic procedures; the sources of power; the organization and functions of the United Nations. (Formerly 215, 216).

373*. CONTEMPORARY INTERNATIONAL PROBLEMS 3 hours
An analysis of contemporary problems with a view to methods of pacific settlement. The Department of State problem method is used.

383. EUROPEAN POLITICAL THEORIES 3 hours
A survey of the development of political philosophy from the period of Ancient Greece to modern times. (Formerly 230).
Prerequisite: Political Science 201, 202, 203, or the consent of the Instructor.

391. SOCIAL FORCES IN AMERICAN GOVERNMENT 3 hours
An investigation of the part played by interest and pressure groups and ideologies in the determination and execution of public policies. (Formerly 231).

450. POLITICAL SCIENCE PROBLEMS 3 hours
Individual investigation in the field of political science. Open to qualified Seniors majoring in this Department. (Formerly 251).


Industrial Arts

ASSISTANT PROFESSOR LOWMAN, MR. KAIN

The Department of Industrial Arts offers courses for all students in the University and especially for those interested in becoming teachers of industrial subjects in the public schools, those students interested in preparing for industrial vocations and engineering. The courses offer training in the basic skills and current practices in working with woods, metals, plastics, leather and many other materials.

101-102-103. ORIENTATION 9 hours
An introduction to the field of industrial arts. Covers basically the fundamental procedures, operations, and equipment for each area of the field. Presents the nature of industrial arts giving insights into the profession. School visitations, oral and written reports required.
College of Liberal Arts

111-112. Drawing 3 hours
Courses offered in College of Engineering.

113. Drawing 4 hours
General drawing for students majoring in either industrial arts or elementary education. The course includes instrument drawing and sketching in the areas of woodworking, machinery, aeronautics, architecture, advertising, statistics, and cartography; emphasizing orthographic, isometric, perspective, parallel and radial developments, and other types of projections. The course also provides experiences in photocopy work and blueprinting.

200. Wood Turning 2 hours

201. Woodwork I 3 hours
Use, name and care of fundamental hand tools. Use and characteristics of the common woods. The making of joints and their application in simple projects. (Formerly 114).
Prerequisite: Drawing 111.

202. Woodwork II 3 hours
Use and care of fundamental power machines. Basic operations and procedures in cabinet making. (Formerly 116).
Prerequisite: Woodwork 201.

203. Woodwork III 3 hours
Advanced cabinet making with carving, inlaying or other types of surface decoration. (Formerly 117).
Prerequisite: Woodwork 202.

210. Elementary Handwork 3 hours
Study of tools, materials and processes suitable for handwork in primary and intermediate grades of public schools. The construction of exemplary projects.

212. Finishing Methods and Materials 3 hours
A study of finishing materials, their composition, qualities, and characteristics; protective agents and preservatives. Mixing and matching colors. Interior floor and wall treatment and finishes. Experience in the application of various finishes to wood and metal.
221, 222, 223. Ceramics 9 hours

Introduction to pottery making. Experiences in farming, glazing and firing. Hand building and use of the potter's wheel. Introduction to the art phases of the ceramic field with emphasis on the decorative processes. Mold making and casting of ceramic ware.

300. Woodwork IV 3 hours

Advanced cabinet making with emphasis on power machine work using jigs and fixtures. Arranged by permission. Any quarter. (Formerly 118).

Prerequisite: Woodwork 203.

301. Metalwork I 5 hours

Fundamentals of sheetmetal work. The course provides practice in layout and pattern drafting, bending, forming, seams, soldering, resistance and oxyacetylene welding. Minor problems in wrought iron work featuring the construction of fixtures, ornaments, and furniture.

302. Metalwork II 5 hours

Machine shop practice and metalwork technology. Precision measuring and layout in metalwork. The study and operation of the engine lathe, shaper, milling machine, grinder, and power hack-saw. Machining of bar stock and castings.

Prerequisite: 301.

311. Industrial Materials and Processes 4 hours

A study of industrial materials, their characteristics, sources, uses, and the processes of industrial fabrication. Field trips, motion pictures, readings and reports.

320. Crafts and Hobbies 3 hours

Work in copper, brass, wood, plastic, leather, and other materials in the construction of suitable projects. Readings and reports. (Formerly 235).

323. Industrial Arts Organization and Methods 5 hours

Methods of teaching Industrial Arts, objectives, lesson plans, organization, instructional material, readings and reports. Visits to high school shops. Open to Industrial Arts majors and minors of Junior or Senior standing. (Formerly 251).

331. Graphic Arts I 3 hours

Study of fundamental tools, materials, and processes for Silk Screen Printing, Duplicating, Letterpress Printing, Photography,
Blueprinting, Block Printing, and others. Visitations, readings and reports.

332. GRAPHIC ARTS II
Continuation of Graphic Arts I.

343. SHOP PLANNING AND EQUIPMENT
The making of floor plans, selection, arrangement and maintenance of equipment for the small general shop. (Formerly 252).
Prerequisite: Same as and to accompany 323.

350. PATTERNMAKING AND FOUNDRY

353. PATTERN MAKING AND FOUNDRY
Theory and practice of pattern making and founding of non-ferrous metals.

400. WOODTURNING II
Continuation of Woodturning 200 on an advanced level. Fall, Winter, Spring.

403. METALWORK III

411. ELEMENTARY ELECTRICITY
Study of the fundamental principles of electricity. The application of these principles in laboratory experiments and the construction of projects. Reading and reports.

412. PHOTOGRAPHY
Study of cameras, photographic materials, development and theory of development, printing processes and many other topics. One lecture and one two-hour laboratory period each week. Time to be arranged. (Formerly 225).

450. STUDENT TEACHING IN INDUSTRIAL ARTS EDUCATION
(Formerly 242).
College of Liberal Arts

Mathematics

ASSISTANT PROFESSOR STAUFFER, ASSISTANT PROFESSOR GODDERZ,
MR. SCHLEA

The aim of this Department is to offer courses primarily as part of a liberal education, as requirements for Engineering students and for prospective graduate students in Mathematics and Physics. In all courses the theory developed is followed by application to exercises and practical problems when possible.

Students concentrating in Mathematics are advised to follow the sequence of courses. Courses in Calculus may be counted as Upper Division Courses. Those planning to concentrate or do graduate work in this field are expected to complete Courses 320, 321, 322, and 403 or their equivalent. A reading knowledge of German or French is advised.

81. BEGINNING ALGEBRA

For those who have had no Algebra in high school. No credit toward degree. Subfreshman level. (Formerly 90).

82. PLANE GEOMETRY

For those who have no entrance credit in Plane Geometry. No credit toward degree. Subfreshman level. (Formerly 91).

83. SOLID GEOMETRY

This Course is the equivalent of high school Solid Geometry. Subfreshman level. (Formerly 92).

Prerequisite: One unit of Algebra and one unit of Plane Geometry.

100. INTERMEDIATE ALGEBRA  2 hours

For students entering with two units in Mathematics (one year of Plane Geometry and one year of Algebra). This course is the equivalent of high school intermediate algebra; classes meet five times per week.

110. ARITHMETIC  1 hour

A course for the study of the history, theories, methods and devices of arithmetic.

111-112-113. MATHEMATICAL ANALYSIS  3 hours

A one year terminal course covering the fundamentals of algebra, trigonometry, analytic geometry, and the calculus of elementary algebraic functions.

Prerequisite: 1½ units of Algebra.

79
120. **Statistics**  
5 hours  
Principles and methods of gathering and interpreting data. This survey includes sampling, tabulation, graphs, averages, probability and error, dispersion, trends, cycles, correlation, variance, and index numbers. (Required of all majors in the Department of Economics).

121. **College Algebra**  
5 hours  
Systems of equations involving quadratics, ratio, proportion, variation, progressions, mathematical induction, binominal theorem, inequalities, complex numbers, theory of equations, logarithms.  
(Formerly 101).  
**Prerequisite:** One and one-half units of high school Algebra, and one unit of Plane Geometry.

122. **Trigonometry**  
5 hours  
The fundamental principles of the subject are developed and applied to trigonometric reductions and to the solutions of triangles. Numerous exercises in the field of geometry, physics, and mechanics are studied.  
(Formerly 102).  
**Prerequisite:** Plane Geometry and one and one-half units of high school Algebra.

123. **Analytical Geometry**  
5 hours  
The purpose of this Course is to acquaint the student with analytical methods of investigation and to make him more skilful in the use of algebraic processes as applied to geometric loci. Special attention is given to the equations of the straight line, circle, conic sections, and the higher plane curves. Introduction to solid analytical geometry.  
(Formerly 105).  
**Prerequisite:** Mathematics 122.

201. **Calculus**  
5 hours

202. **Calculus**  
5 hours

203. **Calculus**  
5 hours  
Differentiation and integration of standard algebraic and transcendental forms with numerous application in rectangular, polar, and parametric equations, and in physics. Also studied are series, hyperbolic functions, partial differentiation, and multiple integrals.  
(Formerly 107, 108, 109).  
**Prerequisite:** Mathematics 121, 122, 123.
213. PRACTICAL ASTRONOMY  3 hours
   See Department of Physics.

300. ANALYTICAL GEOMETRY OF SPACE  4 hours
   This offering is planned to give the student a good working
   knowledge of coordinate geometry in three dimensional space.
   Equations of the first and second degree of two and three unknowns
   are stressed. A Seminar Course. (Formerly 206).
   Prerequisite: Mathematics 123.

302. COLLEGE GEOMETRY  4 hours
   This Course is designed to meet the needs of those who expect
   to teach Mathematics in the public schools. General methods leading
   to the solution and construction of geometric problems are
   studied. Open to Juniors and Seniors. (Formerly 213).

310. MATHEMATICS OF FINANCE  3 hours
   This course acquaints the student with the mathematical tools of
   business. It treats simple and compound interest; discounts; install-
   ment buying; depreciation; price of bonds; amortization; sinking
   funds and types of annuities. Required of Business Administration
   and Secretarial students.
   Prerequisite: Mathematics 121.

320. THEORY OF EQUATIONS  4 hours
   Theory and solution of higher degree equations. Newton's
   Method. Horner's Method. Determinants. Recommended for ma-
   jors. (Formerly 217).
   Prerequisites: Mathematics 123, 201.

321. DIFFERENTIAL EQUATIONS  4 hours
   This is a study of the more common types of ordinary differential
   equations, especially those of the first and second orders, with em-
   phasis on geometrical interpretations and applications to geometry,
   elementary mechanics and physics. Introduction to the Laplace
   Transform. (Formerly 212).
   Prerequisite: Mathematics 203.

322. ADVANCED CALCULUS  4 hours
   Introduction to advanced topics including power series and ex-
   pansion of functions. The Gamma and Beta functions; line and sur-
   face integrals; Bessel functions; calculus of variation; complex vari-
   ables. (Formerly 216).
   Prerequisite: Mathematics 203.
College of Liberal Arts

330. Basic Statistical Control 3 hours
An advanced course in statistics, presenting fundamental statistical aspects such as variability and frequency distribution and measures of functions of distribution; control charts; tests for significance; fundamentals of the theory of probability and sampling plans.
Prerequisite: Calculus 201, 202, 203.

403. Vector Analysis 4 hours
Vector algebra and calculus, differential operators, applications to mechanics, electrical theory, and the potential function. (Formerly 215).
Prerequisite: Mathematics 322.

410*. Introduction to Modern Algebra 4 hours
Integers, rational, real and complex numbers, elementary group theory, rings, fields, determinants and matrices.
Prerequisite: Mathematics 320.
* Offered on sufficient demand.

Music

Prof. Roider (On Sabbatical Leave)
Assistant Prof. Weidner, Acting Chairman
Assistant Prof. Mudrich, Mrs. Kim

Instruction is provided for those who desire to become teachers and supervisors of Music, and an opportunity is afforded to those who wish to devote themselves to the literature of music, and those who desire a background in choosing music as a profession. Because training in music should be based upon a broad and thorough general education, the curricula have been so constructed as to secure a symmetrical balance between musical and academic subjects.

BACHELOR OF ARTS WITH MAJOR IN MUSIC
A field of concentration of forty-five (45) hours of Music is required for the degree of Bachelor of Arts. The field of concentration consists of the following courses of Theoretical and Applied Music.
Music: Theory, History of Music, Applied Music and Ensemble
participation. Theoretical Music should constitute about thirty hours of this field of concentration.

The courses are not inflexible and may be changed to meet the requirements of the individual by consulting the Dean and the Head of the Department.

PUBLIC SCHOOL MUSIC

This curriculum is approved by the State Department of Education for the training of teachers and supervisors of Public School Music. The degree of Bachelor of Science in Education is granted to students completing the Public School Music curriculum, and such persons are granted the state four-year Provisional Certificate.

APPLIED MUSIC

VOICE

The courses in voice aim to establish correct physical and mental poise, the principles of breathing and breath control, proper diction and articulation using the best of various methods from the old Italian classic of the bel canto period to the modern scientific theories. Repertoire, interpretation, and presentation are stressed, and opportunities are afforded each student to present vocal works before an audience through recital and student assembly. Students are encouraged to study songs in the modern languages, Italian, French, and German.

PIANO

The special needs of each individual student guide the approach to instruction in piano playing. Technical studies and selections are carefully chosen to develop the student's ability to recreate the desire of the composer. As music is a means of intellectual culture and artistic enjoyment, the works of the masters are stressed through all grades. Recitals and public appearances give the student an opportunity to gain poise and develop self-assurance.

ORGAN

No student will be accepted unless he has reached a grade in piano playing sufficient to warrant organ instruction. The course of study provides for thorough training in preparation for church and concert work including the best organ literature and the principles of modulation, accompaniment, and improvisation.
College of Liberal Arts

VIOLIN, VIOLA, AND VIOLONCELLO

After a thorough preparation in the fundamentals, instruction in the stringed instruments includes not only the systematic development of adequate technical facility but also definite emphasis on such phases as intonation, tone production, and style, all necessary to artistic performance and interpretation. The course of study is flexible and depends upon the individual needs and qualifications of the student. Offered upon sufficient demand.

WOODWIND AND BRASS INSTRUMENTS

Special effort is made to develop the playing ability of the student through the stressing of good tone, phrasing, technique, and ensemble. Suitable material for the advancement of the student is used for the building of technique and repertoire, selected according to the needs of the individual. Participation in band, orchestra, and ensemble is encouraged. Offered upon sufficient demand.

CHORUS-CHOIR

Students of any College of Ohio Northern University interested in singing in the Chorus-Choir have the opportunity to try out for this organization. Music of all types, accompanied and a cappella, is used throughout the year. Sacred and secular music for concerts at the University and outside the community are a part of the program.

BAND

All University students who play band instruments are given the opportunity to play in the University Band. A wide variety of material is used throughout the year. The Band appears in concert as well as at many school and community functions. Band members may participate in woodwind and brass ensembles.

ORCHESTRA

An orchestra made up of students of any College of the University is used to augment choral productions and present concerts. Participation at school and local functions is encouraged. Participation in ensembles is expected of orchestral students. Community residents, not enrolled in the University are invited to play in the University Orchestra. Offered upon sufficient demand.
College of Liberal Arts

MUSIC FEES

The fees for private lessons of students concentrating in the Department of Music are covered by the tuition and the incidental fees paid at the time of registration. Students who are not concentrating in the Department of Music but who register for lessons in voice, organ, or piano are required to pay the following fees:

One lesson each week  $25.00
Two lessons each week  $45.00

COURSES IN MUSIC

101-102-103. Theory  5 hours

Including the singing, reading, and writing of scales, intervals, triads and simple part-writing from melodies and figured bases. As the course progresses, seventh chords, modulations, suspensions, and passing tones are added. Original work includes the hymn tune and simple two and three part song-forms.

111. Music Literature and Appreciation  3 hours

A general course for deeper understanding and a more intelligent discrimination of music through analysis and active listening to representative works of the music masters. The correlation of music with everyday living. (Formerly 108).

112. Introduction to Music  3 hours

Development of the skills of ear training and sight singing, and voice culture through the use of songs suitable for the school program. (Formerly 109).

113. Music Education  3 hours

Music activities, music materials and literature, unit planning and teaching methods and skills for the different age groups from kindergarten to junior high school. This includes singing, rhythmic, creative and listening experiences. (Formerly 110).

201-202-203. Music History and Appreciation

Open to all students.

A survey type course stressing listening experience rather than the technicalities of musical development in history. The first quarter covers material inclusive of the seventeenth century. The second quarter includes music of the eighteenth and early nineteenth centuries. The third quarter treats of music from the Romantic period to the present time. All three quarters present some rudiments in
musical analysis and score reading. The aim of the Course is to equip the student with the tools necessary to a more full and intelligent enjoyment of good musical literature.

Prerequisite: Either 201 or 202 is necessary as a prerequisite for 203.

211-212-213. Theory 5 hours
Altered chords, non-harmonic tones, chromatics, and advanced modulation added to the previous year of Theory. Analytical technique of music compositions and the study of Musical Form from the motive and song-form to the sonata and contrapuntal forms. (Formerly 104, 105, 106).

Prerequisite: One year of Theory.

301-302-303. Conducting 2 hours
Courses in principles of conducting concluding with conducting choral, band and orchestra scores. (Formerly 140, 141, 142).

311. Primary Music Methods and Observation 4 hours
Two observations each week are required. (Formerly 202).

Prerequisite: Theory 213.

313. Intermediate Music Methods and Observation 4 hours
Materials and methods in vocal music. Four observations each week are required. (Formerly 203a).

Prerequisite: Primary Music Methods 311.

321-322-323. Class Voice 2 hours
A Course designed for prospective teachers of Vocal Music in the public school. (Formerly 207, 208, 209).

332. Supervised Teaching in the Primary Grades 3 hours
(Formerly 213).

Prerequisite: Primary Music Methods 313.

341-342-343. Instrumental Class 2 hours
Courses designed for prospective teachers of Instrumental Music in the public school. (Formerly 217, 218, 219).

351-352-353. History and Appreciation 3 hours
These Courses deal with the origin and development of music, studied from an appreciative basis. (Formerly 153, 154, 155).

402. Junior and Senior High School Methods 4 hours
Materials and methods in instrumental music; four observations are required each week. Organization and management of bands,
orchestras, and choirs in the junior and senior high school. Instrumental classes, voice classes, substitution of parts, repertoire, public performances. Observation of bands, orchestras, and choirs in the public schools. (Formerly 313b).

Prerequisite: Intermediate Music Methods 313.

421. Instrumentation 3 hours
422. Orchestration 3 hours
423. Advanced Orchestration 3 hours

Courses designed to give the public school Music instructor in the instrumental field of music a thorough knowledge of the instruments of the orchestra and band, and the arrangements of music for complete school orchestras and bands. (Formerly 250, 251, 252).

431. Counterpoint 3 hours
432. Choral Arranging 3 hours
433. Choral Arranging 3 hours

Courses designed to give the public school Music instructor in the vocal field of music the technique of contrapuntal writing, and the arranging of music for the school choir, glee clubs, and vocal organizations. (Formerly 285, 286, 287).

440. Special Problems 1–5 hours

Open only to Seniors who are majors in Music.

441-442-443. Band and Orchestral Instruments 2 hours

Courses designed to give the prospective teacher of Vocal Music a general knowledge of the playing technique of the instruments in the string choir, woodwind choir, and the brass choir. (Formerly 220, 221, 222).

451. Supervised Teaching in the Intermediate Grades 3 hours

(a) Practice teaching in Vocal Music.
Prerequisite: Intermediate Music Methods 313.
(b) Practice teaching in Instrumental Music. (Formerly 214).
Prerequisite: Intermediate Music Methods 313.

453. Supervised Teaching in Junior and Senior High School 3 hours

(a) Practice teaching in Vocal Music.
Prerequisite: Methods and Observation 402.
(b) Practice teaching in Instrumental Music. (Formerly 215).
Prerequisite: Intermediate Music Methods 313b.
College of Liberal Arts

Philosophy and Religion

Professor Tinsler, Associate Professor Kim

C-31, C-32, C-33. Historical Study of Philosophy and Religion 3 hours

A study of religion and philosophy as a developing body of convictions by which man has attempted, in every age, to solve the problems and mysteries of life. A one-year unit of study designed and recommended for meeting the Philosophy-Religion requirements for graduation.

PHILOSOPHY

In the Department of Philosophy a search is made for a reasoned concept of the universe and of man's place in it. Assumptions are examined and conclusions evaluated. The goal is the achievement of the principles of straight thinking for the living issues of both personal and social life today.

An interdepartmental concentration of forty-seven hours in this field exclusive of the C-31, 32, 33 unit is offered with the following Courses: Biblical Literature and Religion 241, 242, 243, 301, 302, 303; Philosophy 301, 303; Psychology 201 and Sociology 301, or 333, plus six hours of electives within the Department.

301. Introduction to Philosophy 5 hours

Presenting philosophy in the light of its main task of "integrating the piecemeal knowledge of the day and giving men a comprehensive view of life and the world." A view of man in relationship to the living issues of today.

302. Logic 5 hours

The study of "how to think straight." A constructive study of mental processes; fallacies in logic; analysis of argument and proof; deductive and inductive reasoning; the proper organization and presentation of ideas; the limitation and the expression of knowledge.

303. Ethics 5 hours

Morality and the problems of conduct. Evaluation of proposed standards of judgments; the search for a suitable standard and its application to personal, social and political problems. Especially designed for teachers and pre-professional students, but open to all Junior and Senior students.
411. **History of Ancient and Medieval Philosophy** 3 hours
A study of the views of the philosophers of the past, beginning with the early Greeks, presenting them as pioneers in the unexplored fields of thought and analyzing their contributions to contemporary concepts.

412. **History of Renaissance and Modern Philosophy** 3 hours
A continuation of course 411: a study of the philosophies from the medieval period to approximately the beginning of the 20th Century.  
*Prerequisite: 301 or 411.*

413. **Contemporary Schools of Philosophy** 3 hours
A study of current philosophies as they face an attempt to meet adequately the chief problems of modern life.  
*Prerequisite: 301 or 411 and 412.*

400. **Philosophy of Religion** 3 hours
A constructive study and discussion of the philosophy underlying such religious concepts as God, soul, freedom, prayer, destiny, evil, and immortality. Credit applicable to either Philosophy or Religion. Scheduled upon sufficient demand.

440. **Problems in Philosophy** 1–3 hours
Research or special projects for Seniors prepared to do special work in Philosophy. By arrangement.

**RELIGION**

Believing that anything which existed in history can be studied historically, the historical (or objective) approach to the study of Religion is used, presenting the figures of Bible History and Religion as real people in real life situations, facing real problems and finding real solutions through their religious insights. The Courses are neither sectarian nor dogmatic but, instead, aim to give the student the factual background for his own interpretation of a vital faith.

**BIBLICAL LITERATURE AND RELIGION**

100. **Introduction to Religion** 3 hours
Designed for Freshmen; presenting religion as the vital experience and growing conviction of real people facing real problems in real life situations, with a careful examination of the contrast between the religion of primitive and of advanced cultures. Recomm
mended to meet the minimum requirements of students seeking professional degrees in Pharmacy, Engineering, and Law. May be used toward meeting any requirement in Religion.

101. **Bible Customs and Manners**  
2 hours  
Presents the background and local color of the Biblical narrative, with special attention being given to the social customs and folkways peculiar to the Near East.

103. **The Message of Jesus Christ**  
2 hours  
Special attention is given to the personal and social application of His teachings. A course in practical principles rather than in theology.

241-242-243. **Bible History**  
3 hours  
The Fall and Winter Quarters deal with Old Testament history, presenting the cultural and religious development of the Hebrew people from early times through the United Kingdom, Division, Exile and Restoration to the time of King Herod. The Spring Quarter presents New Testament history through the writing and canonizing of the New Testament. Special attention is paid to the life of Jesus with consideration of the social and political setting into which He was born and its relation to His life and teaching.

301. **The Life and Letters of St. Paul**  
3 hours  
A study of the development of the early Church and the relation of St. Paul to this work as revealed in the Book of Acts and in the Letters of Paul.

302. **The Christian Church in History**  
3 hours  
A study of the Church in history, with consideration of the significant individuals and events in the Christian Church from the Apostolic Age to the present day and their relation to the course of general history.

303. **Comparative Religion**  
3 hours  
The fundamental religious beliefs, customs and institutions of the major living religions. A knowledge of the general aim and nature of religion is sought.

400. **Philosophy of Religion**  
3 hours  
A constructive study and discussion of the philosophy underlying such religious concepts as God, soul, freedom, prayer, destiny, evil, and immortality. Credit applicable in either Philosophy or Religion. Scheduled upon sufficient demand.
College of Liberal Arts

401. PSYCHOLOGY OF RELIGION

A study of the religious behaviour of mankind; the need of the spiritual in man's adjustment to his world, and the close correlation of many religious teachings with the tenets of modern scientific psychology. Applicable toward the field of concentration in either Religion or Psychology.

440. PROBLEMS IN RELIGION

Research or special projects for Seniors prepared to do special work in the field of religion. By arrangement.

Courses 301, 302, 303, are sometimes alternated with Philosophy 411, 412 and 413.

Physical Education

Professor Lamb, Assistant Professor English, Mr. Poole, Mrs. Pickering

Some form of physical activity is required of all students during their first two years in the University. The nature and amount of work to be taken depends upon physical condition as revealed by a careful examination and by efficiency tests given at the beginning of the school year. A varied program of elective and required activities is provided, which aims to secure and maintain the highest degree of individual and social efficiency both during and after college life.

The elective courses are both theoretical and practical. A strong intramural sports program is designed to provide some form of activity for nearly every student on the campus.

REQUIRED COURSES

Physical Education two hours a week. One credit each quarter for the first six quarters.

First Year. This work is given both out-of-doors and in the gymnasium. It is systematically graded and arranged to fit the needs and interest of the individual. Corrective work, for those who need it, and the fundamentals of natural gymnastics and games are stressed.

Second Year. A continuation of the first year program, with greater emphasis on play activities.
College of Liberal Arts

101-102-103. PHYSICAL EDUCATION

Men—Gymnasium and outdoor classes in season, natural gymnastics, informal play. Freshmen.

Women—A course in natural gymnastics including games and sports in season, dancing. Freshmen.

201-202-203. PHYSICAL EDUCATION

Men—Continuation of Course 103 with team games and apparatus added. Sophomores.

Women—A continuation of Course 103. Sophomores.

ELECTIVE COURSES

INTRAMURAL SPORTS. Ample athletic fields and a splendid gymnasium afford exceptional facilities for an intramural program that is sufficiently broad and varied to offer some form of activity for practically all University students. In their proper seasons, the following sports are offered: football, basketball, free throwing, baseball, speedball, handball, playground ball, volleyball, tennis, wrestling, boxing, track, touch football, golf, horseshoes and swimming.

PROFESSIONAL CURRICULUM FOR TEACHERS

For students who wish to specialize in the field of Health and Physical Education, a four-year professional curriculum is offered, leading to the degree of Bachelor of Science in Physical Education, and to a special state four-year Provisional Certificate.

101a-102a-103a. PHYSICAL EDUCATION FOR MAJORS 1 hour

201a-202a-203a. PHYSICAL EDUCATION FOR MAJORS 1 hour

Courses 101a to 203a inclusive are required of all students majoring or minoring in Physical Education in place of Courses 101 to 203. These Courses consist of natural activities in season, including games, stunts, tumbling, clogging, folk and character dancing, natural dancing, pageantry for women and combat activities for men. These Courses apply toward Physical Education major. Men.

110. PERSONAL AND GENERAL HYGIENE 3 hours

A course designed to cover the various phases of personal hygiene and health from the individual aspect, with emphasis on preventive measures. Each quarter. (Formerly 115).
112. **First Aid and Safety**
Lectures, discussion and practice in the giving of first aid in cases of emergency. Methods of scientific training and conditioning of athletic teams. The American Red Cross First Aid Certificate may be obtained by students who pass a satisfactory examination. *(Formerly 158)*.

113. **Advanced First Aid**
This is a course designed to give instruction and advanced training in first aid. Upon satisfactory completion of this course the Advanced First Aid Certificate and Instructor Training Certificate will be awarded. *(Formerly 159)*.

*Prerequisite:* First Aid and Athletic Training 212.

121. **Health Education**
The relation of hygiene to home and community life, including a study of sewage disposal, refuse disposal, transmission and control of diseases. *(Formerly 117)*.

122. **Health Education**
This course deals with the health program of the public schools, and the teaching of habits, attitudes and knowledge conducive to good health. *(Formerly 151)*.

123. **Health Education**
A course for the special teacher and supervisor of Physical Education, dealing with the sanitation of school buildings, surveys of various school systems, teachers’ health, and other health problems arising in a school system. *(Formerly 152)*.

133. **Theory and Practice of Plays and Games**
The need, purpose, and function of play in education are studied. Activities adaptable to various levels of the elementary and secondary schools are studied. Two hours of theory and two hours of laboratory per week. *(Formerly 156)*.

223. **Body Mechanics**
This course deals with the general body mechanics of the human organism, furnishing the student an opportunity to study and analyze the activities of the physical education program in their relation to coordination and the proper body mechanics. *(Formerly 155)*.

*Prerequisite:* Physiology and Anatomy 331 and 332.
301-302-303. **PRINCIPLES AND METHODS OF PHYSICAL EDUCATION** 4 hours

Lectures, demonstrations, and practice. An examination of the principles underlying modern practices in physical education, from the standpoint of general education. The methods used in the natural program of physical education, such as the teaching of fundamental skills of tumbling and stunts, basketball, indoor baseball, speedball, volleyball, handball. Class, three hours; practice, two hours.

321a. **METHODS IN COACHING FOOTBALL** 3 hours

A course covering in detail, equipment, fundamentals of the game, kicking, passing, handling the ball, tackling, blocking, etc.; individual position play; discussion of various types of offensive and defensive formations now in use, and the merits of each; strategy and generalship. *(Formerly 221a).*

321b. **METHODS IN COACHING FOR WOMEN** 3 hours

This Course is to prepare major and minor students in Physical Education to coach Athletics in secondary schools. The Course covers presentation of technique, basic principles, team play and methods for instruction of hockey, soccer, and speedball. *(Formerly 221b).*

322. **METHODS IN COACHING BASKETBALL** 3 hours

Men—Special emphasis is given to the fundamentals, passing, shooting, dribbling, feinting, and pivoting; to the various styles of offense and defense used by leading coaches; to equipment; to the conditioning of a team; and to the handling of a team in games. Lectures, reports, demonstration and practice.

Women—Volleyball, basketball, and handball. *(Formerly 222).*

323. **METHODS IN COACHING BASEBALL AND TRACK** 3 hours

This Course covers pitching, catching, batting, fielding, baserunning, individual position and team play in baseball. It takes up the best methods and forms for all of the events in track and field. Lectures, reports, demonstrations, and practice.

Women—Baseball, tennis, track, and field sports. *(Formerly 223).*

331-332-333. **ADVANCED COACHING PRACTICE** 1–3 hours

These Courses are designed to give students who have had Courses 321, 322 and 323 an opportunity to do actual coaching under supervision, in all sports in season. Hours arranged. *(Formerly 271, 272, 273).*
401. Organization and Administration of Physical Education—Men and Women 2 hours
A course dealing with the objectives, principles, and methods of organization and administration of Physical Education in elementary and secondary schools and colleges. It includes management of athletic sports, games, and contests, and intramural athletics. (Formerly 254).

402. Normal Diagnosis 2 hours
This Course includes recording of personal and family history, methods of making general health examinations, including special methods of examining the eyes, ears, nose, throat, spine, feet; weighing and measuring, and a limited study of corrective exercises for various postural defects. (Formerly 252).

403. History of Physical Education 2 hours
This Course traces the evolution and development of physical education through ancient and modern times. It demonstrates the close relationship existing between certain elements in civilization and the status of physical education in that civilization. (Formerly 260).

410. Student Teaching—Physical Education 6 hours
Students taking the four-year course for the training of Physical Education supervisors and teachers are required to prepare a syllabus of the work covered, write lesson plans, hold conferences with the Professor in charge and teach in junior and senior high school and elementary schools. (Formerly 263).

440. Problems in Physical Education 1–3 hours
This Course deals with specific problems in physical and health education and is open to properly qualified students. Time to be arranged. (Formerly 265).

Physics

Associate Professor Benedict, Assistant Professor Abele

The primary aim of the Physics Department is to offer courses that will stimulate scientific thought, train the student to reason from fundamental experimental facts, further the student's desire to continue scientific investigation, and meet the needs of those students who are interested in physics for its cultural or its vocational
value. Emphasis is placed on clear concepts, accurate thinking, and the complementary nature of experiment and theory.

The Department aims to give a training sufficiently broad to enable the student to appreciate the physics of popular scientific articles, to teach Physics in the public school, to apply physics in Engineering, Medicine and other sciences, and to pursue graduate work to the best advantage.

The Physics field of concentration must include Courses 301, 302, 313, 333 and at least two hours each of 310, 320, and 330. For those contemplating graduate work in Physics, thirty-five hours of Mathematics should be completed. An introductory course in Philosophy and a reading knowledge of German are strongly recommended. A year of Economics is recommended and a year of General Chemistry should be completed.

221. **GENERAL PHYSICS: MECHANICS OF SOLIDS AND FLUIDS**  4 hours

222. **GENERAL PHYSICS: ELECTRICITY AND MAGNETISM**  4 hours

223. **GENERAL PHYSICS: SOUND, HEAT AND LIGHT**  4 hours

These Courses are open to any persons except Engineers. They are required for pre-Medical and pre-Dental students. Course 221 and either 222 or 223 are required for pre-Pharmacy students. Three class periods and two hours of laboratory. 221 should precede 222 and 223. (*Formerly* 211, 212, and 213).

**Prerequisite:** 1 year of college Mathematics, or permission of instructor.

241. **GENERAL PHYSICS: MECHANICS OF SOLIDS AND FLUIDS**  5 hours

242. **GENERAL PHYSICS: ELECTRICITY AND MAGNETISM**  5 hours

243. **GENERAL PHYSICS: SOUND, HEAT, AND LIGHT**  5 hours

A series of courses designed for Engineers and Science majors. Four class periods and three hours of laboratory. 241 should precede 242 and 243. (*Formerly* 201, 202, 203).

**Prerequisite:** High school Physics and Mathematics 123, Calculus to be taken concurrently.

250. **DESCRIPTIVE ASTRONOMY**  3 hours

Study of the celestial bodies including distance, motion, size, distribution of planets, stars, spiral nebulae, and modern theories regarding their origin and evolution. Three class periods and one hour of laboratory.
301. **Analytical Mechanics**  
A course covering the principles of mechanics as applied to statics; also a study of dynamics of particles and bodies. *(Formerly 213).*  
*Prerequisite:* Physics 221 or 241 and Calculus 203.

302. **Modern Physics**  
A lecture and quiz course involving fundamental questions on the nature of things, such as atomic structure, electron theory, quantum theory, and the theory of relativity etc. *(Formerly 220).*  
*Prerequisite:* General Chemistry and Physics 221, 222, 223, or 241, 242, 243.

312. **Electronics**  
Electron ballistics, thermionic emission, vacuum tubes and characteristics, rectifiers, amplifiers, oscillators, modulators, demodulators, and electron tube instruments. Four class periods and two hours of laboratory.  
*Prerequisite:* Calculus and Physics 221, 222, 223 or 241, 242, 243.

313. **Electricity and Magnetism**  
A study of electric and magnetic fields, dielectrics, inductance, capacitance, direct and alternating current circuits and their applications. (Offered in 1954-55 and in alternate years.)  
*Prerequisite:* 221, 222 or 241, 242 and Calculus.

310. **Advanced Laboratory: Mechanics**  
1–3 hours

320. **Advanced Laboratory: Light, Heat, Sound**  
1–3 hours

330. **Advanced Laboratory: Electricity**  
1–3 hours  
Credit is given in Courses 310, 320, and 330 according to the amount of work done. A quiz is given on assigned readings for each experiment. Not more than four hours credit may be earned in any one of the three quarters. Offered every quarter.  
*Prerequisite:* 221, 222, 223, or 241, 242, 243, and Mathematics 203.

333. **Light**  
5 hours  
The laws of physical and geometric optics; optical instruments, reflection, refraction, absorption, dispersion, interference, and polarization. A study of lenses, prisms, mirrors, gratings, and instruments used in the study of light. (Offered in 1953-1954 and in alternate years.)  
*Prerequisite:* Physics 223 or 243 and Calculus.
353. Astronomy 4 hours

Study of the celestial bodies including distance, motion, size, distribution of planets, stars, spiral nebulae, and modern theories regarding their origin and evolution. Four class periods and one hour of laboratory. For students who are interested in a mathematical treatment of the fundamentals of astronomy. The applications of physics to astronomy are stressed.

Prerequisite: One year each of college Physics and Mathematics.

402. Advanced Light 3 hours

An Honor Course in physical optics and spectroscopy. There are no regular class recitations. Reports are made by the student in individual conferences. Only superior students may register for this Course. Consent of the Head of the Department is necessary. (Formerly 221).

Prerequisite: Physics 241, 242, 243, and Calculus 203.

412. Advanced Electricity 3 hours

An Honor Course in electricity and magnetism. Requirements the same as for Course 402. Only one Honor Course open each year. (Formerly 222).

413. Electric and Magnetic Fields 5 hours

Electrostatic fields; electric fields in simple geometries. Magneto-static fields; magnetic fields of simple geometries. Introduction to electromagnetic theory and Maxwell's equations. Vector analysis introduced as needed. 5 class hours per week.

Prerequisites: Physics 241, 242, 243, and Calculus.


Psychology
Assistant Professor Zucker

The purpose of this Department is to acquaint the student with the facts and laws of behavior and mental life, especially in man; to enable the student to develop a wholesome personality and to make adequate social adjustments; and to equip the student with fundamental preparation for furthering his interests and studies either in private life or in institutions of learning.

In order to complete a field of concentration in this Department the student must complete forty-five hours in Psychology. Psychology majors must complete one year of General Biology.
201, 202. General Psychology (a two-quarter unit) 6 hours
A general survey of psychological facts and principles stressing human experience and behavior.

203. Experimental Psychology 3 hours
A laboratory course designed to acquaint the student with the important areas of experimentation in psychology, with emphasis upon methodology and problems of experimental design.
Prerequisite: Psychology 201, 202.

213. Educational Psychology 3 hours
Interpretation of the fundamental psychological facts, principles, and theories applying to education; pupil growth, development and adjustment; problems of learning; relative influence of nature and nurture, statistical procedures.
Prerequisite: Psychology 201, 202 or consent of instructor.

300. Child Psychology 3 hours
Characteristics of the child at different levels of maturity; physical, mental and emotional growth; growth and organization of meanings; control of social and ethical behavior; development of personality.
Prerequisite: Psychology 201, 202 or consent of the instructor.

311, 312. Psychology of Personality (a two-quarter unit) 6 hours
A study of the nature and development of personality, and methods of adjustment; discussion of the various theoretical approaches to the psychology of personality.
Prerequisite: 201, 202.

313. Testing and Guidance 3 hours
A study of the basic principles, purposes, and psychological problems involved in interviewing; survey of psychological tests, including projective; actual experience in interviewing and testing.
Prerequisite: Psychology 201, 202, 311, 312.

321, 322. Social Psychology (a two-quarter unit) 6 hours
A study of social behavior and social adjustment. The effect of the social environment upon the development of personality. The relation of social and psychological laws to problems of the community.
Prerequisite: Psychology 201, 202.
College of Liberal Arts

323. Psychology of Business and Industry 3 hours
A study of the principles and applications of psychology as used in business, industry, and personnel work.
Prerequisite: Psychology 201, 202.

333. Applied Psychology 3 hours
The application of psychological principles to problems of modern life; clinical practice; personnel work, home life; education; industry; business law and criminology; medicine; social reform.
Prerequisite: Psychology 201, 202.

401. Psychology of Religion 3 hours
For description, see Department of Religion.

421, 422. Abnormal Psychology (a two-quarter unit) 6 hours
Study of behavior pathology; the neuroses and psychoses; various theoretical approaches to the problem of etiology.
Prerequisite: Psychology 201, 202.

440. Psychological Problems 1–4 hours
Minor investigation. Open only to qualified seniors. By arrangement.

Sociology
Assistant Professor Lieberman

The purpose of this Department is to give the students an understanding of human relationships, institutions, and social processes; to familiarize them with the nature and causes of social problems; to give the students deeper insight into the requirements of intelligent citizenship and useful participation in the community life; to equip the student with fundamental preparation for furthering his interests and studies either in private life or in institutions of learning.

In order to complete a field of concentration in this Department the student must complete forty-five hours in Sociology. In addition fifteen hours must be completed within the Division of Social Sciences, in departments other than the Department of Sociology. C-11, 12, 13 or permission of the Instructor are prerequisites for all Sociology courses.

201. Courtship, Marriage, and The Family 3 hours
A practical course in the study of adjustment in courtship, preparation for marriage and family living.
202. Social Factors in Marriage Adjustment
   An analysis of the factors in modern life affecting the stability of the family. A critical study of the biological and social factors in marital adjustment.

203. Life and Family Relationships
   A study of the effects of early family relationships and the individual's day by day experiences upon the child in American society.

300. Population Problems
   The composition of population according to sex, age, color; its distribution in the territory of the U.S.; fertility, mortality. The problems of mate selection, birth control, standard of living, and migrations are discussed.

301. Social Disorganization
   The impact of social change and major lags leading to social breakdown; population, race, family, rural and urban problems.

302. Social Pathology
   Social pathology, as it concerns our own society, including the study of such problems as poverty, mental disease, crime, prostitution, narcotics, alcoholism, public health and suicide.

303. Sociology of Conflict
   A study of conflict in human behavior and in social change; class, race, and industrial conflict in contemporary society; sociological aspects of war.

311. Educational Sociology
   A study of the sociological foundations of education; the school as a social institution.

321. Criminology
   A consideration of the problems of crimes and criminals. Special attention is given to the factors conducive to the making of criminals.

322. Penology
   An analysis of the theories of punishment; historical and modern treatment of criminals; modern policies for prevention of crime, probation and parole.

323. Juvenile Delinquency
   A study of the factors associated with juvenile delinquency, characteristics of delinquents, juvenile court procedures, correctional training in institutions, plans and programs for the prevention of delinquency.
331. CULTURAL ANTHROPOLOGY 3 hours
A study of preliterate culture, its relation to geography, biology, and psychology. Study of primitive religion, family patterns, and cultural variations.

332. SOCIAL CHARACTERISTICS IN WORLD SOCIETIES 3 hours
A comprehensive study of three societies, presenting the essential characteristics of a society in terms of its everyday workings and organization.

333. SOCIAL CHANGE IN WORLD SOCIETIES 3 hours
A comprehensive study of three societies, presenting the social change which is taking place on a world-wide scale.

400. HUMAN GEOGRAPHY 3 hours
The interaction of man and his physical environment.

401. SOCIAL CLASS IN AMERICA 3 hours
An inquiry into the American class structure, examining the reasons for social stratification, the problems of determining social classes, the differences between classes, and social mobility. An analysis of several case studies of American classes is made.

402. SOCIAL CONTROL 3 hours
A study of the methods and agencies of social control in contemporary society.

403. RACIAL AND CULTURAL MINORITIES 3 hours
A study of the phenomena which arise when groups of people who differ racially or culturally come into contact with one another.

411. RURAL SOCIOLOGY 3 hours
Composition of rural population, the rural family and standards of living, rural institutions and social processes, fundamental differences between rural and urban groups.

412. URBAN SOCIOLOGY 3 hours
A study of cities, their growth, ecology, population trends, personality types, characteristics, attitudes and institutions.

413. INDUSTRIAL SOCIOLOGY 3 hours
A study of the social organization of industry and human relations in the work plant. Problems of conflict and cooperation in the work group and the relation between the work group and the community are emphasized.

440. PROBLEMS IN SOCIOLOGY 1–4 hours
Minor investigation. Open only to qualified Seniors by arrangement.
College of Engineering

Lawrence Harry Archer, Dean

Academic Recognition

The College of Engineering of Ohio Northern University is on the list of approved engineering colleges of the Ohio State Board of Registration for Professional Engineers and Surveyors. All of the departments, Civil Engineering, Electrical Engineering, and Mechanical Engineering, of the College are accredited by the Engineers' Council for Professional Development.

Purpose

In keeping with the avowed purpose of Ohio Northern University, it is the aim of the College of Engineering to furnish the student with the knowledge necessary for a thorough training in the basic principles of the main branches of Engineering, and to give him such special and technical information as is required in his own particular field of Engineering in order that he may take his rightful place in the community and maintain the professional standards of service and ethics.

History

The history of the College of Engineering of Ohio Northern University dates from the graduation of its first class in 1882 when one man graduated with the degree of Civil Engineer. From that date the growth was rather irregular with graduates fairly constant running above and below twenty but growing slightly until 1898 when an additional department, the Electrical Engineering Department, graduated its first "Electrical Engineer." In that year the total enrollment was 63 with a graduating class of eleven, nine Civil Engineers and two Electrical Engineers. In 1904 the present Department of Mechanical Engineering had its first graduate.

During the seventy and more years of its existence the College of Engineering of Ohio Northern University has had more than twenty-four hundred graduates. Always has the student been in small classes where individual attention can be received. Today this policy is continued. The interest of the student comes first in the engineering education at Ohio Northern University.
ADMISSION

An applicant for admission to the College of Engineering should write for application forms to the Admissions Office of the University or to the Dean, College of Engineering. See "How to Apply for Admission," page 13 of this bulletin.

Candidates of good moral character may apply for admission upon one of the following plans:

1. Certificate. Graduates from first grade high schools or accredited academies whose credits show proper distribution of units are admitted without examination upon presentation of properly signed entrance certificates. Distribution of fifteen units must be as follows: English — 3; Mathematics — 3 (must include a unit of Elementary Algebra, \(\frac{1}{2}\) unit of Intermediate Algebra, 1 unit of Plane Geometry, and \(\frac{1}{2}\) unit of Advanced Algebra, Solid Geometry or Trigonometry); Physics or Chemistry — 1; Science, History, and/or Language — 2; and Elective — 6.

Not more than 2 of the 6 electives may be in practice subjects such as Drawing and Manual Training.

Applicants deficient in entrance requirements are required to make up these courses by attending the Summer Session immediately following the freshman year. A deficiency of Intermediate Algebra can be made up at the University.

2. Examination. Candidates who are not graduates of first grade high schools or academies and are therefore deficient in some of the units for admission may be admitted upon examination. At least one summer session will be required.

3. Advanced Standing. An applicant from another college seeking advanced standing must present evidence of honorable dismissal and an official transcript of his college record. Some credit may be allowed for practical experience in Drafting, Surveying, and Shop Work. Applicants for such credit must submit a satisfactory statement from their employer giving time of service, nature of work, name and address of employer.

Advance credit from other institutions of higher learning will not be given for more than 162 quarter hours (108 semester hours). The work must be "C" level or better.

4. Special Student. Mature persons not candidates for a degree may be admitted, if on consultation the Dean is satisfied that they have sufficient preparation to pursue the work successfully. Such
applicants are classified as Special Students. Upon completion of their work, a certificate showing the course of study pursued and the amount of work covered is presented to them.

The standard load in the College of Engineering is eighteen hours. Extra hours based upon scholarship attainments may be granted by the Dean.

PROBATION

Any student making less than 2.0 quality points per scheduled hour for the quarter is warned of his low academic standing. If the student should again fail to meet this standard in the quarter for which he is put on warning, he is put on probation for the following quarter of residence with a reduced schedule. Failure to meet this academic requirement may subject the student to dismissal.

CLASSIFICATION

The minimum requirements for Sophomore standing are forty-six credit hours of which fifteen hours must be in freshman mathematics and a point average of 2.0; for Junior standing, ninety-seven credit hours of which thirty hours must be in mathematics, fifteen hours in physics which presupposes calculus either concurrently or as a prerequisite, and a point average of 2.0; for Senior standing, 150 credit hours and a point average of 2.0.

GRADUATION AND DEGREES

Two hundred twenty-eight hours of which six are in physical education and six in chapel are required for graduation. Each student must participate in his professional and technical student organization while in attendance. He must have a scholarship rating of at least two quality points for each credit hour scheduled. A student cannot be a candidate for more than one degree at any one time.

A student must spend his Senior year in residence and must take at least forty-five quarter hours for final credit toward graduation.

The University is empowered to grant the customary academic degrees, which in the College of Engineering are Bachelor of Science in Civil Engineering, Bachelor of Science in Electrical Engineering, and Bachelor of Science in Mechanical Engineering. The University may confer the professional degree upon a candidate who at least
five years after graduation has a record of at least four years in a responsible position, has become a Registered Professional Engineer, has submitted an approved thesis and has successfully completed a comprehensive examination.

REGISTRATION AS A PROFESSIONAL ENGINEER

In order to practice as a Professional Engineer after graduation it is necessary to become registered by the state. Complete information on this subject can be obtained by corresponding with the College of Engineering of Ohio Northern University or by writing to the Secretary of the Board of Registration for Professional Engineers and Surveyors, 21 West Broad Street, Columbus, Ohio.

Since four years of practical experience in Engineering are required beyond the college education before full registration as a Professional Engineer can be obtained, it necessarily becomes an important factor in choosing Professional Engineering as a career.

ENGINEERING BUILDING

The College of Engineering is housed in a newly acquired and remodeled school building, located on Main Street, north of the campus. This 3-story, thirty-three room, brick structure contains all Engineering class rooms, design and drafting rooms, laboratories, and offices.

In the Engineering Building the lighting is of the most modern type. The lighting system and heating systems are entirely new. All of the classrooms and laboratories have been newly decorated. Modern green boards are used throughout the entire building. With this type of facilities it is an enjoyable place to work and study.

Some of the laboratories, rooms, and shops are as follows: Machine Shop, Carpenter Shop, Testing Materials Laboratory, Fluid Mechanics Laboratory, Tool Crib, Concrete Laboratory, Soils Laboratory, Steam Laboratory, Internal Combustion Engine Laboratory, Mechanical Laboratory, Heating and Ventilating Laboratory, Electronics Laboratory, A.C. Power Laboratory, D.C. Power Laboratory, Surveying Room, Senior Design Room, Visual Aid Room, and Freshmen Drawing Room.

PROFESSIONAL AND TECHNICAL ORGANIZATIONS

The student branch of the Ohio Society of Professional Engineers embraces all departments of the College of Engineering. Profess-
College of Engineering

sional Standards, Professional Registration, Ethics and the Engineer's place in the community are some of the things inculcated by O.S.P.E. The Ohio Northern Chapter is the local parent chapter of the Ohio Society of Professional Engineers.

The Ohio Northern Student Chapter of the American Society of Civil Engineers holds monthly meetings. All Civil Engineering students are eligible for membership. Activities of A.S.C.E. are helpful in rounding out the student's program. This group is affiliated with the Toledo Section of the American Society of Civil Engineers.

The American Institute of Electrical Engineers Student Branch holds monthly meetings. At these meetings original papers and papers printed in the Proceedings of the American Institute of Electrical Engineers are read and discussed. All students interested in Electrical Engineering are eligible for membership. The student chapter enjoys a very close association with the Lima section of the American Institute of Electrical Engineers.

The Ohio Northern Mechanical Engineers' Club is organized to sponsor the discussion of Mechanical Engineering in all its many applications. Meetings are held once each month. Members are urged to become "enrolled students" in one or more of the several national and international technical societies in this field.

FRESHMAN AND SOPHOMORE ENGINEERING CURRICULUM

PROFESSOR ARCHER, MR. HILLERY, LIBERAL ARTS FACULTY

During the first year all Engineering students follow the same general program enrolled in the College of Engineering but paying the first year engineering tuition. At the start of the second year each student registers in the College of Engineering, paying the Engineering tuition. See page 16 for exact amounts. All beginning Sophomores and transfer students who have not had the first course in Surveying are required to attend the Summer Camp. Except for advisory purposes, it is not necessary for the student to select a branch of Engineering until the start of the third quarter of the Sophomore year.

No sharp line of distinction can be drawn in the fundamental training of Civil, Chemical, Electrical and Mechanical Engineers for the reason that the sciences basic to Engineering — Mathematics, Physics, Chemistry, and some Applied Science — are essential in all branches of Engineering.
College of Engineering

FRESHMAN YEAR

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<tr>
<th>Course</th>
<th>FALL</th>
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<tbody>
<tr>
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SUMMER CAMP

Surveying I (C.E. 211) 5

SOPHOMORE YEAR

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<td>Engineering Physics (241, 242, 243)</td>
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<td>Shop (Engr. 211, 212, 213)</td>
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CIVIL ENGINEERING

ASSOCIATE PROFESSOR TAYLOR, ASSISTANT PROFESSOR SHULDINER

Although many of the former divisions have grown into separate departments, Civil Engineering offers greater opportunities than ever before. The Civil Engineer conceives, designs, and supervises the building of the projects, coordinating and utilizing all resources for all types of developments. He works in many broad fields of specialization such as: Structural Engineering, Construction Engineering, Highway and Transportation Engineering, Sanitary Engineering, Soil Engineering, Surveying, Mapping, City Managing, Consulting Engineer, etc.

The Department is supplied with high grade instruments and appliances necessary for first class instruction and practice. The
laboratories are well equipped, the drafting room large and modern, the scientific library excellent.

The Civil Engineering department offers laboratory work in Testing Materials, Concrete, Soil Mechanics and Fluid Mechanics, as well as field work in surveying.

In the testing of materials, laboratory equipment is available which enables the student to perform a wide variety of standard ASTM tests. This laboratory has screw gear universal testing machines, hydraulic testing units, a pendulum type torsion machine, a universal impact tester, a high speed rotary fatigue testing machine, hardness testers, and other equipment including extensometers, compresometers and SR-4 strain gages.

The concrete laboratory provides for the conducting of many of the tests, standardized by ASTM and AASHO, for concrete materials, cement and mortars. A high and low temperature humidity chamber, a sieve shaker with standard sieves, a motor driven concrete mixer, concrete beam and cylinder testing machines, and a flow table together with the usual small pieces of equipment are located in this laboratory.

The soil mechanics laboratory has a portable unconfined compression machine, drying oven, water bath, soil dispersion apparatus, C.B.R. apparatus, sampling equipment, permeameter and compaction outfit.

In the fluid mechanics laboratory, water under constant head is supplied from a standpipe to weirs, venterri meters, orifices, displacement meters, a friction board, a flume and other equipment. Pumps of various designs are available for use on a pump test stand.

A great number of varied field exercises in surveying is provided by numerous transits, levels, plane tables, alidades, theodolites and the smaller equipment necessary for such work.

The senior design room has a Friden electric calculator and several models of trusses.

The aim of this Department is to give the student a well rounded Engineering training and to instill within the student the idea of knowing how, knowing why, and doing the best engineering job possible for his client for the least amount of money, always abiding by the code of ethics of the Professional Engineer.

See page 108 for the program of the Freshman and Sophomore years.
College of Engineering

JUNIOR YEAR

<table>
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<th>Course</th>
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<td>Geology and Highways (C.E. 321, 323)</td>
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<td>Fluid Mechanics (C.E. 322)</td>
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SENIOR YEAR

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ELECTRICAL ENGINEERING

Associate Professor Davis; Assistant Professor Klingenberg

The courses offered in Electrical Engineering require a thorough study of theoretical and applied electricity. The first half of the course of study consists of basic Engineering subjects. In the second half of the course an intensive study is made of direct current circuits and machinery, alternating current circuits and machinery, electrical power transmission, electrical machine design, electrical measurements, illumination, electronics, and communication circuits. Carefully chosen laboratory experiments supplement class instruction in theory.

The curriculum stresses fundamentals rather than specialized skills. Ample opportunity is provided by campus activities and general courses for the engineer to develop his cultural as well as his technical training.
College of Engineering

The Electric Power Laboratory equipment includes direct current and alternating current motor-generator sets, compound and series direct current motors, rotary converters, squirrel-cage and wound-rotor induction motors, and transformers. A modern Electronics Laboratory with complete A.M., F.M. and T.V. equipment affords opportunity for those students interested in these fields. All necessary auxiliary equipment and instruments for thorough laboratory instruction are available to students.

See page 108 for the program of the Freshman and Sophomore years.

### JUNIOR YEAR

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### SENIOR YEAR

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<td>Communication Circuits (E.E. 441, 442)</td>
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<td>Radio Fundamentals and Television Fundamentals</td>
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College of Engineering
MECHANICAL ENGINEERING
Professor Jacklin; Mr. Jennings

In all Civil and Military activities, the Mechanical Engineer is called upon to originate and apply new and useful equipment to human needs. The curriculum in Mechanical Engineering presents basic studies in machine design and the uses of heat that prepare the young engineer to enter a myriad of activities.

The policy of this Department is to stress the fundamental theories and methods in the use of materials, heat, and power. Basic courses in the Mechanic Arts, Mathematics and Science are followed; on the one hand, by courses in mechanics of materials (Statics and Dynamics) and machine design; and, on the other hand, by courses in thermodynamics, heat power, heating, ventilation, refrigeration, steam and gas turbines, and internal combustion engines, together with laboratory courses wherein the principles are demonstrated.

The laboratories are well equipped to supplement the classroom instruction in the fundamentals involving the uses of heat and power and to provide instruction in the proper procedures and techniques in instrumentation, the development of test and research projects, as well as the development of accurate technical reporting.

The Steam Power Laboratory has a steam boiler, water pump, engine, two turbines and a refrigeration machine with other necessary accessories for tests of each major unit.

The Engine Laboratory contains a Sprague 150 horsepower laboratory type electric dynamometer with two automotive type engines in position for tests. A smaller dynamometer for use with two single cylinder test engines is nearby. In addition, there are two small Diesel-generator sets and a 150 horsepower three cylinder opposed piston Diesel engine with AC and DC generators available for testing and research work.

The Heating and Ventilating Laboratory contains four systems for domestic heating along with the accessories needed in testing. A small refrigeration unit is also installed in this laboratory.

In the Air-Flow Laboratory, the following are installed: a fan, fan duct (with wind-tunnel section), a two-stage air compressor, miscellaneous apparatus for calibrating instruments, and a fuel and lubricant test cabinet.
In the Fluid Mechanics laboratory, a dynamometer driven centrifugal pump has been installed for service uses and for testing. See page 108 for program of the Freshman and Sophomore years.

### JUNIOR YEAR

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DESCRIPTION OF COURSES

GENERAL ENGINEERING

111. Drawing I. (1+6) 3 hours
Use of instruments, applied geometry, lettering, orthographic projection, and pictorial drawing. (Formerly M.E. 111).

112. Drawing II. (1+6) 3 hours
Continuation of Engineering 111. Developments, intersections, and working drawings. Projects in the main fields of engineering are used. (Formerly M.E. 112).

113. Descriptive Geometry. (1+6) 3 hours
Descriptive geometry, advanced orthographic projections, problems of point, line, plane, and curved surfaces. (Formerly M.E. 113).

201. Problems and Orientation I. (2+0) 1 hour
Technique and manipulation of slide rule. Series of lectures by Engineering Faculty about engineering problems in their particular fields of interest. (Formerly M.E. 201).

202. Problems and Orientation II. (2+0) 1 hour
Logical development of problem work and clarity in presenting work. Accuracy and significant figures, graph and chart use. Continuation of Engineering Staff Lectures from Engineering 201. (Formerly M.E. 202).

211. Pattern Making and Foundry. (0+3) 1 hour
Basic foundry processes; making a pattern, making a mold, pouring a casting, cleaning, and finishing. (Formerly M.E. 101).

212. Sheet Metal and Welding. (0+3) 1 hour
Sheet metal fabrication and welding as applied to welded fixtures, etc. (Formerly M.E. 102).

213. Machine Shop. (0+3) 1 hour
Machining operations and practice, a complete project involving drilling, shaping, turning, milling, and finishing. (Formerly M.E. 103).
Civil Engineering

211. Surveying I. (3+6) 5 hours
Prerequisite: Trigonometry 122, Engr. 113.

213. Surveying II. (3+6) 5 hours
Land surveys, advanced topographic surveys with transit, stadia and plane table, control surveys. Use of co-ordinate systems. Triangulation and precise leveling; descriptions of aerial survey methods. Hydrographic surveying.
Prerequisite: C.E. 211.

311. Statics. (5+0) 5 hours
A course covering the principles of mechanics as applied to statics. The course includes definitions and general principles, systems of coplanar concurrent forces, coplanar parallel forces, coplanar non-concurrent forces, concurrent forces in space, parallel forces in space, non-concurrent non-parallel forces in space, friction, centroids and centers of gravity, and moments of inertia of areas.
Prerequisites: Calculus 203 and Physics 241.

312. Mechanics of Materials I. (5+0) 5 hours
General principles of stresses, elastic limit, shear, riveted joints, torsion, beams, stresses in beams, deflection in beams by Double Integral and Area-Moment methods.
Prerequisite: Calculus 203 and C.E. 311.

313. Mechanics of Materials II. (5+0) 5 hours
Beams with more than two supports, shear in beams, special beams, bending combined with tension or compression, column theory, column formulas used by engineers, resilience in bending or shear, combined stresses, theory of elastic limit or failure, curved beams and hooks.
Prerequisite: C.E. 312.

321. Geology. (3+0) 3 hours
The important rock making minerals. Rocks and their relation to engineering work. Rock weathering and soils. Landslides, land subsidence and their effects. Origin and relation of surface and
underground water to engineering work. Geology of dams and reservoirs. Road foundations and road materials.

Prerequisite: General Chemistry.

322. Fluid Mechanics. (4+3) 5 hours
Mechanics of compressible and incompressible liquids, fluid statics, flow and measurement of fluids in pipes and open channels, and hydraulic machines.

Prerequisite: Physics 243, Calculus 203 and C.E. 311.

323. Highway Engineering. (3+0) 3 hours
Design, construction and maintenance of earth roads, paved roads, and streets. Administration and organization of highway systems. Introduction to Traffic Engineering.

Prerequisite: C.E. 213 and C.E. 321.

332. Testing Materials. (1+6) 3 hours
Testing cement mortars and concrete aggregates, construction and test of concrete and wooden specimens, tension tests of various metals, slender column tests, study of beam deflections under different types of loading.

Prerequisite: C.E. 312 or concurrently therewith.

333. Route Surveying. (3+6) 5 hours
Highway and railroad location, simple curves, compound and reverse curves, spiral curves, vertical curves, earthwork measurement and computations.

Prerequisite: C.E. 213.

411. Theory of Structures I. (3+0) 3 hours
An introductory course covering by analytical and graphical methods the determination of reactions, moment, shears and stresses in simple trussed structures for fixed and moving loads. Introduction to influence lines.

Prerequisite: C.E. 313.

411a. Structural Design I. (0+6) 2 hours
An introductory course covering by graphical methods the determination of reactions, moments, shears and stresses in simple trussed structures. Design steel roof truss and make drawings of same. (Formerly a part of C.E. 411).

Prerequisite: C.E. 313.

412. Theory of Structures II. (3+0) 3 hours
An extension of C.E. 411. Covering the theory of uniform moving
loads and determining the stresses in highway bridges. Covering analytical methods of determining stresses due to fixed and moving loads in simple span railway bridge trusses of the larger type, use of influence lines.

**Prerequisite:** C.E. 411.

**412a. Structural Design II. (0+6) 2 hours**
A continuation or extension of C.E. 411a covering the determination of stresses due to fixed and moving loads on a plate girder railway bridge with design and drawings of the same. *(Formerly a part of C.E. 412).*

**Prerequisite:** C.E. 411 and 411a.

**413. Theory of Structures III. (3+0) 3 hours**
Design of a railway truss span. Statically indeterminate structures.

**Prerequisite:** C.E. 412.

**413a. Structural Design III. (0+9) 3 hours**
A continuation of C.E. 412a including statically indeterminate structures. *(Formerly a part of C.E. 413).*

**Prerequisite:** C.E. 412 and 412a.

**420*. Theory of Structures IV. (3+0) 3 hours**
A general course dealing with movable and long span bridges. Covering bascule, vertical-lift, swing bridges; also continuous, cantilever and suspension bridges.

**Prerequisite:** C.E. 413.

**421. Reinforced Concrete I. (3+0) 3 hours**
Theory of design of concrete beams, girders, slabs, columns and footings.

**Prerequisite:** C.E. 313.

**422. Reinforced Concrete II. (2+0) 2 hours**
Design of buildings and continuation of C.E. 421.

**Prerequisite:** C.E. 421.

**422a. Reinforced Concrete Design I. (0+6) 2 hours**
Design of Concrete Structures. *(Formerly a part of C.E. 422).*

**Prerequisite:** C.E. 421.

**423. Reinforced Concrete III. (2+0) 2 hours**
Design of retaining walls and tanks and continuation of C.E. 422.

**Prerequisite:** C.E. 422.
College of Engineering

423a. Reinforced Concrete Design II. (0+3) 1 hour
Continuation of C.E. 422a with further designs in concrete. (Formerly a part of C.E. 423).
Prerequisite: C.E. 422 and 422a.

431. Sanitary Engineering. (5+0) 5 hours
General course on sewerage systems, disposal of sewage, requisites of a water supply, quality of water, studies of rainfall and runoff, water treatment and inspection trip.
Prerequisite: C.E. 322.

432. Soil Mechanics. (4+3) 5 hours
An introduction to soil engineering, physical properties of soils as affecting engineering design and construction, soil sampling, mechanics of soil masses, stability, settlement, and types of foundations.
Prerequisite: C.E. 313 and C.E. 321.

450*. Projects 1—5 hours
Practical projects involving calculation, design, drafting, engineering judgment and skill in construction or repair work. Reference work is used to a great extent.
* Taught upon sufficient demand.

Electrical Engineering

203. Direct Current Circuits. (4+3) 5 hours
A study of the fundamental laws of electricity and magnetism and their application in direct current circuits. Topics studied include: resistance, Ohm's and Kirchoff's laws, primary and secondary batteries, electrical instruments and measurements, magnetism, electromagnetism, magnetic circuit, inductance and capacitance.
Prerequisite: Physics 242.

213. Direct Current Machines and Circuits. (4+3) 5 hours
Introductory course for all non-Electrical Engineering students. The electric and magnetic circuit, D.C. generators, motors, control systems, and distribution. Illumination will be treated.
Prerequisite: Physics 242.

301. Alternating Current Machines and Circuits. (3+3) 4 hours
A comprehensive course for non-Electrical Engineering students in the generation, transmission, distribution, and use of alternating
current power. The theory and characteristics of alternating current circuits and machines are studied.

Prerequisite: E.E. 213.

311. Alternating Current Circuits I. (4+3) 5 hours
A fundamental course in alternating current theory. Vector representation, the calculation of impedance in series and parallel circuits, and network theorems are studied.

Prerequisite: E.E. 203.

312. Alternating Current Circuits II. (3+3) 4 hours
A continuation of Alternating Current Circuits I. The analysis and applications of polyphase circuits, symmetrical components and non-sinusoidal voltages and currents are studied.

Prerequisite: E.E. 311.

313. Alternating Current Machines I. (4+3) 5 hours
The theory and characteristics of transformers; induction motors, synchronous motors, converters, and alternators are studied.

Prerequisite: E.E. 312.

322. Direct Current Machines. (3+3) 4 hours
This is a thorough course in the theory, characteristics, applications and control of direct current machinery.

Prerequisite: E.E. 203.

323. Electronics I. (4+3) 5 hours
This is a course in the theory of electron flow in vacuum tubes. Electron ballistics, the diode, the triode, the pentode, small-signal amplifier circuits, and feedback are studied.

Prerequisite: E.E. 311.

402. Basic Electrical Measurements. (2+3) 3 hours
The theory, operation, and application of standard electrical measuring instruments are thoroughly studied. Actual operation of many types of bridge circuits, instrument transformers, wattmeters, integrating watt-hour meters, and magnetic measuring devices with corresponding calculations is required.

Prerequisites: E.E. 203 and E.E. 311.

411. Electronics II. (4+3) 5 hours
A continuation of Electronics I. The topics studied include large signal audio-frequency and radio frequency amplifiers, oscillators, wave-shaping circuits, and gas-filled tubes and circuits.

Prerequisite: E.E. 323.
421. Alternating Current Machines II. (3+3) 4 hours
A continuation of Alternating Current Machines I, designed to give the student a thorough understanding of the equivalent circuit method of analyzing machines.
Prerequisite: E.E. 313.

422. Electrical Design I. (3+0) 3 hours
The study of procedure in design of Direct Current apparatus. Students are required to carry through the step by step design of either a direct current motor or generator.
Prerequisite: E.E. 322.

423. Electrical Design II. (1+3) 2 hours
A continuation of E.E. 422 with emphasis on design of alternating current apparatus. The step by step design of an induction motor, transformer or alternator is required.
Prerequisite: E.E. 422.

431. Transient Circuits. (5+0) 5 hours
Prerequisites: E.E. 312 and Math. 321.

433. Illumination. (3+0) 3 hours
Theory and modern applications of lighting.
Prerequisites: E.E. 203 or E.E. 213.

441. Communication Circuits I. (4+0) 4 hours
This is a course in the theory and calculation of circuits and apparatus performance at communication frequencies. Topics covered include resonance, infinite line, reflection, filters, and coupled circuits.
Prerequisite: E.E. 312.

442. Communication Circuits II. (3+3) 4 hours
A continuation of E.E. 441. The following topics are studied: Impedance transformation, equalizers, bridge circuits, inductive coordination, radiation, and electromechanical coupling.
Prerequisite: E.E. 441.

450*. Projects 1–5 hours
Practical projects involving calculation, engineering judgment and skill in construction or repair work. These projects may vary
from armature winding and motor repairing to the design and construction of laboratory apparatus. This course involves research work. Individual assignments are used for each student.

452. Radio Fundamentals. (4+3) 5 hours
Fundamentals of circuits and phenomena in radio communication apparatus. Audio and radio-frequency amplification, transmitting and receiving circuits.
Prerequisite: E.E. 411.

453. Television Fundamentals. (4+3) 5 hours
A survey of the entire field of television including transmission and reception of both black and white and color signal. Analysis of, and design procedures in TV receivers.
Prerequisite: E.E. 452.

462 & 463*. Advanced Electrical Laboratory I and II 3 hours
Senior year. Special laboratory problems and investigations are intricate and more advanced than those included in regular courses. Minor research projects may be undertaken. Hours to be arranged to suit balance of schedule.

472. Servomechanisms. (3+0) 3 hours
This is a course in servomechanism analysis. Topics studied include equations of physical systems, transient analysis of servomechanism performance from equations and transfer-function plots.
Prerequisite: E.E. 431.

Mechanical Engineering

311. Heat I. (5+0) 5 hours
A study of the effect of heat upon gases and vapors in processes used in heat engines and other machinery.
Prerequisites: Physics 243 and Calculus 203.

312. Heat II. (3+0) 3 hours
A study of the heat factors affecting the flow of gases and vapors; and the transmission of heat through various media.
Prerequisite: M.E. 311.

313. Turbines. (4+0) 4 hours
Basic thermodynamics of nozzles and steam and gas turbines, nozzle and blade design, impulse and reaction turbines, economics of steam turbine selection and operation. (Formerly M.E. 312).
Prerequisite: M.E. 312.
322. DYNAMICS. (5+0)  
Friction, rectilinear and rotary motion, kinetics of bodies under uniform and variable rectilinear acceleration, uniform and non-uniform rotation of bodies, work, power, momentum, impulse, impact.  
*Prerequisite: C.E. 311.*

323. MECHANISM. (5+0)  
Mechanism, motion and velocity, kinematic chains, instantaneous centers, velocity diagrams, parallel and straight line motion, cams, gearing, bevel gears, gear trains, belting and intermittent motions.  
*Prerequisite: M.E. 322.*

331. MECHANICAL LABORATORY I. (0+3)  
Calibration and uses of indicating and recording instruments, heating value of fuel, flue or exhaust gas analysis, test of lubricating oils.

333. MECHANICAL LABORATORY II. (0+3)  
Valve setting and timing of steam and gasoline engines, test of steam pump, etc.

343. MANUFACTURING PROCESSES. (3+0)  
The processes and allied equipment used in casting, heat treatment, welding, hot and cold forming, powder metallurgy and plastic molding.  
*Prerequisite: General Chemistry.*

411. MACHINE DESIGN I. (3+3)  
Problems involving the proportioning of machine components such as fasteners, pressure vessels, shafts, belting, chain, gears, etc., considering stress and fatigue.  
*Prerequisite: M.E. 323.*

412. MACHINE DESIGN II. (3+3)  
A continuation of M.E. 411 with the addition of a personal project for each student probably involving board work.  
*Prerequisite: M.E. 411.*

413. MACHINE DESIGN III. (3+6)  
Complete design and layout of a machine.  
*Prerequisite: M.E. 412.*

421. INTERNAL COMBUSTION ENGINES. (4+0)  
Liberation of heat energy, combustion, Dual, Otto and Diesel
cycles, gas, gasoline, oil engines, engine output and economy, heat losses, carburetion, ignition, injection, and performance.

Prerequisite: M.E. 312.

422. Automotive Engineering. (3+0) 3 hours
A study of vehicles of transportation using internal combustion engines, power and brake requirements, loading, balance, etc. (Formerly M.E. 423).

423. Metallurgy. (3+0) 3 hours
A study of metallurgical principles applied to heat treatment, in weldments and in pressure forming of metals and plastics. (Formerly M.E. 433).
Prerequisite: General Chemistry and Physics.

431. Mechanical Laboratory III. (0+3) 1 hour
432. Mechanical Laboratory IV. (0+3) 1 hour
433. Mechanical Laboratory V. (0+6) 2 hours
Laboratory periods of 3 hours each applied to tests of blowers, pumps, engines (steam, gasoline, diesel), steam turbines, heating and refrigeration units, steam power plant, air compressor, and related equipment.

441. Heat Power. (3+0) 3 hours
A study of the combustion of fuel, steam generating machinery, boilers, stokers, steam engines, condensers, superheaters, etc.; and the economics of power plant operation. (Formerly M.E. 313).
Prerequisite: M.E. 313.

442. Heating, Ventilating and Refrigeration. (5+0) 5 hours
A study of heat transmission in building materials, methods of heating and cooling, units and accessories.
Prerequisite: M.E. 312.

450. Projects 1–5 hours
Practical studies or investigations involving the application of original thought, the determination of new information, or new applications of known information or equipment.
Colleges of Pharmacy
Albert C. Smith, Dean

AIMS AND OBJECTIVES

In keeping with the avowed purpose of Ohio Northern University the College of Pharmacy aims to prepare men and women to meet not only the legal requirements of the profession but also the increasing public demand for educated and trained pharmacists.

Through organized courses of study, instruction is given in the sciences pertaining to the selection, standardization, preservation, and dispensing of drugs, medicines, and chemicals used in the promotion of personal and public health.

The student is trained to aid the medical practitioner, public health agencies in the prevention and control of infectious diseases; to win and build-up public confidence and respect for the profession.

Courses of study in Business, Accounting, federal, state, and local laws pertaining to Pharmacy and Public Health are required. Many electives in Pharmacy and in other colleges of the University, approved by the Dean, may be selected to further aid the individual in the particular field of interest. Students interested in graduate study should elect, if possible, German or French.

REQUIREMENTS FOR ADMISSION TO PRE-PHARMACY

1. The applicant entering pre-Pharmacy should be at least seventeen years of age and of good moral character.

2. The applicant must supply evidence of the satisfactory completion of four years of high school work. Established credit is based on fifteen units.

3. Of the fifteen units prescribed for all applicants, three units should be in English and one each in Algebra, Plane Geometry, and Science. Three additional units must be chosen from English, languages other than English, Mathematics, Science, History and Social Sciences. Preference will be given to students submitting more than one unit of Science.

4. See note 1, under requirements for admission to the Pharmacy College concerning the Certificate of Preliminary Education.

5. Applicants applying for admission into pre-Pharmacy, who do not already have apprenticeship papers, should ask for the
necessary blanks for registration as an apprenticeship. These blanks may be obtained from the Director of Admissions, the Dean of the College of Pharmacy, and the Secretary of the Ohio Board of Pharmacy. Registration as an apprentice, at once, will assure each applicant full recognition for all time spent in a drug store, under the supervision of a registered pharmacist, when not enrolled in the College of Pharmacy. (See requirements for examination to become a Registered Pharmacist).

REQUIREMENTS FOR ADMISSION TO THE COLLEGE OF PHARMACY

1. Certificate of Preliminary Education. A Certificate of Preliminary Education, issued by the Entrance Examiner of the Ohio Board of Pharmacy, should be obtained. (It would be advantageous to all students entering pre-Pharmacy to obtain this Certificate at once.) Blanks for this purpose may be obtained from the Director of Admissions. This permit must be obtained before a permit to enter the College of Pharmacy will be issued.

2. The applicant must have one year of pre-Pharmacy from a recognized institution of higher learning. Prior recognition will be given those individuals receiving their pre-Pharmacy training at Ohio Northern University. The applicant must have completed at least forty-five quarter hours (thirty semester hours), exclusive of Physical Education, of which not less than thirty quarter (twenty semester hours) are of the required courses prescribed in the pre-Pharmacy curriculum and the remainder in acceptable electives or required courses prescribed in the regular Pharmacy curriculum. The applicant must also maintain a scholarship rating of 2 (C average) and be in good standing to become a candidate for the Sophomore Class. Students failing to maintain this rating may continue in pre-Pharmacy (subject to the academic rules and regulations of the College of Liberal Arts) until he can present the above requirements.

3. ADVANCED STANDING. A student desiring to transfer from another college must present a transcript of his record and a certificate of honorable dismissal from the college he is leaving. He should submit a catalogue of his college. Full credit will be given for work satisfactorily completed in recognized institutions of higher learning, provided such work is parallel to the requirements for graduation in this institution, but ordinarily credit will
College of Pharmacy

not be allowed for a course in which the lowest passing grade was received.

Advanced credit is given for not more than 135 quarter hours (ninety semester hours) exclusive of Physical Education.

Persons who meet the requirements for admission as indicated in the preceding paragraphs are issued a Permit to Enter the College of Pharmacy. To enter any of the regular courses of study the candidate, after being granted a Permit to Enter, must prepare a schedule of studies with the aid of an adviser and approval of the Dean, and pay tuition and fees as stated elsewhere in this catalog.

Students who are entitled to advanced standing may enter at the time approved by the Dean. Write for further information.

4. Classification of Students. The minimum requirements for Sophomore standing are forty-five credit hours and a point average of 2; for Junior standing, 100 credit hours and a point average of not less than 2.0; for Senior standing, 150 credit hours and a point average of not less than 2.0. See scholarship and probation rating below.

5. Scholarship Rating and Probation. To remain in good standing a student must maintain a 2.0 (C) average. If the accumulative point average of the student falls below 2.0, he is then placed on warning and allowed to carry a full schedule. If the student fails to bring his accumulative average up to 2.0, he will be placed on warning with a reduced schedule. Failure to improve his standing while on a reduced schedule will result in the student's being placed on probation with a reduced schedule. After one quarter on probation with a reduced schedule, the student who fails to improve his standing will be dismissed from the College of Pharmacy for one year. Upon resumption of his studies he will be placed on probation for two terms. If at the end of two terms the point average has not been raised to 2.0, the student will be dismissed from the College of Pharmacy.

To calculate the accumulative point average a three credit hour course with a grade of A gives twelve quality points. A five credit hour course with a grade of B, gives fifteen quality points, etc.

Requirements for Graduation

Every person upon whom a degree is conferred must be of good moral character and have satisfactorily completed all the prescribed
College of Pharmacy

work. He must spend at least four full years or twelve terms in college of which not less than three full years or nine quarters must be in the College of Pharmacy and one full year or three quarters in pre-Pharmacy, and must be in residence the last year in Ohio Northern University, College of Pharmacy. Two hundred and ten hours, including six quarters of physical education, are required as well as the same number of quality points as scheduled hours. The candidate must be present at the Commencement Exercises unless officially excused.

REQUIREMENTS FOR OHIO EXAMINATIONS FOR REGISTERED PHARMACIST

To be eligible for admission to the Ohio Examination for Registered Pharmacist, the candidate must be a graduate of a recognized College of Pharmacy, and must have at least one year of drug store experience under the direction of a Registered Pharmacist after registration with the State Board of Pharmacy as an apprentice. He must be a citizen of the United States of America or possess his first papers toward citizenship, and be at least twenty-one years of age. Citizenship is not prerequisite to admission to a College of Pharmacy.

LIBRARY

The facilities of the main library are at the disposal of the Pharmacy students. In this building will be found many of the current books and classics along with books, periodicals and journals in Physics, Biology and related sciences. All books pertaining to Pharmacy, Medicine and related sciences are in the main library as well as bound periodicals on Pharmacy and related sciences. Current issues of journals in Pharmacy and related sciences are found in the Pharmacy reading room.

THE CURRICULUM

Many courses are required to obtain satisfactory background in any field of endeavor and Pharmacy is no exception. The curriculum thus is made flexible enough to allow preparation in specialized activities in the profession. All subjects are listed in a logical sequence so that the student will be better prepared for each ensuing course.

Not less than 210 credit hours are required for graduation, excluding Physical Education.
## College of Pharmacy

### RECOMMENDED FIRST YEAR COURSE IN PRE-PHARMACY*

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*The pre-Pharmacy curriculum is offered in the College of Liberal Arts.

** Students making a mark of less than 75 on the entrance examination in Arithmetic will be required to take Mathematics 110.

## THE PHARMACY CURRICULUM

### SOPHOMORE YEAR

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### JUNIOR YEAR

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<td>Business Law 313*</td>
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* See Department of Economics, College of Liberal Arts for course description.
College of Pharmacy

**SENIOR YEAR**

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**THIRD TERM**

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*Students planning on entering graduate school should elect a modern language. Electives: Any course in the Liberal Arts may be selected upon approval by the Dean of the College of Pharmacy. Additional electives may be selected from the following:

### Advanced Electives

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<tr>
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<td>Pharmacology 432</td>
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<td>Pharmacology 431</td>
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All 450 courses are "Problem Courses" and are given in all five divisions of Pharmacy. These courses are open to Seniors only and a total of 3 hours may be taken a term. All courses ending in "0" are generally taught each quarter, provided a sufficient number of students require the course.

### DESCRIPTION OF COURSES

For detailed description of the basic pre-professional courses such as Freshman English, Biology, Chemistry, Mathematics, etc. cetera, see these Departments as listed elsewhere in this catalogue.

### BACTERIOLOGY

**322. General Bacteriology. 3 + 3**  
(Formerly Bacteriology 222).

A general course in the fundamentals of bacteriology. The history of bacteriology, method of classification, characteristics of bacteria and related groups are studied. Attention is given to physical and classical means of control, and to the culturing and growth of microorganisms. The bacteriology of food, water, milk and sewage is studied.

**Prerequisites:** Biology and General Chemistry.  

**Dr. Beck**

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College of Pharmacy

323. PATHOGENIC MICRO-ORGANISMS. 3 + 3
(Formerly Bacteriology 223).
A study is made of the pathogenic bacteria and the common parasites of man and domestic animals. Control measures, asepsis, and other means of combating such infections are studied. Discussions concerning the viruses, vaccines, toxoids, toxins, antitoxins and modern biological drugs are made.
Prerequisite: Bacteriology 322.

Dr. Beck

BIOLOGY

All students who are candidates for graduation from the College of Pharmacy are required to complete at least one year of Biology or its equivalent.
A description of these Courses is listed elsewhere in this catalog.

CHEMISTRY

All students who are candidates for graduation from the College of Pharmacy will be required to complete Chemistry 111, 112, 113, 211, 212 and 213 or the equivalents. Additional courses in Chemistry may be elected upon approval of the Dean.
A description of the courses taught in the Chemistry Department is listed elsewhere in this catalog.

ENGLISH

The pharmacist must use both oral and written English. In order to communicate clearly and adequately with the wholesaler, manufacturer, medical practitioner, layman, state boards, the government, and to prepare papers for clubs, articles for magazines and local newspapers, or advertising, the ability to speak and write English is essential.

English C-1, C-2, and C-3 or their equivalent are required of all Pharmacy students. Public Speaking, English Grammar and Business Communications may be elected. A description of these Courses will be found elsewhere in this catalog.

HEALTH AND PHYSICAL EDUCATION

Some form of physical activity is required of all students during the first two years of residence in the University. The nature of the work will depend upon the needs of the individual as revealed by a careful examination.
College of Pharmacy

The pharmacist should learn the fundamentals of personal and general hygiene that he may be able to maintain a high degree of efficiency during and after college life and to assist in the promotion of public health as outlined by the United States Public Health Service.

Courses 110, 121, and 212 in Health and Physical Education may be used as electives on approval of the Dean. A complete description of these Courses will be found under Courses of Health in another part of this catalog.

MATHEMATICS

Mathematics is of the utmost importance to a pharmacist; inaccuracies in computations have led to serious results. All Pharmacy students are required to take Mathematics 111, 112, and 113 or their equivalents and a specially designed course in Pharmacy Arithmetic described as Pharmacy 220.

Students desiring to pursue a major in Chemistry should take additional courses in Mathematics, subject to approval by the Dean. A description of the required courses and other suitable electives in this field will be found elsewhere in this catalog.

MODERN FOREIGN LANGUAGES

Many texts and periodicals on Pharmacy and the allied sciences are published in a foreign language. In order to meet the demand of students who desire a knowledge of a foreign language for reading, conversational, or business purposes, appropriate courses are offered. If a student expects to do graduate work, he should have a reading knowledge of at least two foreign languages, French and German.

PHARMACEUTICAL CHEMISTRY

321. Drug Assay 1. 3 + 6  
(Formerly Pharmaceutical Chemistry 201).

A course involving the theories and methods utilized in gravimetric assay procedures of inorganic chemicals of the U.S.P. and N.F., and some of the more common procedures using organic precipitants. The latter part of the quarter introduces volumetric theories.

Prerequisites: Chemistry 111, 112, 113.  
Dr. Smith

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322. **Drug Assay 2. 3 + 6**  
*(Formerly Pharmaceutical Chemistry 202).*

A continuation of the theories and methods involved in volumetric procedures. The latter part of the quarter is devoted to physical methods employed in determining the purity of substances by refractometric, alcoholometric, colorimetric and polarimetric means. Laboratory exercises are used to emphasize these determinations.  
**Prerequisites:** Chemistry 111, 112, 113.  
**Dr. Smith**

323. **Drug Assay 3. 3 + 6**  
*(Formerly Pharmaceutical Chemistry 203).*

A continuation of both physical and chemical constants carried out on organic material of the U.S.P. and N.F. A study of the proximate assays of official drugs and preparations being emphasized. Laboratory procedures to correlate the above discussions are made.  
**Prerequisites:** Chemistry 211, 212, and Pharmaceutical Chemistry 321 and 322.  
**Dr. Smith**

431. **Inorganic Chemicals. 4 + 0**  
*(Formerly Pharmaceutical Chemistry 251).*

A study of the preparation, reactions, solubility, test for purity and identity of the inorganic chemicals of the U.S.P. and N.F. A brief discussion of the more important non-official chemicals is made, incompatibilities, action and uses given.  
**Prerequisites:** Chemistry 113, Pharmaceutical Chemistry 321 and 322.  
**Dr. Smith**

432. **Inorganic and Organic Chemicals. 4 + 0**  
*(Formerly Pharmaceutical Chemistry 252).*

The inorganic chemical study is completed, then the study of the U.S.P. and N.F. alkaloids and alkaloidal salts is made. Trade names are listed for any preparation or substance found in this group.  
**Prerequisites:** Chemistry 113, 213, and Pharmaceutical Chemistry 322.  
**Dr. Smith**

433. **Organic Chemicals. 4 + 0**  
*(Formerly Pharmaceutical Chemistry 253).*

A study of the non-alkaloidal organic chemicals, vitamins, hormones, antibiotics, fixed and volatile oils is made as to synthesis, preparations, reactions, solubility, identity, action and dose. Trade names are listed and studied.  
**Dr. Smith**
College of Pharmacy

450. Chemistry Problems (el) 1 to 3 hours
(Formerly Pharmaceutical Chemistry 275).
The title and character of the course is dependent upon the problem. This Course is designed to stimulate introductory research work. Open to Seniors only. Dr. Smith

410. Chromatographic Analysis (el) 2 hours
A study of the various types of Chromatographic Analysis.

PHARMACOGNOSY

211. Crude Drugs 1. 3 + 3 4 hours
The study of the gross and microscopical characteristics of official drugs of biological origin and of outstanding non-official drugs. The course deals with the nomenclature, sources, habitat, production, storage, chief constituents, physiological and pharmaceutical properties, and therapeutic applications of crude drugs. Macroscopic examination of each drug, supplemented with histological, microscopical and chemical examinations. A microscopical study of the more important drugs is made. Each student assembles a collection of the drugs studied.

Prerequisites: Biology 111, 112, 113 and General Chemistry 101, 102 or 112, 113. Dr. Koffler

212. Crude Drugs 2. 3 + 3 4 hours
A continuation of Pharmacognosy 211. Dr. Koffler

213. Crude Drugs 3. 3 + 3 4 hours
A continuation of Pharmacognosy 211 and 212; in addition the more important antibiotics, biologicals and insecticides are studied. Dr. Koffler

411. Review of Current Pharmacognosy Literature 2 + 0 (el) 2 hours
A review of recent literature, books, etc. in the field of Pharmacognosy.

412. Economic Biology 2 + 0 or (2 + 3) (el) 2 or 3 hours
Commercial sources of crude drugs and vegetable products especially gums, waxes, vegetable dyes, spices and cereals. The problems of storage, infestation, etc. are studied along with the U.S.D.A. and F.D.A. regulations. Two lectures a week. Laboratory work may be elected giving an additional credit.
413. **ALLERGENIC PLANTS, ALLERGY AND ALLERGENS 2 + 0 or 2 + 3 (el) 2 or 3 hours**

A study of pollens, pollen-bearing plants, food allergies and allergenic molds. Field identification, pollen and mold spores counts as well as types of allergies studied.

420. **INSECTICIDES, FUNGICIDES AND HERBICIDES 2 + 0 (el) 2 hours**

A study of the composition, uses and standards of important synthetic and natural products used as insecticides, Fungicides and weed-killers.

450. **PHARMACOGNOSY PROBLEMS**

(Formerly Pharmacognosy Problems 275)

(el) 1 to 3 hours

A course of special problems along with advanced lines in the field, open to Seniors who have shown ability to carry them to a satisfactory completion. Hours and time of work to be arranged.

**PHARMACOLOGY**

421. **PHARMACOLOGY 1. 4 + 0 4 hours**

(Formerly Pharmacology 201).

Introduction, history, vocabulary and terminology used in pharmacology is discussed. The local anti-infectives, sulfonamides, antibiotics, antimalarials, arsenicals and bismuth compounds are considered. Amebicides, anthelmintics, cathartics and antacids are also considered.

*Prerequisites: Physiology 233 and 331; Chemistry 111, 112, 303; Pharmacognosy 213 and Bacteriology 323.*

**Dr. Levy**

422. **PHARMACOLOGY 2. 4 + 3 5 hours**

(Formerly Pharmacology 202).

A study of the autonomic drugs and blocking agents, antihistamines, and antispasmodics introduces the functional division of pharmacology. The remainder of the quarter is devoted to general anesthetics, local anesthetics, hypnotics, anti-epileptics, antipyretic analgesics, narcotic and addicting analgesics, central nervous system stimulants and their antidotes. Experiments shall be related to the lectures of the first two quarters.

*Prerequisite: Pharmacology 421.*

**Dr. Levy**

423. **PHARMACOLOGY 3. 4 + 3 5 hours**

(Formerly Pharmacology 203).

A study of the drugs acting on the cardiovascular system, diuretics,
College of Pharmacy

I.V. fluids, hematinics, hormones, vitamins, diagnostic aids, and bacteriologicals. Correlation review with special emphasis on toxicology. Laboratory work shall be mainly on the cardiovascular system. Small groups may work on special experiments of their own choosing.

Prerequisite: Pharmacology 402. Dr. Levy

431. Pharmacology (Biologicals) 2 + 0 (el) 2 hours
The Pharmacology of the Hormones, Vitamins and other Biological Products.

433. Pharmacology (Toxicology) 2 + 0 (el) 2 hours
The general Principles of Toxicology. The toxic effects, symptoms and antidotal treatment of the currently used Therapeutic agents.

432. Pharmacology (Chemotherapy) 2 + 0 (el) 2 hours
The relationships between Structure and Biological activity of natural and synthetic drug products. A brief consideration of the chemical agents used in the treatment of infectious diseases.
Must be preceded by Pcol. 421.

450. Pharmacology (el) 1 to 3 hours
(Formerly Pharmacology 275).
A special problems course to stimulate interest in research in this field. Open to Seniors only.
Prerequisite: Pharmacology 402. Dr. Levy

440. Bio-Assays Lecture and Laboratory Arranged (el) 3 hours
(Formerly Biological Assaying 251).
Attention is given to biological assay methods and standardization of the U.S.P. and N.F. drugs that are satisfactorily evaluated by this method.
Prerequisites: Physiology, Pharmacology 422, and Pharmaceutical Chemistry 323. Open to Seniors only. Dr. Levy

PHARMACY

210. Orientation 2 + 3 3 hours
(Formerly Pharmacy [Fundamentals] 101).
This Course is designed to give the student a good foundation for the further study of Pharmacy. The aim is to acquaint the student with the Code of Ethics of the profession, the reference books and literature on Pharmacy and allied sciences, and to discuss the scienc-
College of Pharmacy

tific principles upon which pharmaceutical operations are based. Laboratory will be given only when necessary to illustrate some pharmaceutical operation or procedure as an aid to better acquaint the student with the work.

220. Pharmacy Arithmetic 3 + 0  
(Formerly Pharmaceutical Calculations 104).

A course in calculations pertaining to Pharmacy. The student is taught current weights and measures, applications of proportions, alligation, specific gravity, specific volume, thermometer scales, percentage solution, commercial discounts and elementary chemical problems common to Pharmacy.

301. Pharmaceutical Preparations 1. 3 + 3  
(Formerly Pharmaceutical Preparations 201).

The study of aqueous preparations of the U.S.P. and N.F.  
Prerequisites: Pharmacy 210, 220; Chemistry 111 and 112.  
Dr. Lee

302. Pharmaceutical Preparations 2. 3 + 3  
(Formerly Pharmaceutical Preparations 202).

A study of the preparations containing alcohol, oleaginous and suspended material is made.  
Prerequisite: Pharmacy 301.  
Dr. Lee

303. Pharmaceutical Preparations 3. 3 + 3  
(Formerly Pharmaceutical Preparations 203).

The solid and semi-solid preparations used in medicine are studied; tablets, pills, ointments, etc. In the laboratory the manufacture of this type of preparation is carried out using machinery as well as the simpler hand methods.  
Prerequisite: Pharmacy 302.  
Dr. Lee

401. Prescription Practice 1. 2 + 6  
(Formerly Prescription Practice 251).

The study of the prescription, prescription Latin, powders, pills, tablets and other solid substances used in prescriptions.  
Prerequisites: Pharmacy 303 and Chemistry 213. Mr. Jongeward

402. Prescription Practice 2. 2 + 6  
(Formerly Prescription Practice 252).

A continuation of Pharmacy 401 with special emphasis put on all types of solutions used in prescriptions, ointments and other external preparations.  
Prerequisite: Pharmacy 401.  
Mr. Jongeward
College of Pharmacy

403. Prescription Practice 3. 2 + 6
(Formerly Prescription Practice 253).
A study of the methods of disinfection, sterilization, incompatibilities and other specialized prescription practices.
Prerequisite: Pharmacy 402.
Mr. Jongeward

411. Animal Pharmacy 2 + 0
(el) 2 hours
A study of the medicinal substances used in Veterinary (Sp) Medicine and the relationship of the Pharmacist to the Veterinarian.

412. Advanced Pharmacy 2 + 0
(el) 2 hours
A theoretical study of solvents, solutions, etc. in prescription practice.

413. Cosmetics 3 + 0
(el) 3 hours
The formulation, manufacture, use and place of cosmetics in our daily lives.

440. Advanced Survey 3 + 0
(Formerly Pharmacy 299).
A technical survey of the latest U.S.P. and N.F. prerequisites; the constants in general chemistry, qualitative and quantitative analysis, organic chemistry, pharmacognosy, pharmacology and pharmacy.
Prerequisite: Senior standing.
Dr. Smith

450. Pharmacy Problems
(Formerly Pharmacy 275).
Minor investigations for qualified students. A course designed to interest students in research in Pharmacy. Open to Seniors only.
Mr. Jongeward

PHARMACY ADMINISTRATION

131. Principles of Accounting 3 + 0
(el) 3 hours
(Replaces Pharmaceutical Accounting 131p).
See Department of Economics, College of Liberal Arts for description.
Mrs. Ritz

223. History of Pharmacy 3 + 0
(Formerly History of Pharmacy 105).
A survey of the ancient, medieval and modern practices and ideals of the profession of Pharmacy. This Course is mainly cultural. Lectures and discussions.
College of Pharmacy

311. PHARMACY LAWS 3 + 0  
(Formerly Pharmaceutical Law 254).
A study of the federal, state and local acts, and regulations governing the practice of Pharmacy and the sale of potent and habit forming drugs. Government bulletins and pamphlets are issued to students so that they will become acquainted with said laws.

411. BUSINESS MANAGEMENT 3 + 0  
(Formerly Business Management 264).
A course in drug store business methods. Attention is given to arrangement of fixtures and stock, sources of supplies, distribution to the physician, dentist, veterinarian, the public, hospitals, and to other phases of business essential to successful drug store management.

412. DRUG MARKETING 3 + 0  
A study of the marketing of drugs and drug products from the manufacturer's and wholesaler's standpoint rather than from the retailer's point of view. Mr. Raabe and visiting Instructors.

PHYSICS

It is impossible to comprehend many of the changes which occur in the manufacture of pharmaceutical preparations without having a knowledge of the science of Physics. All Pharmacy students are required to take Physics 211 and 212 or their equivalents and may elect Physics 213. For a complete description of these Courses see the descriptions under "Physics" in another section of this catalog.

PHYSIOLOGY

All students are required to complete at least two terms of Physiology. A description of these courses is listed under Biology elsewhere in this catalog.
College of Law

Claude Wesley Pettit, Dean

AFFILIATIONS

The College holds membership in the League of Ohio Law Schools, and is fully approved by the League.

The College of Law is also provisionally approved, as of September 9, 1948, by the American Bar Association, subject to reinspec-

Fully approved by ABA, August 1955

PURPOSE

In keeping with the avowed purpose of Ohio Northern University it was the aim of our Law College founders, which continued through the ensuing years, to afford an opportunity for students, both men and women, to obtain a collegiate training in Law. The courses are planned primarily to train students for the practice of Law in any jurisdiction in which they may meet the requirements for admission. Such courses may also be pursued advantageously by anyone desiring to acquire a knowledge of the principles and history of law, either as a part of a liberal education, or as part of the foundation of a career in government or in business.

Courses are offered in all subjects included in the Ohio Bar Examination, and various electives may be pursued in the course of study.

Tuition rates are reasonable and by reason of the location of the school in a small community, the living costs are comparatively low.

Among the advantages offered by Ohio Northern's Law College are small classes, opportunity for frequent class participation, individual contact with instructors both in and out of the classroom, and a small community environment conducive to good study habits.

In training students for the practice of Law, the College of Law has four chief objectives:

1. To inculcate the principles of legal ethics and of the lawyer's public responsibility, so that the student, as a lawyer, may be worthy to take his place as a trusted leader and counselor in his community.

2. To inculcate a systematic and complete grounding in the history and fundamental principles of the common law and stat-

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College of Law

3. To develop proficiency in the application of the principles of law to the complicated relations, rights and duties arising in modern society through the training of the powers of analysis, discernment and judgment.

4. To show the place, importance, and aims of the law in society.

SCHOLARSHIPS AND STUDENT AID

Scholarships, grants-in-aid, loans and some prizes for worthy students are available to all law students. For a more detailed statement, refer to page 20 of this catalogue.

BEGINNING LAW STUDENTS

Law students who are commencing the study of Law start at the beginning of the Fall Quarter. Only rarely will beginning students be admitted to the Winter and Spring Quarters.

The right is reserved to make such changes in the curriculum and the order in which courses are given as may be necessary.

The curriculum herein presented for beginning students for the first three quarters in residence, is established for those who enter in the Fall Quarter, and the indicated sequence of courses will be followed for all other students, so far as possible.

LAW SCHOOL ORGANIZATIONS

All students, upon admission to the Law School, become members of the Junior Bar Association, an organization, which undertakes student activities of general interest and importance to the Law School and its program. Quarterly dues are seventy-five cents. The organization has full membership in the American Law Student Association, affiliated with the American Bar Association.

Delta Theta Phi and Sigma Delta Kappa, national Law School fraternities, are represented by chapters in the Law School.

Two other organizations, membership in which is highly prized by Law students, are the Toastmasters Club and Les Avocats. Their purpose is to develop the skills necessary for effective public speaking.
College of Law

SCHOOLS REPRESENTED

An ever increasing proportion of our Law students have secured their pre-Legal education at colleges and universities other than Ohio Northern University. Many of these are coming with the Bachelor's degree or its equivalent. Among the colleges and universities contributing to the pre-Legal education of our students in the past are the following: Ashland College, Baldwin-Wallace, Bowling Green, Colgate, Defiance, Denison University, Depauw, Duquesne University, De Sales College, Fenn College, Geneva, Harvard, Heidelberg, Hillsdale, Hiram, John Carroll University, Kenyon, Kent State, Marshall College, Miami, Missouri, Mt. Union, Muskingum College, Northwestern, Ohio University, Ohio State University, Ohio Wesleyan University, Pittsburgh, Purdue, Rio Grande, Swarthmore, Toledo University, University of Cincinnati, University of Dayton, University of Kentucky, University of Michigan, Michigan State College, University of Southern California, University of Virginia, University of West Virginia, University of Wisconsin, Vincennes University, Virginia Military Institute, George Washington University, Washington and Lee University, Western Reserve University, Western State Teachers College, Wilmington College, Wittenberg College, Wooster, Youngstown College, and Yale University.

THE JAY P. TAGGART MEMORIAL LAW LIBRARY

The Law Library draws much of its support from a permanent endowment established in memory of the late Jay P. Taggart, one time Dean of the College and long time trustee of Ohio Northern.

The Law Library is up-to-date, modern, and well selected. It contains the reports of the courts of last resort of the States, the United States Supreme Court Reports, the Federal Reports, the Reporter System, a complete set of English reports, the more important series of special reports and selected cases, a collection of the latest editions of standard text books, leading legal periodicals, digests, the leading encyclopedias of law, and other works of reference. The Library is accessible each week day, the students being allowed free access to the books.

The material included in the Library complies with law library requirements of the American Bar Association.
College of Law

METHODS OF INSTRUCTION

Instruction is based upon the case-book method. To the cases found in the case-book are added selected cases from Ohio and other jurisdictions. The lecture hour includes a thorough questioning of the students upon the cases studied and informal discussions by instructors and students upon the underlying and distinguishing principles illustrated by the cases.

ADMISSION

For admission procedure, see page 13.
Candidates of good moral character may be admitted upon satisfying the following requirements:

(1) Graduation from a first-grade high school and
(2) The completion of not less than three-fourths of the credits acceptable for a Bachelor's degree at one or more accredited colleges or universities, in accordance with the rules of the institution from which such credits are presented. Usually this is 90 semester or 135 quarter hours. It is further required that the scholarship average of the applicant must not go below the graduation average of the institution from which the credits are presented.

Correspondence work is not accepted as pre-Law credit.

In no case may a deficiency in pre-Law study be made up concurrently with the work in the College of Law.

A student desiring to enroll in the College of Law applies to the Admissions Counsellor or to the Dean of the College of Law for an application blank and should, if possible, submit the same at least ten days prior to the beginning of the quarter to which he seeks admission, together with recommendations and transcripts of his pre-Legal education, in duplicate.

(3) ADVANCED STANDING. Advanced credit is given for not more than two years of Law study in residence at any reputable Law School in the United States maintaining a three-year full-time course.

(4) SPECIAL STUDENT. Persons who are not candidates for a degree and who have sufficient education and experience to study Law with profit may enter the College of Law as special students with the approval of the Dean, even though they cannot meet the entrance requirements for a degree. Any one desiring to enter as
College of Law

a special student or to secure fuller information in regard to pre-
liminary education should write to the University Admissions Counsellor or the Dean of the College of Law. Such special stu-
dents will not be eligible for the bar examination in Ohio and
many other states.

PRE-LAW AND ARTS-LAW COURSES

The College of Liberal Arts offers favorable opportunities to the
student in preparing for the study of Law.

The Pre-Law Course offered not only meets the requirements set
by the Supreme Court of the State of Ohio as to the preliminary
education that every student must have before beginning the study
of Law, but is especially planned to help the student to prepare
properly for such an undertaking.

The Arts-Law Course is designed for the student who desires the
degree of Bachelor of Arts and the degree of Bachelor of Laws. By
taking this Course, which extends over a period of six years, the
student not only meets the requirements set by the Supreme Court
of the State of Ohio but in addition thereto is entitled to receive
the degrees indicated.

For further information about these Courses, the student is re-
ferred to the Liberal Arts section of this catalog.

GRADUATION

The degree of Bachelor of Law is conferred on students who have
completed satisfactorily a total of 122 quarter hours including all
the prescribed courses, and in addition certain required courses for
which no credit hours are given, or who have received credit there-
for in accordance with the section entitled Advanced Standing, and
who have studied in residence at this College for at least three quar-
ters immediately preceding graduation, and who have at least a two
quality point average for every credit hour.

GENERAL REGULATIONS

1. Students may select from the courses offered such subjects as
they desire, with the approval of the Dean, not to exceed a maxi-
mum of 16 credit hours per quarter.
College of Law

2. In the section of the general catalog dealing with Administration are found rules and regulations pertaining to chapel and class attendance, registration, and preregistration, government, withdrawing courses, warning and probation, eligibility for extracurricular activities, examinations, grade marks and quality points. Chapel and Assembly attendance twice each week are required of all students in the University.

3. Expenses, tuition, fees, living costs, and housing are likewise described in an earlier section of this catalog.

4. The Board of Trustees and Faculty of the University reserve the right to make such changes as they deem necessary without published notice.

CLASSIFICATION

The minimum requirements for Junior standing are thirty-eight credit hours and a point average of 2.0, for Senior standing, eighty credit hours and a point average of 2.0.

OTHER ADVANTAGES

There are musical, debating, and dramatic societies and other organizations on the campus to which any student in the College of Law is eligible.

SUMMER SCHOOL

The College of Law offers courses during the Summer School. It is expected that the regular curriculum will be followed by all students, since summer courses are limited in number.

COLLEGE OF LAW CURRICULUM

The work of the first year is all required. Second and third year courses are all required except those separately designated as electives, which are open to both second and third year students subject to the provision that a student may not elect to exceed fifteen hours in any quarter in which elective courses are open to him, unless approved by the Dean.

FIRST YEAR

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Second Year

Fall Quarter
Constitutional Law I 3
Equity 5
Wills 4
Domestic Relations 3

Winter Quarter
Restitution 3

Spring Quarter
Constitutional Law II 3
Evidence I 3
Private Corporations 5
Evidence II 3
Conflict of Laws 5
Electives 7

Third Year

Fall Quarter
Code Pleading 5
Electives 10

Winter Quarter
Legal Ethics 1
Negotiable Instruments 5

Spring Quarter
Trial and Appellate Practice 5
Electives 3
Practice Court 1
Trusts 5
Electives 8

Description of Courses

First Year

All Courses Required

Business Associations 5 hours

The nature, formation and purpose of agency and partnership relations; the duties and liabilities arising from the relationships; the marshalling of assets in equity and the priorities between individual and firm creditors; consideration of Workman's Compensation legislation and other phases of the subject of master and servant. Case Book to be announced.

Common Law Pleading 3 hours

This Course embraces a discussion of the nature and purposes of pleading, emphasizing the connection between pleading and the history and development of the Common Law. Keigwin, Cases On Common Law Pleading.

Contracts I 4 hours

Contracts II 5 hours

Fundamental courses dealing with the nature of a contract; the capacity of the parties, offer and acceptance; consideration; the performance of contracts, including conditions and impossibility of performance; the discharge of contracts; rights of beneficiaries, joint and several contracts; assignment of contracts; illegal contracts and the statute of frauds. Shepherd, Contracts and Contract Remedies (3rd Edition).
CRIMINAL LAW 5 hours
This Course treats of the theories of crime and punishment; the criminal act and mental element in crime; specific offenses at common law and as developed by statutes; appropriate defenses in relation to the specific crimes; parties. Hall, *Cases On Criminal Law and Procedure*.

LEGAL BIBLIOGRAPHY 1 hour
This Course is required but no credit is given for it toward graduation. The purpose is to give the student training in the use of law books and in finding the law. The Course must be completed to the satisfaction of the Instructor. Pollock, *Legal Research and Materials*, (Ohio Edition).

MOOT COURT
Students participate in a moot case which has reached the Appellate level, by writing briefs and making oral arguments before an Appellate Court which consists of upperclass students. This Course is required but gives no credit toward graduation.

PERSONAL PROPERTY 4 hours
This Course deals with the distinction between real and personal property; of the title to personal property and its transfer by agreement and by operation of law; its use and liabilities arising therefrom. Aigler, Bigelow, and Powell, *Cases on Property*, Vol. I (2nd Edition).

REAL PROPERTY I 5 hours

REAL PROPERTY II 5 hours

TORTS I 3 hours
TORTS II 5 hours
This Course includes a consideration of the bases and extent of legal liability for invasions of various interests of personality and property with especial attention given to wrongs, such as assault, battery, false imprisonment, trespass upon realty and personality,
conversion, defamation, malicious prosecution, injuries resulting from negligence, injuries intentionally inflicted and liability without fault. An analysis is made of the various concepts of importance in this field of law, such as intention, malice, legal right and wrong, negligence and proximate causation. Smith and Prosser, *Cases and Materials on Torts*.

**SECOND YEAR**

**Constitutional Law I**

**Constitutional Law II**

Courses include the interpretation of the constitutional limitations for the protection of life, liberty and property, police power, taxation, eminent domain, obligation of contract; and a consideration of the law of the American federal system, with especial reference to inter-state commerce, the powers of Congress and the jurisdiction of the Federal Courts. Casebook to be announced.

**Domestic Relations**

A study of the law of marriage and divorce, parent and child, the rights and liabilities of husband and wife, the rights and liabilities of infants, including a study of statutory material. Jacobs and Goebel, *Cases on Domestic Relations* (3rd Edition).

**Equity**

This Course involves the consideration of the rise of the court of equity, the powers of the court, the principles governing the exercise of equitable jurisdiction, and the equitable remedies of injunction, bills of peace, bills of interpleader, bills to remove cloud from title, declaratory judgments, and specific performance. Cook, *Cases on Equity* (4th Edition).

**Evidence I**

**Evidence II**

An examination of contemporary rules of evidence relating to burden of proof and presumption, judicial notice, the examination of witnesses, competency and privilege, and illegally obtained evidence, followed by a careful development of the opinion rule, the hearsay rule and its exceptions and the best evidence rule. Morgan and Maguire, *Cases on Evidence* (3rd Edition).
PRIVATE CORPORATIONS 5 hours
This Course treats of the characteristics of private corporations, including their formation, powers, rights, and liabilities, the rights and liability of stockholders, and of officers and directors, and the rights of creditors against the corporation and its officers. Ballantine, Lattin and Jennings, *Cases on Corporations* (2nd Edition).

RESTITUTION 3 hours
This Course deals with a study of the remedies of quasi-contract, equitable accounting, constructive trust, equitable lien, rescission and reformation, and the legal and equitable remedies available in cases of misrepresentation, fraud, partially performed agreements, mistake, illegality, defective capacity and duress. Durfee and Dawson, *Cases on Restitution*.

WILLS AND ADMINISTRATION OF ESTATES 4 hours

THIRD YEAR

CODE PLEADING 5 hours
This Course deals with parties, joinder and splitting of causes of action, the petition, answer, reply, demurrer, amended and supplemental pleadings and motion practice as these problems have developed under the code provisions of the various states. Special emphasis is placed on the Federal Rules of Procedure. Sunderland, *Cases on Code Pleading* (2nd Edition).

CONFLICT OF LAWS 5 hours
This Course treats of the principles of private international law; jurisdiction of courts; the choice of law governing torts, contracts, divorce, transfers of property by deed, will and intestate succession; marriage, adoption, domicile, foreign judgments and such procedural matters as statutes of frauds and of limitations. Lorenzen, *Cases and Materials on Conflict of Laws* (6th Edition).

LEGAL ETHICS 1 hour
This Course treats of the rules of conduct governing the lawyer in the practice of his profession. This Course must be completed to the satisfaction of the Instructor, although no credit toward graduation is given. Cheatham, *Cases and Materials on the Legal Profession*. 

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NEGOTIABLE INSTRUMENTS  5 hours
This Course involves the consideration of the general principles governing bills of exchange, promissory notes and checks, and the uniform negotiable instruments law. Britton, Cases on Bills and Notes (4th Edition).

TRIAL AND APPELLATE PRACTICE  5 hours
Principles controlling the trial practice of civil actions; laying a foundation for review; methods and problems of procedure on review and disposition upon review. Hunter’s Cases.

PRACTICE COURT
Students participate in a mock trial, beginning with the preparation and filing of the pleadings and continuing through the actual trial which is conducted in the courtroom of the Law College where either faculty members or outside lawyers act as judges. This Course is required but gives no credit toward graduation.

TRUSTS  5 hours
This Course treats of the origin and development in courts of equity of the law of trusts and trustees. Scott, Cases on Trusts (4th Edition).

ELECTIVE COURSES

ADMINISTRATIVE LAW  3 hours
This Course deals with the powers and procedure of administrative agencies in this country. It includes a consideration of the nature of the power vested in administrative bodies, distinction between legislative, judicial and executive powers, conclusiveness of administrative determinations, the requirement of due process, and the extent of judicial control over administrative action. Casebook to be announced.

CREDITORS’ RIGHTS  4 hours
This Course includes a study of fraudulent conveyances, creditors’ agreements, receiverships and the administration of bankrupt estates. Hanna and McLaughlin, Cases on Creditors’ Rights (Consolidated 4th Edition).

DAMAGES  3 hours
In this Course the rules governing the measure of damages in actions founded on contract and tort are considered. Crane, Cases on Damages.
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LEGAL DRAFTSMANSHIP 3 hours
Designed to give the student practice in the drafting of the more common legal instruments. Cook, Legal Drafting.

FUTURE INTERESTS 3 hours

INSURANCE 3 hours
This Course includes the nature and requisites of the contract, parties, insurable interest, premiums, representations and warranties, agents and their powers, waiver, and estoppel, rights under the policy, a study of the standard fire policies, life insurance, marine and accident. Casebook to be announced.

LABOR LAW 2 hours
This Course includes a study of the right to organize the union; the process of collective bargaining; the legality of strikes, lockouts and boycotts; the interest of the public in labor disputes; legislative intervention, with emphasis on the National Labor Relations Act as amended by the Taft-Hartley Law. Casebook to be announced.

MORTGAGES 3 hours
The various theories of the mortgage including the historical evolution thereof in equity; recording statutes, and other problems in connection with the Law of Mortgages. Durfee, Cases on Property Security, Vol. I.

SALES 3 hours
The topics included in this Course are the contract for delivery of goods, the statute of frauds, the passing of the property, fraud and retention of possession, illegality, condition and warranties, performance, rights of the seller and buyer in case of breach. Bogert, Cases on Sales (2nd Edition).

FEDERAL TAXATION 3 hours
This Course deals with the constitutional foundation of the major federal taxes—excise, gift, estate and income taxes. Griswold, Cases and Materials on Federal Taxation (4th Edition).

BUSINESS ADMINISTRATION 235 FEDERAL INCOME TAX 5 hours
Study of federal income tax regulations to determine tax liability under current laws; preparation of individual partnership, corporation, estate, and trust tax returns. Textbook to be announced.
Municipal Corporations 4 hours

This Course treats of the formation of and legislative control over public corporations (primarily cities and villages), the powers of such corporations with respect to public welfare, licenses and franchises, appropriations, indebtedness, contracts and special assessments, and the liability of such corporations in tort and contract. Stason, *Cases on Municipal Corporations* (2nd Edition).

Suretyship 3 hours

This Course includes the creation of the relationship, the contract, the statute of frauds, the rights and remedies, the defenses, guaranty contracts, and letters of credit, private and corporate sureties, and incidentally a consideration of the different kinds of bonds. Simpson, *Cases on Suretyship*. 
MEMORIAL HOSPITAL NURSES PHYSIOLOGY CLASS

BIOLOGY CLASS

SCHOONOVER LANGUAGE LAB.