Calendar

Fall Quarter — September 18, 1933
Winter Quarter — January 2, 1934
Spring Quarter — March 26, 1934
Summer Quarter — June 12, 1934
Some Campus Activities
College of Liberal Arts

Calendar

Fall Quarter —
September 18, 1933

Winter Quarter—
January 2, 1934

Spring Quarter —
March 26, 1934

Summer Quarter —
June 12, 1934
Ohio Northern University
Ada, Ohio

College of Liberal Arts
Scholarly faculty; strong courses; standardized departments. Majors and minors in all departments. Pre-professional courses offered.

Division of Teacher Training
Fully accredited by the State Department of Education. Certificates and degrees offered in elementary, intermediate and high school teachers' professional courses. Approved for certification in music and physical education.

Department of Music
Courses offered in Public School Music, Voice, Pianoforte, Pipe Organ, Violin, Stringed, Wind and Reed instruments, History and Theory of Music.

Department of Physical Education
Gymnasium Instruction, Athletic Coaching, and Educational Games.

College of Engineering
Four fields of Engineering: Chemical, Civil, Electrical and Mechanical.

College of Pharmacy
In addition to a group of courses which are constant for all candidates for a degree, the curriculum is flexible enough to allow preparation in specialized activities of the profession of Pharmacy.

College of Law
Strong courses leading to the degree of LL. B. Students admitted after completion of two years of college work.

For literature and information address
Robert Williams, President
Application for Admission

I hereby apply for admission to Ohio Northern University at
at the opening of ........................ Quarter, 193......
   Fall, Winter, Spring, Summer

Name in full ...................................................................................................................

Street Address ...........................................................................................................

Postoffice .......................... State ..................................................................................

Parent or Guardian ....................................................................................................

High School ................................................................................................................

Address of High School ............................................................................................

Name of Principal ......................................................................................................

Date of Graduation ...................................................................................................

What College have you attended?  
   (This question is important)

Check the department in which you are interested:

<table>
<thead>
<tr>
<th>LIBERAL ARTS</th>
<th>3. Teacher Training</th>
<th>ENGINEERING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General</td>
<td>(a) Senior High School</td>
<td>1. Chemical</td>
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<tr>
<td>2. Pre-Professional</td>
<td>(b) Junior High School</td>
<td>2. Civil</td>
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<tr>
<td>(a) Pre-Medical</td>
<td>(c) Intermediate</td>
<td>3. Electrical</td>
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<tr>
<td>(b) Pre-Dental</td>
<td>.2 Yr. .4 Yr.</td>
<td>4. Mechanical</td>
</tr>
<tr>
<td>(c) Pre-Law</td>
<td>(d) Primary</td>
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</tr>
<tr>
<td>(d) Pre-Theological</td>
<td>.2 Yr. .4 Yr.</td>
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<tr>
<td>(e) Business Admin</td>
<td>(e) Business Admin</td>
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What degree do you expect to receive?

List your high school credits below:

<table>
<thead>
<tr>
<th>Units</th>
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<tbody>
<tr>
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<td>Foreign Language</td>
<td>Social Science</td>
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<th>MISCELLANEOUS</th>
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<td>Geometry</td>
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<table>
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<td>General Science</td>
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<tr>
<td>Chemistry</td>
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<tr>
<td>Physics</td>
<td></td>
</tr>
</tbody>
</table>

Give scholarship rating in high school

Special activities in high school
FRATERNITY HOMES
The School that Makes Successful Men

What is Your Ambition?

If it is political preferment we want to tell you about our one Supreme Court Judge, three U. S. Senators, Five U. S. Congressmen, and scores of State Representatives and County Prosecutors.

If it is in the religious realm we call your attention to the many men we have in the high councils of the Church.

If it is in the field of nature allow us to tell you about some of our successful scientists.

If it is technical in nature we can refer you to our engineers and pharmacists the world round, many of whom have gained prominence.

If it is in the business world we invite your investigation of our successful business men who are found everywhere.

If it is in the educational world we want to call your attention to the scores of City and County Superintendents, Principals of High Schools and members of various college faculties who have gone from here.

Among our Musical Alumni can be found men and women in the forefront of America's musical artists.

We have graduates holding prominent places in the fields of Agriculture, Fine Arts, Dramatics and Physical Education.
OHIO NORTHERN UNIVERSITY BULLETIN

SIXTY-SECOND YEAR

ANNOUNCEMENT OF COURSES

COLLEGE OF LIBERAL ARTS
(INCLUDING DIVISION OF TEACHER TRAINING)
Ada, Ohio
Calendar, 1933-34

*Summer Session, 1933*

First Term, Tuesday, June 13, to Saturday, July 15
Second Term, Monday, July 17, to Saturday, August 19

*Fall Quarter, 1933*

September 18, Monday............................Freshman Preregistration
September 19, Tuesday...........................Upperclass Preregistration
September 20, Wednesday.....................Registration and Payment of Fees
September 21, Thursday (7:50 A. M.).........Classes Begin
October 21, Saturday..............................Homecoming Day
November 28, Tuesday (5:30 P. M.).............Thanksgiving Vacation Begins
December 4, Monday (8:45 A. M.).............Classes Resumed
December 11, 12, 13, 14, Monday to Thursday, Inclusive
..................................................Final Examinations
December 14, Thursday (5:30 P. M.)...........Fall Quarter Ends

*Winter Quarter, 1934*

January 2, Tuesday (8:30 A. M.)................Preregistration
January 3, Wednesday.........................Registration and Payment of Fees
March 13, 14, 15, 16, Wednesday to Saturday, Inclusive
..................................................Final Examinations
March 17, Saturday..............................Winter Quarter Ends

*Spring Quarter, 1934*

March 26, Monday.................................Preregistration
March 27, Tuesday..............................Registration and Payment of Fees
April 9, Monday..................................Founder's Day
May 30, Wednesday..............................Memorial Day
June 4, 5, 6, 7, Monday to Thursday, inclusive..........................
..................................................Final Examinations
June 9, Saturday...............................Annual Meeting of the Board of Trustees
June 9, Saturday..................................Class Day and Alumni Day
June 10, Sunday (3:00 P. M.)...................Commencement Exercises

*Special Spring Term, 1934*

April 30, Monday (Exclusive to Teachers) to June 8, Friday
Board of Trustees

ROBERT WILLIAMS, President of the University
(Ex-Officio)

MR. S. A. HOSKINS, President
MR. JOHN H. CLARK, Vice President
MR. E. J. BROOKHART, Secretary

Elected by the Conference
BISHOP H. LESTER SMITH
(Ex-Officio)

Initus Exitus
1924 REV. B. F. READING, D. D. --------------- Toledo, 1933
1905 MR. JOHN H. CLARK, LL. B. --------------- Marion 1933
1924 REV. DAVID F. HELMS, D. D. --------------- Lima, 1934
1918 MR. EDGAR J. BROOKHART, LL. B. --------------- Celina, 1934
1919 MR. W. W. MORRAL --------------- Morral, 1935
1899 MR. S. A. HOSKINS, LL. D. --------------- Columbus 1935
1922 MR. E. C. EDWARDS --------------- Toledo, 1936
1922 MR. E. E. MCALPIN --------------- Ada, 1936
1932 REV. G. F. BARBER, D. D. --------------- Kenton, 1937
1922 REV. E. L. MOTTER, D. D. --------------- Columbus 1937

Elected by the Alumni
1928 MR. WALTER F. RITTMAN, Ch. E., Ph. D. - Pittsburgh, Pa. 1933
1929 MR. J. J. PILLIOD, E. E. --------------- New York, N. Y. 1934
1930 MR. JAY F. TAGGART, LL. B. --------------- Cleveland 1935
1931 MR. PAUL BAINTER, LL. B. --------------- Zanesville, 1936
1932 MR. ALLEN N. WISELEY, M. D. --------------- Lima, 1937

At Large, Elected by the Trustees
1920 MR. BENJAMIN A. GRAMM, A. M. --------------- Lima, 1933
1927 MR. CHARLES H. LEWIS, LL. D. --------------- Harpster 1933
1927 MR. JOHN H. TAFT, D. C. Sc. --------------- Chicago, Ill., 1933
1931 MR. BEN R. CONNER --------------- Ada, 1933
1931 MR. ALDEN M. ELLIOTT --------------- Pittsburgh, Pa., 1933

Committees for
1932-1933

EXECUTIVE: S. A. Hoskins, John H. Clark and Jay P. Taggart
Lewis and Ben R. Conner.
FACULTY: John H. Clark, David F. Helms, Paul H. Baинтер, Allen N.
Wiseley, and J. J. Pilliod.
BUILDINGS AND GROUNDS: E. E. McAlpin, G. F. Barber, W. W.
Morrall, Alden M. Elliott, and B. A. Gramm.
Administrative Officers
1932-1933

Robert Williams, M. A., D. D., LL. D.
President
502 South Johnson Street

Albert Edwin Smith, D. D., Ph. D., LL. D.
President Emeritus

Thomas Jefferson Smull, C. E., Eng. D.
Business Manager
301 South Main Street

Margaret Eleanor Whitworth, B. S.
Registrar and University Entrance Examiner
409 South Johnson Street

Ziloh LaVerne Daring, M. A.
Treasurer
311 South Gilbert Street

John Austin Potter, B. S., B. D.
Dean of Men
228 East North Avenue

Audrey Kenyon Wilder, M. A.
Dean of Women
311 South Gilbert Street

Harvey Evert Huber, M. A.
Dean of George Franklin and Sarah Catherine Getty
College of Liberal Arts
724 Union Street

Frank Lewis Loy, M. A.
Director of the Division of Teacher Training
125 East Lehr Avenue

Clyde Albert Lamb, M. A.
Director of the Department of Health and
Physical Education
327 West University Ave.

Agnes Auten, B. A.
Librarian
409 South Johnson Street

Faculty *

Richard Holmes Schoonover, M. A., B. D.
Professor of Ancient Languages
425 South Main Street

Cliff Deeming, B. O., M. A.
Professor of Speech
601 South Main Street

Childe Harold Freeman, B. S., Lit. D.
Professor of English Literature on the John Davison
Chair of English Literature
317 West University Avenue
* Professors and instructors arranged according to seniority.
FRANK LEWIS BERGER, M. S.  
Professor of Physics  
121 East Lehr Avenue

HARVEY EVERT HUBER, M. A.  
Professor of Biology  
724 Union Street

WILLIAM PETER LAMALE, Mus. B.  
Professor of Piano and Organ  
312 West Buckeye Avenue

WALTER GRAY, M. A.  
Professor of Psychology  
523 Union Street

WILFRED ELLSWORTH BINKLEY, M. A.  
Professor of Political Science  
803 Union Street

JESSE RAYMOND HARROD, M. S.  
Professor of Chemistry  
112 South Johnson Street

JAMES ALBERT WHITTERT, PH. B., M. A.  
Professor of Mathematics  
219 West Highland Avenue

JOHN AUSTIN POTTER, B. S., B. D.  
Professor of Biblical Literature  
228 East North Street

WINONA PEARL GEETING, M. A.  
Professor of Education  
115 East University Avenue

FRANK LEWIS LOY, M. A.  
Professor of Education  
125 East Lehr Avenue

MAUD MAY HALEY, M. A.  
Professor of Education  
927 South Main Street

CLARA EVE SCHIEBER, PH. D.  
Professor of History  
609 South Main Street

CLYDE ALBERT LAMB, M. A.  
Professor of Health and Physical Education  
327 West University Avenue

HERSCHEL LITHERLAND, PH. D.  
Professor of Education  
226 North Gilbert Street

HORACE GERALD DEWEES, B. M. E., M. S. IN ED.  
Professor of Voice  
325 West University Avenue

LOUIS ROWELL HERRICK, PH. D.  
Professor of Modern Languages  
304 South Gilbert Street

RAYMOND ANSON DOBBINS, M. S.  
Assistant Professor of Biology  
620 Union Street

MILDRED SHARP BRUCKHEIMER, M. A.  
Assistant Professor of Physical Education  
514 Union Street
HARRIS ARTHUR LAMB, M. A.
Assistant Professor of Physical Education
809 South Simon Street

AUDREY KENYON WILDER, M. A.
Assistant Professor of English
311 South Gilbert Street

ROBERT CHALMERS GIBSON, PH. D.
Assistant Professor of Chemistry
115 East University Avenue

JOHN WESLEY McBRIDE, M. A.
Assistant Professor of Economics
424 South Gilbert Street

LAWRENCE FREEMAN, B. A.
Instructor in English
724 South Gilbert Street

ELLA IRICK
Instructor in Piano
521 South Gilbert Street

ALICE OLIVE MOORE, M. S. IN ED.
Instructor in Public School Music
411 North Gilbert Street

LUCILLE MCCALL, M. S.
Instructor in Home Economics
701 South Main Street

ALPHONSE ANDREW GAILEWICZ, MUS. B.
Instructor in Violin
309 East Lincoln Avenue

LAURA MAY KAMPMEIER, M. A.
Instructor in Modern Languages
114 South Gilbert Street

MAY FRANCES Cogswell, B. A.
Assistant Registrar
701 South Main Street

ARLENE BISHOP POOLER, B. S. IN HOME ECONOMICS
Dietitian
311 South Gilbert Street

MARIE J. YOUNG, B. A., B. L. S.
Assistant Librarian
125 East Lincoln Avenue

ELIZABETH BEatrice Myers
Secretary to Business Office
Ada, Ohio

ALYCE ELIZABETH WARREN
Secretary to the President
116½ South Main Street

KATHRYN REESE
Secretary in the Division of Teacher Training
Ada, O.

DOROTHY EVELYN GUSTASON
Secretary in Department of Health and Physical Ed.
809 South Simon Street

LOIS HANNA FENTON, B. S. IN BUS. AD.
Assistant to the Treasurer
218 East Lincoln Avenue
DORMITORY AND SOCIAL CENTER FOR WOMEN
ORIGIN AND DEVELOPMENT

HISTORICAL SKETCH

Founded by Henry Solomon Lehr in 1871, the school became the property of the Central Ohio (now the Ohio) Conference of the Methodist Episcopal Church in 1898. In 1904 it was named the Ohio Northern University.

LOCATION

Ohio Northern University is located at Ada, an attractive village of northwestern Ohio. Situated on the Pittsburgh, Fort Wayne and Chicago Division of the Pennsylvania Railroad, and on State Route 69, two miles north of the Harding Highway (Route 30 S) and four miles south of the Lincoln Highway (Route 30 N), and nine miles south of the Dixie Highway (Route 25), Ada is easily accessible by rail or by motor bus.

ORGANIZATION

The University is organized into colleges as follows:

(a) College of Liberal Arts, including Division of Teacher Training.
(b) College of Engineering.
(c) College of Law.
(d) College of Pharmacy.

The university year is divided into three quarters of approximately equal length, designated as Fall, Winter, and Spring.

SUMMER SCHOOL

Ohio Northern has been one of the pioneer institutions in maintaining a summer session. The purpose of this session is to provide opportunity for regular students to work toward a college degree and thus shorten the time required for graduation. Many teachers in public schools desire to take additional work to improve their professional standing.

The Summer Session is composed of two terms of approximately six weeks each. The first term of the 1933 Summer Session opens June 13 and closes July 15; the second term begins July 17 and closes August 19.

CAMPUS BUILDINGS AND EQUIPMENT

Lehr Memorial houses the offices of the Administration and the various student and faculty associations.

John Wesley Hill Memorial Building contains the class rooms of the College of Liberal Arts and of the Division of Teacher Training, and the offices of the Secretary of the Alumni Association.

The Dukes Memorial contains the class rooms, offices, and laboratories devoted to chemistry, physics, engineering and mathematics.
The Brown Memorial Library containing about 21,000 volumes, accommodates two hundred students. The library is amply provided with current literature in all fields of knowledge.

Pharmacy Hall is well arranged and fully equipped for the study of pharmacy.

The Warren G. Harding Law Building contains the classrooms, court room, and library of the College of Law.

The Power Plant houses well-lighted laboratories for engineering students.

The Biology Building and the Greenhouse are amply equipped for class and laboratory work.

The Theodore Presser Music Hall contains the Willis Auditorium and the studios of the music department.

The John H. Taft Gymnasium, an ideal Physical Education plant and field house, contains, in addition to the main basketball court, class rooms and offices of the Department of Physical Education.

The University Athletic Field contains a well-drained and heavily sodded gridiron encircled by a running track with a 120-yard straightaway. There are also two auxiliary gridirons, a baseball diamond, and nine tennis courts.

Special Laboratories are located in Pharmacy Hall, Dukes Memorial, Hill Memorial, Biology Building, the Power Plant and Engineering shop building.

RESIDENCES FOR WOMEN

All non-resident women students are required to live in Turner Hall. (This regulation does not apply to a woman who is commuting or to one who is doing work in exchange for her room.) If the Hall is filled a list of Approved Residences will be furnished upon application to the office of the Dean of Women. No agreement between student and house-mother is recognized by the University until arrangements have been approved by the Dean of Women.

Turner Hall will accommodate twenty-two women and housemother. Throughout it has been furnished so as to make an attractive, comfortable home, all equipment being selected to meet the social and intellectual needs of the students. The rooms are beautifully equipped with single day beds (three feet, three inches in width), mattresses, pillows, ample dressers with mirrors, study tables, Windsor desk chairs, Windsor rockers, curtains and rugs. The entire house has excellent hardwood floors. Each student furnishes and launders all of her bedding, towels, dresser scarfs, and other accessories.

Residents are permitted laundry privileges, built-in tubs, pressing boards, electric iron, and a drying room, composing the equipment. Certain kitchen privileges are also permitted under the supervision of the housemother.

Three privately owned homes will also be used in connection with Turner Hall for housing Freshmen women.

Applications should be submitted promptly.

The fraternities for women rent their own residences and maintain them under the supervision of the Dean of Women and an approved resident housemother. Freshmen women are not permitted to live in the fraternity houses.
GENERAL INFORMATION

ASSEMBLIES

Convocations are held weekly in Lehr Auditorium from 11:30 to 12:00 on Monday, Wednesday and Friday. Attendance is required.

CLASS PERIODS

<table>
<thead>
<tr>
<th>Period</th>
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<tr>
<td>First Period</td>
<td>(1)</td>
<td>7:50 to 8:40</td>
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<tr>
<td>Second Period</td>
<td>(2)</td>
<td>8:45 to 9:35</td>
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<tr>
<td>Third Period</td>
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<td>9:40 to 10:30</td>
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<td>Fourth Period</td>
<td>(4)</td>
<td>10:35 to 11:25</td>
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<td>11:30 to 12:00</td>
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<td>Fifth Period</td>
<td>(5)</td>
<td>1:30 to 2:20</td>
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<tr>
<td>Sixth Period</td>
<td>(6)</td>
<td>2:25 to 3:15</td>
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<tr>
<td>Seventh Period</td>
<td>(7)</td>
<td>3:20 to 4:10</td>
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<tr>
<td>Eighth Period</td>
<td>(8)</td>
<td>4:15 to 5:05</td>
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</table>

Following the description of each course offered in the University the days and period of class assemblies are indicated.

MORAL AND RELIGIOUS CULTURE

Much attention is given to the development of a high type of Christian manhood and womanhood.

Although the University is owned by the Methodist Episcopal Church, students of all denominations are treated with equal consideration. The six churches of the town cordially welcome students to their social and religious meetings. The following denominations are represented: Methodist Episcopal, Presbyterian, Lutheran, Church of Christ, Baptist, and Roman Catholic.

Christian Associations. The Y. M. C. A. and the Y. W. C. A. meet weekly in their respective rooms. Membership in these organizations is open to all students.

Omega Phi Kappa. An organization of young women interested in World Fellowship activities.

O. N. U. Ministerial Association. An organization of ministerial students for the purpose of gaining practical experience in Christian work. The Gospel Team is one of their major activities.

LECTURES AND CONCERTS

It is the aim of the University to secure the best talent in the lecture and music field and to present at least two numbers each quarter of the year.

MUSICAL ORGANIZATIONS

Choral Society. The Ohio Northern University Choral Society is open to all singers who love and appreciate good music.

Men’s Glee Club. A Glee Club of thirty voices is organized each year for the purpose of giving home concerts and touring the state.

Girls’ Glee Club. This club, composed of thirty of the best voices in the University, sponsors the best music in their class.
The University Orchestra studies the works of the great composers and plays at concerts of the Choral Society. The University Band gives concerts on the campus and makes statewide tours. Recitals. Faculty and student recitals are held each quarter. An Artists' Course is maintained by the University, and additional soloists and ensembles are introduced.

DEBATING AND DRAMATICS

The Ohio Northern Debating Association is a member of the Ohio Intercollegiate Debate Conference. Membership is open to students interested. The Northern Players is a dramatic club, open to all students of the university who pass the try-outs.

ORGANIZATIONS AND CLUBS

The following organizations discuss topics pertaining to their respective departments: The Ohio Northern Mathematical Society, The Chemists' Club, The Educational Club and the Pre-Medical Association; in addition to these there are the Radio, Social Science, Press, French and Business Administration Clubs.

HONOR SOCIETIES

Alpha Phi Gamma. Students who have shown marked ability in Journalism are eligible to membership in this national fraternity. Theta Alpha Phi is a national honorary dramatic organization open to students of histrionic ability. Kappa Kappa Psi is a national honorary band organization to encourage study in this phase of musical endeavor. Sigma Kappa Pi. An honorary foreign language society, open to superior students from all language fields. Phi Lambda Pi. An honorary fraternity whose purpose is to promote high scholarship in biology.

FRATERNITIES

This group comprises seven national social fraternities, three national professional fraternities, and one local social fraternity for men and four local fraternities for women.

STUDENT PUBLICATIONS

The Northern, the annual yearbook, contains a record of student activities. Each student receives a copy of the book at the close of the spring quarter. The Northern Review is a weekly newspaper published throughout the school year by the students of the University. All student publications are controlled by the Faculty Committee on Student Publications.

ATHLETICS

Ohio Northern is a member of the Ohio Athletic Conference and is represented by strong teams in football, basketball, baseball, and track. A well-rounded program of intramural sports is carried out, under proper direction, which aims to provide some form of activity for each student. Ohio Northern has facilities for all forms of sports.
SCHOLARSHIPS

The University has scholarships which are aiding worthy students to prepare themselves better for life's work.

1. The Mr. and Mrs. Serge F. Edwards Scholarship provides an annual income of $125.00. The beneficiary to be chosen by the donors from the graduates of the Leipsic High School.

2. The Mrs. J. H. Edwards Scholarship provides an annual income of $125.00. The beneficiary to be a student preparing for the ministry or some other special work of the church.

3. The George Franklin Getty Scholarship provides an annual income of $50.00.

4. The James E. and Caroline Purvis Scholarship provides an annual income of $50.00.

5. The Ralph Parlette Scholarship ($1,000.00) provides an annual income of $50.00.

6. The Pleasant Hill Society of the Roundhead Circuit of the M. E. Church Scholarship ($1,000) provides an annual income of $50.

7. The Justin Brewer Scholarship ($1,000.00) provides an annual income of $50.00.

8. The Rutter-Taggart Scholarship ($1,000.00), provides an annual income of $50.00. Preference in awarding this scholarship will be given to students in the College of Law.

LOAN FUNDS

A limited number of worthy students, members of the Methodist Episcopal Church, may secure loans from the Student Loan Fund administered by the Board of Education of that Church. Each borrower must sign an interest bearing promissory note.

SELF-HELP

It is strongly recommended that every student entering the University should arrange to finance at least one quarter's expenses before entering. This will afford the student an opportunity to come in personal touch with the employers of Ada and provide ample time to begin his academic or professional work. For information concerning scholarships, loans, employment, etc., make application at the offices of the Dean of Men and the Dean of Women.

GENERAL AND DEPARTMENTAL PRIZES

FOR SCHOLARSHIP

GENERAL PRIZES

Mrs. Avanel Stambaugh, of Ada, Ohio, gives $20.00 a year for winners in the song contest.

Two prizes of $12.50 each to the man and woman who excel in scholarship, campus activities, and personal qualities.

DEPARTMENTAL PRIZES

Prizes of from $10.00 to $15.00 either for scholarship or for excellence in papers submitted on assigned subjects are offered in the following departments: Biblical Literature, Biology, Chemistry, Business Administration, English, History, Latin, Mathematics, Modern Languages, Political Science, Public Speaking, Physics, Psychology and Physical Education.
PRIZES IN DEBATE AND ORATORY

*The Hoskins Debate Prize*, given by Mr. S. A. Hoskins: first prize $15.00; second prize $10.00; for men. The prizes to go to the two best individual debaters.

*The Hoskins Declamation Prize for Freshmen*: men and women. First, $15.00; second, 10.00.

EXPENSES

A recent survey of the student body reveals two very significant facts:

1. The average cost of tuition, fees, room, board, books and equipment for men students is $401.48 per year. Women students, $414.04 per year. With a decided drop in the cost of room and board this average will be materially reduced for the ensuing year.

2. One student out of every five came to Ohio Northern University for financial reasons.

Upon application the University will furnish tuition (including general fee) room and board in the College of Liberal Arts and Division of Teacher Training for $360.00 per year (36 weeks.)

No matriculation or entrance fee is required to enter the University.

TUITION

Tuition for instruction in College of Liberal Arts and Division of Teacher Training is $30.00 per quarter, payable in advance.

GENERAL FEE

A general fee of $25.00 per quarter is charged for all colleges at the time tuition is paid. This fee is not refundable and includes in general all costs exclusive of instruction such as cost of administration, maintenance of plant, general library, and student activities.

SUMMARY OF TUITION AND OTHER FEES

*One Quarter — Twelve Weeks*

<table>
<thead>
<tr>
<th>TUITION</th>
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<tbody>
<tr>
<td>Liberal Arts, 11 to 16 credit hours</td>
<td>$30.00</td>
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</tr>
<tr>
<td>Education, 11 to 16 credit hours</td>
<td>$30.00</td>
<td></td>
</tr>
<tr>
<td>Public School Music—B. S. in Education</td>
<td>$30.00</td>
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</table>

| TUITION for each credit hour above the maximum or below the minimum as indicated above | 5.00 |

| GENERAL FEE in all colleges | 25.00 |

<table>
<thead>
<tr>
<th>FEES</th>
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<tbody>
<tr>
<td>Biology 101, 102, 103, 106, 107, 108, 109, 218, 219</td>
<td>3.00</td>
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<tr>
<td>Biology 113</td>
<td>5.00</td>
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</tr>
<tr>
<td>Biology 222</td>
<td>3.50</td>
<td></td>
</tr>
<tr>
<td>Chemistry 101, 102, 103, 101a, 102a, 103a</td>
<td>4.00</td>
<td></td>
</tr>
<tr>
<td>Chemistry 104, 105, 106, 206, 207, 208, 211a, 211b, 212</td>
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<td></td>
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</tr>
<tr>
<td>Practice Teaching</td>
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</tr>
<tr>
<td>Public School Music</td>
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<tr>
<td>Change of Schedule</td>
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<td></td>
</tr>
<tr>
<td>Graduation</td>
<td>10.00</td>
<td></td>
</tr>
</tbody>
</table>

In addition to the above non-returnable fees in Chemistry, a
breakage ticket costing $1.50 to $7.00 must be purchased to reimburse the department for broken apparatus and non-returnable chemicals and supplies. The unused portion of the ticket will be refunded to the student upon completion of the course.

**MUSIC (Private Lessons)**

<table>
<thead>
<tr>
<th>Service</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voice, Piano, Organ, Violin, Reed or Brass</td>
<td>$30.00</td>
</tr>
<tr>
<td>Two lessons per week</td>
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</tr>
<tr>
<td>One lesson per week</td>
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<td>Single Lesson</td>
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<td>Two lessons per week</td>
<td>9.00</td>
</tr>
<tr>
<td>Three lessons per week</td>
<td>13.00</td>
</tr>
</tbody>
</table>

High school students will be charged $20.00 per quarter for two lessons per week, and $12.00 per quarter for one lesson per week; single lesson $1.25.

No diploma, certificate, transcript, letter of honorable dismissal or recommendation will be granted to students who have an unadjusted indebtedness to the University.

A student suspended or dismissed from college, or withdrawing when under investigation for misconduct, is not entitled to any refund of tuition.

Refunds, when allowed, shall be made as follows:
- During the first two weeks: 80%
- During the third and fourth weeks: 60%
- During the fifth and sixth weeks: 40%

No refunds are made after six weeks. No refunds are made on fees.

Written notice of withdrawal must be sent to the Treasurer's Office; refunds are made as of the date of receipt of notice.

**ROOMS AND BOARD**

Rooms are available in Ada at very reasonable prices, ranging from $1.00 to $2.25 per week. Board may be secured at prices from $3.50 to $5.00 per week.

*The University Cafeteria.* The University operates a Cafeteria where excellent food is obtainable at reasonable prices. Students are earnestly urged to patronize the University Cafeteria as the matter of regular habits in eating guards physical health and in addition is the most economical mode of living while in college.

Very many students when members of fraternities or sororities find comfortable rooms and good board in the various fraternity and sorority houses.

Rooms in Turner Hall are $24.00 to $36.00 a quarter for each student, payable in advance. A deposit of $5.00 should be sent with the application. This deposit will be kept as a fee to cover breakage until the end of the college year or until the expiration of residence. No room will be leased for less than one quarter.

*Note: Immediately upon arrival, women should report to the Dean of Women and men to the Dean of Men or to the Secretary of the Young Men's Christian Association at the association rooms for an official list of recognized householders. Women are required to furnish their own linens.*
ADMINISTRATION

ADMISSION

Application for admission should be made on the blank which will be found at the back of this bulletin. This should be filled out in full and mailed to the office of the Registrar.

ADVISERS

On his admission to the College each student is placed in charge of a faculty adviser, appointed by the Dean.

The duty of the adviser is to counsel the student in regard to the planning of courses, the selection of studies, and to aid him in the problems of his college life and work.

PRE-REGISTRATION AND REGISTRATION

Pre-registration and registration days are indicated in the calendar. Pre-registration day is devoted to conferences with advisers and making the student’s schedule of classes for the quarter. Registration day is given over to the transfer of the schedule of classes to the permanent cards, the payment of tuition, and securing of tickets of admission to classes. Failure to attend to these duties on the proper day will subject the student to an extra fee of $5.00 for late registration. This does not apply to new registrants.

ATTENDANCE

Regular and prompt attendance at all class and laboratory exercises is expected of every student. Instructors make a daily report of all absences to the Dean of Men or Dean of Women.

For each unexcused absence from class or laboratory appointments, the total number of quality points earned is reduced by one-half point. Absences the day before or the day after a regular college holiday or recess involve the deduction of one quality point for each absence.

Chapel attendance is required except when excused by the Dean of Men or Women. Five unexcused absences are allowed each quarter.

One-fifth hour credit is deducted from the student’s total credit for each convocation missed above five.

WITHDRAWING A COURSE

The student is held responsible for the work scheduled on the registration card. No course may be dropped or changed except by consent of the Dean and the instructors concerned. A charge of $1.00 is made for each withdrawal or addition of a course.

GOVERNMENT

Students of the University are expected to possess qualities of character and to maintain certain levels of scholarship. Students may be dismissed for moral delinquencies and for continued low scholarship. Students who obviously are at variance with the spirit and ideals of the institution may be dismissed for the good of the University, even though no specific offense be charged against them.
WARNING AND PROBATION

It should be the aim of each student to maintain a scholarship rating equivalent to at least one quality point for each credit hour for which he is registered. This is the graduation standard throughout the University.

Failure to meet this academic standard may subject the student to the action of the Academic Council for warning or probation.

ELIGIBILITY

Students on probation for any cause shall not represent in a public manner the University, their class, or any University organization in any extra-curricular activity.

To be eligible for the office of President or Vice President of the Sophomore, Junior or Senior Class, Editor or Business Manager of the Northern Review, Editor or Business Manager of the University Annual, Student Member of the Discipline Board, President of the Y. M. C. A. or Y. W. C. A., the candidate must have a scholarship rating of at least one and one-half (1½) quality points per hour.

GRADE MARKS AND QUALITY POINTS

The credit value of a course is expressed in hours, an hour of credit being given for the satisfactory completion of work requiring one class exercise a week for one quarter. It is equivalent to two-thirds of a semester hour.

The following grade and point system is in effect: Grade A, Excellent, 3 points; B, Good, 2 points; C, Average, 1 point; D, passing, 0 points; F, Failed, 0 points; I, Incomplete; X, absent from examination.

EXAMINATIONS

All students must be present at final examinations. Absence from any final examination, unless caused by sickness or other unavoidable conditions, will result in no credit for the course.

All required courses in which a grade of F is made must be taken again in class the first quarter in which the subject is given after the failure occurs.

All incompletes must be removed within eight weeks of the beginning of the next quarter in attendance in order to obtain credit without again taking the work in class.

DEGREES

The work of the University is entirely undergraduate.

In order to graduate in any course the student must have at least one quality point per scheduled hour.

The Bachelor of Arts degree or the Bachelor of Science in Education degree are given upon the completion of courses as outlined in the College of Liberal Arts.

A diploma is given in the two-year course in Education.
ADMISSION TO COLLEGE OF LIBERAL ARTS

Candidates of good moral character may apply for admission upon 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, on presentation of properly signed entrance certificates. Blanks for this purpose may be had by addressing the Registrar. Students deficient in some of the units for admission may be admitted upon examination.

2. Advanced Standing. An applicant from another college seeking advanced standing must present evidence of honorable dismissal, and an official transcript of his college record.

3. Special Student. Mature persons without special preparation not desiring to earn a degree may enter any department and pursue the studies they choose, if, on consultation, the head of the department is satisfied that they have sufficient preparation to pursue the work successfully. Such applicants are classified as special students.

ENTRANCE REQUIREMENTS

Fifteen units of high school work are required for unconditional admission to the college, eleven units of which must be in the following groups of subjects:

(a) English Composition and English Literature.
(b) Foreign Language (ancient or modern).
(c) Natural Science.
(d) History and Social Science.
(e) Mathematics (Algebra and Geometry).

The remaining four units may be offered from the above groups or from any other subjects accepted toward graduation from the high school.

Students with fourteen units are admitted on condition that the deficient unit may be made up during the first three quarters of residence. No student is admitted to freshman rank with less than fourteen units. The deficient unit may be removed by examination, or by substituting certain freshman collegiate courses. If the student presents fifteen acceptable units for entrance but is deficient in certain of the prescribed units, the deficiencies as far as possible shall be made up as part of the regular work of the freshman year. Deficiencies must be made up outside the college schedule, necessitating a reduction of the number of college courses carried while making up entrance deficiencies.
GROUPS AND DEPARTMENTS

For purposes of administration, correlation and integration the departments of the college are organized into groups as follows:

Group I—Language, Literature and Arts.
(a) English Language, Literature and Speech.
(b) Ancient Language and Literature.
(c) Modern Language and Literature.
(d) Music.

Group II—Natural Sciences.
(a) Biology.
(b) Chemistry.
(c) Mathematics.
(d) Physics

Group III—Social Sciences.
(a) Economics and Business Administration.
(b) History and Political Science.
(c) Health and Physical Education.
(d) Psychology and Sociology.
(e) Religion and Philosophy.

Under each group heading in the section of this bulletin dealing with description of courses is found a general statement which is of great importance to the student. This statement calls attention to the courses that should be selected as a background preparation for advanced and intensive work in that particular group. Likewise, under the appropriate departmental heading there is a more detailed statement referring to the various courses that should be elected (some of them during freshman and sophomore years) to prepare the student for work in that department. The curriculum, therefore, will be shaped to meet as far as possible the needs, interests, and abilities of the individual student.

GROUP ELECTIVES

Freshmen and Sophomores are given considerable freedom in the choice of courses. It is possible for the student to select such subjects for study as will serve his best interests and capacities.

In order that the curriculum may be interesting, broad and cultural, yet flexible enough to allow preparation for the various professions and needs of life, the student during his first two years in college, is required to select two courses in each of the three groups outlined above, the remainder of the work in these years being elective from any course open to a student of this rank. Ordinarily the first year schedule will include at least one course from each group plus one or more electives.

The group electives are to be made as follows:

FROM GROUP I—LANGUAGE, LITERATURE AND ARTS 18 Hrs.

Nine hours of English Composition must be scheduled during the freshman year. The remaining nine hours may be elected from Literature, Speech or Music.

FROM GROUP II—NATURAL SCIENCES 18 Hrs.

Complete year courses must be elected. Physical education is required of all students during the first six quarters in resi-
dence, with one hour of credit each quarter, but can not be used toward satisfying this group requirement.

FROM GROUP III—SOCIAL SCIENCES 18 Hrs.
Complete year courses must be elected. Six hours of Bible are required and should be scheduled during Sophomore or Junior year. Bible cannot be used toward satisfying the social science requirement unless nine hours are completed.

MAJOR AND MINOR

At the beginning of the third year the student is ready to choose, if he has not already done so, one group and the department or departments within this group in which he desires to complete his major and minor, or the field of concentration.

The candidate for a degree must complete in a logical sequence a major of not less than 36 quarter hours and a minor of not less than 24 quarter hours. The adviser will assist the student in planning the major and minor, or the field of concentration. Candidates for the Bachelor of Arts degree who expect to teach in the public schools must meet the requirements for a major and two minors as specified in the Division of Teacher Training.

ELECTIVES IN OTHER COLLEGES OF THE UNIVERSITY

In the College of Engineering, the College of Pharmacy, and the College of Law there are many courses described, a limited number of which may be elected by students registered in the College of Liberal Arts, thus enabling them more fully to prepare for specific vocational objectives. The student must have junior rank before electing courses in the College of Law. Students who have professional ends in view should not overlook the opportunity to elect some courses in the other colleges of the University.

Presser Music Hall
GRADUATION

As a condition of graduation, a student must complete 186 quarter hours, including six hours of physical education, this being the equivalent of fifteen or sixteen class exercises a week for twelve quarters. The student must have an average scholarship rating of at least one quality point for each credit hour.

A residence period of three quarters and the completion of 45 quarter hours, elected largely from "200" 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, with the consent of the faculty of the College of Liberal Arts, complete their work in eleven quarters. Applicants for this privilege must have an average of 2.6 quality points per hour.

NOTE: By continuing in residence during summers the entire college course may be completed in three years.

GENERAL REGULATIONS

1. The student may not register for more than sixteen hours of work unless he has received a rating of B or better in the preceding quarter. If the previous record of the student shows that he is able, the Dean may grant extra hours.

2. No course in which a student has received a grade of D is accepted toward a major.

3. The student must notify the Dean of his choice of a major before registering for the junior year. The Dean will then name an adviser for the student.

4. Seniors taking certain freshman courses are not given full credit. Seniors electing freshman courses should consult the Dean.

5. Juniors and seniors are requested to schedule a majority of their courses from the "200" group.

SENIOR HONORS

Two kinds of senior honors are recognized and conferred at graduation: honors (with distinction) granted to those who have a quality point average of 2.3 with no grade below D; and honors (with high distinction) granted to those who have a quality point average of 2.6 with no grade below C. These honors in scholarship are recorded on the diplomas, recognition is given at commencement, and the names of the recipients are printed in the catalogue. To receive senior honors a student must be in residence at Ohio Northern at least six quarters.

COURSES OPEN TO FRESHMEN

Botany 107-109
Chemistry 101a-103a
Chemistry 101-103
Education (Elementary and Intermediate)
English 101, 102, 102a
French 101-103
French 104a-106a (as prepared)
German 101-103
German 104a-106a (as prepared)
Health Education 117

History 104-106
Hygiene 115
Latin 110-112
Mathematics 101a, 102a
Mathematics 101, 102, 103, 112
Mechanical Drawing
Music (Theoretical and Applied)
Physical Education 101-103
Physics 109-111
Political Science 104-106
Speech 101-103
Zoology 101-103
PRE-PROFESSIONAL COURSES

PRE-MEDICAL COURSE

For admission to medical schools at least 90 quarter hours (60 semester hours), exclusive of physical education, are required. Although 90 quarter hours of high quality work may admit the student to the study of medicine, it is highly recommended that 135 quarter hours (90 semester hours) should be completed. If it is at all possible the student should plan to complete work for the Bachelor of Arts degree.

A medical aptitude test, prepared under the auspices of the American Medical Association, is given during the college year to students who plan to enter medical schools the following fall.

First Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education</td>
<td>Physical Education</td>
</tr>
<tr>
<td>English 101</td>
<td>English 102</td>
</tr>
<tr>
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<td>French or German</td>
</tr>
<tr>
<td>Chemistry 101</td>
<td>Chemistry 102</td>
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<td>Biology 101</td>
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SPRING QUARTER

<table>
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<tr>
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<tbody>
<tr>
<td>French or German</td>
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<tr>
<td>Chemistry 103</td>
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<td>Biology 103</td>
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Second Year

<table>
<thead>
<tr>
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</thead>
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<td>Chemistry 206</td>
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SPRING QUARTER

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<td>Physics 111</td>
<td>Ethics</td>
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<tr>
<td>Electives</td>
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</table>

Suggested elective subjects are: English, history, sociology, political science, mathematics, and philosophy.

ARTS-MEDICINE COMBINATION COURSE

Upon the completion of nine quarters of work in the College of Liberal Arts, the student may be granted a leave of absence for the senior year, and receive the Bachelor of Arts degree upon the successful completion of the first year of work in the medical school. This means a saving of at least one year of time. Pre-medical students are urged to give favorable consideration to the combination course and receive both the Bachelor of Arts degree from this institution and the professional degree from the medical school. The following regulations obtain:
At least 140 quarter hours, exclusive of physical education, are required, which must include the required and group elective courses for the Bachelor of Arts degree. A scholarship average of at least 1.5 points per hour is desired for recommendation to a medical school. At least 90 quarter hours must be completed in this institution.

**PRE-DENTAL COURSE**

Dental schools require two years of collegiate work, consisting of at least 90 quarter hours (60 semester hours). The required courses are incorporated in the two-year curriculum outlined below. Suggested electives are political science, mathematics, English Literature or speech, drawing, ethics, psychology, history and foreign language.

### First Year

<table>
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<th>FALL QUARTER</th>
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<tbody>
<tr>
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**SPRING QUARTER**

| Physical Education | 1 |
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| Chemistry 103 | 5 |
| Biology 103 | 3 |
| Electives | 4-5 |

### Second Year

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<td>Biology 106</td>
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</table>

**SPRING QUARTER**

| Physical Education | 1 |
| Physics 111 | 5 |
| Ethics | 3 |
| Electives | 7-8 |

**ARTS-DENTAL COMBINATION COURSE**

Upon the completion of nine quarters of work in the College of Liberal Arts, the student may be granted a leave of absence for the senior year, and receive the Bachelor of Arts degree upon the successful completion of the first year of work in the dental school. These nine quarters of work must total 140 hours, including the required and group elective courses.

The general regulations are the same as for the Arts-Medicine combination course.

**ECONOMICS AND BUSINESS ADMINISTRATION COURSE**

With the increasing complexity of industry and commerce, the system of apprenticeship as a method of business training has become less satisfactory. Greater opportunity in business is therefore open to the college man with business training.

The following curriculum has been planned to meet the needs of students who expect to do graduate work in economics or business administration as well as those who intend to enter industry after graduating from college.
<table>
<thead>
<tr>
<th></th>
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<th>WINTER QUARTER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
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<tr>
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<td>Political Science 106</td>
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<td>Speech 103 or Natural Science</td>
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<td><strong>Second Year</strong></td>
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<tr>
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<tr>
<td>Economics and Business 208 or Economics and Business 242</td>
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<td></td>
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<tr>
<td>Economics and Business 133</td>
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<td><strong>Fourth Year</strong></td>
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<td>Contracts II(College of Law)</td>
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<tr>
<td><strong>SPRING QUARTER</strong></td>
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<tr>
<td>Economics and Business 208 or Economics and Business 242</td>
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<tr>
<td>Electives</td>
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</table>
**Pre-Theological Course**

The suggested outline of pre-theological studies which follows will be found to meet the entrance requirements of practically all theological schools. Most leading seminaries urge that the student have a thorough knowledge of the social sciences and include in their suggestions at least one natural science, such as biology or geology. 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.

### First Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
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<tbody>
<tr>
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<tr>
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<tr>
<td>Speech 101</td>
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<td>History 104</td>
<td>3 History 105</td>
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<tr>
<td>English 102a</td>
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<tr>
<td>Biology 103</td>
<td>3 Biology 103</td>
</tr>
<tr>
<td>Speech 103</td>
<td>3 Speech 103</td>
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### Second Year

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<tbody>
<tr>
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<tr>
<td>English 121</td>
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<td>Political Science 101</td>
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<tr>
<td>Psychology 101</td>
<td>5 Psychology 102</td>
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<td>Bible 151</td>
<td>3 Bible 152</td>
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<td>Bible 153</td>
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### Third Year

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<tbody>
<tr>
<td>Philosophy 201</td>
<td>3 Philosophy 202</td>
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<tr>
<td>Sociology 151</td>
<td>3 Sociology 152</td>
</tr>
<tr>
<td>Bible 231 or</td>
<td>3 Bible 232 or</td>
</tr>
<tr>
<td>Religious Education 221</td>
<td>3 Religious Education 222</td>
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<td>Electives</td>
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<tr>
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<tr>
<td>Sociology 153</td>
<td>3 Sociology 153</td>
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<tr>
<td>Bible 233 or</td>
<td>3 Bible 233 or</td>
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<tr>
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## Fourth Year

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<tr>
<td>English 214</td>
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<tr>
<td>Principles of Education 207</td>
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<tr>
<td>Electives</td>
<td>9-10</td>
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<tr>
<td><strong>SPRING QUARTER</strong></td>
<td><strong>WINTER QUARTER</strong></td>
</tr>
<tr>
<td>English 216</td>
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<tr>
<td>History of Education 138</td>
<td>3</td>
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<tr>
<td>Electives</td>
<td>9-10</td>
</tr>
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</table>

## Curriculum for Majors in Chemistry

The teaching profession and the industries as well as the field of research offer many fine opportunities to persons who have good preparation in this and related divisions of learning. The curriculum herein recommended is intended to prepare the student, who is scientifically inclined, to avail himself of these opportunities, and to create in his mind the desire to continue advanced study in the graduate school or research laboratory. Adjustment of the curriculum, to accommodate the student who desires to qualify as teacher of chemistry and physics in the public schools, will be made, provided this desire is indicated prior to the beginning of the junior year.

## First Year

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<thead>
<tr>
<th>FALL QUARTER</th>
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<tbody>
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<td>English 101</td>
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<td>Chemistry 101-101a</td>
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<tr>
<td>Mathematics 101</td>
<td>5</td>
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<tr>
<td>Social Science</td>
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<td>Chemistry 103-103a</td>
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<td>Mathematics 105</td>
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<td>Social Science</td>
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## Second Year

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<tr>
<td>Physical Education</td>
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<td>Chemistry 104</td>
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<td>Mathematics 107</td>
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</tr>
<tr>
<td>Mechanical Drawing I</td>
<td>4</td>
</tr>
<tr>
<td>Economics 121</td>
<td>3</td>
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<td>Mechanical Drawing II</td>
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<td>Economics 123</td>
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## Third Year

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<td>Chemistry 206</td>
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<td>Modern Language</td>
<td>3</td>
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<tr>
<td>Elective</td>
<td>2-3</td>
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<tr>
<td><strong>SPRING QUARTER</strong></td>
<td><strong>WINTER QUARTER</strong></td>
</tr>
<tr>
<td>Chemistry 207</td>
<td>5</td>
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<tr>
<td>Physics 105</td>
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<td>Modern Language</td>
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### Fourth Year

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<td>Chemistry 211a</td>
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<td>Physics 216</td>
<td>3</td>
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<td>Modern Language</td>
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<tr>
<td>Elective</td>
<td>2-3</td>
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<tbody>
<tr>
<td>Chemistry 212</td>
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<tr>
<td>Chemistry 217</td>
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<tr>
<td>Physics 218</td>
</tr>
<tr>
<td>Modern Language</td>
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<tr>
<td>Elective</td>
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</table>

### Pre-Law Course

For admission to standard law schools at least 90 quarter hours (60 semester hours), exclusive of physical education, are required. If there is a probability that the student may become a candidate for the Bachelor of Arts degree, it is recommended that the general schedule of prescribed and group elective courses be followed. Students who plan to take only two years of pre-law work may omit some of the regularly prescribed courses in order to make possible the election of additional courses in history, political science, and economics.

### First Year

<table>
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<tr>
<th>FALL QUARTER</th>
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<tbody>
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<td>Physical Education</td>
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<td>English 101</td>
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<tr>
<td>Mathematics 101a or 101</td>
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<tr>
<td>History 104</td>
<td>3</td>
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<td>Electives</td>
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<tr>
<td>Physical Education</td>
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<td>English 102a</td>
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<tr>
<td>Mathematics 112</td>
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<tr>
<td>History 106</td>
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<td>Electives</td>
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A year course in laboratory science (biology, chemistry or physics) may be elected instead of mathematics.

### Second Year

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<tr>
<th>FALL QUARTER</th>
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<tr>
<td>Physical Education</td>
<td>1</td>
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<tr>
<td>Speech 110 or English 121</td>
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<tr>
<td>Political Science 101</td>
<td>3</td>
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<td>Psychology 101</td>
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<tr>
<td>Economics 121</td>
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<td>History 113</td>
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<tr>
<td>Physical Education</td>
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<td>Political Science 103</td>
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<td>Psychology 104</td>
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<tr>
<td>Economics 123</td>
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<tr>
<td>History 115</td>
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<tr>
<td>Elective</td>
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</table>

Alternatives for either Economics 121, 122, 123 or History 113, 114, 115, or both, are History 104, 105, 106 and History 131, 132, 133.
ARTS-LAW COMBINATION COURSE

It is strongly recommended that the student plan to take at least nine quarters of work in the College of Liberal Arts, completing a total of 140 quarter hours, exclusive of physical education, and covering the prescribed and group elective courses as well as a number of "200" courses in the social sciences. Many very desirable and highly important courses preliminary to a thorough legal training are offered. The fourth year is taken as the freshman year in a standard law school. Upon the successful completion of the freshman year in law with a quality point average of 1.0 or better the degree of Bachelor of Arts is granted. After two more years of successful work in the law school 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 45 quarter hours in the College of Liberal Arts of this University.

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

JOHN H. TAFT GYMNASIUM

This splendid building meets every requirement of the modern program of physical education
Groups and Departments of Instruction

All courses in the "100" group are primarily for Freshmen and Sophomores. All courses in the "200" group are primarily for Juniors and Seniors. Courses may be withdrawn or other changes made at the discretion of the Board of Trustees and the Faculty.

Group I. Language, Literature and Arts

Students who expect to complete a major in any of the departments of this group are advised to take a minimum of 18 hours in English or Speech, or both; to elect courses in history and philosophy; and to continue the study of foreign language as a preparation for graduate study.

ANCIENT LANGUAGES

PROFESSOR SCHOONOVER

It is the aim to utilize as fully as possible the efficiency of Latin as an instrument of education and a means of culture. Each author is studied in historical and literary relation to his period. The works of any other author, of equal value, may be substituted for any course in the schedule at the wish of the class and with the approval of the Dean and instructor.

Students who major in Latin ordinarily should have a good working knowledge of a modern foreign language. English and speech are suggested as minors. Certain courses in history are recommended, the title of the courses depending upon the aims and objectives of the student.

LATIN

107. CICERO—SELECTED ORATIONS (Fall) 3 Hrs.
108. CICERO—ORATIONS; VIRGIL—AENEID (Winter) 3 Hrs.
109. VIRGIL—AENEID (Spring) 3 Hrs.

Courses 110-112 are open to students who have presented two units of Latin for college entrance. T. Th. F., 6.

110. CICERO—DE SENECTUTE ET DE AMICITIA (Fall) 3 Hrs.
111. LIVY—BOOK XXI OF THE HISTORY (Winter) 3 Hrs.
112. HORACE—ODES AND SATIRES (Spring) 3 Hrs.

Courses 110-112 are open to students who have presented three or four units of Latin for college entrance. M. W. F., 5.

115. CICERO—DE ORATORE, ORATOR, BRUTUS (Fall) 3 Hrs.
116. PLINY—LETTERS (Winter) 3 Hrs.
117. OVID—METAMORPHOSES (Spring) 3 Hrs.

A group of extensive reading courses for juniors and seniors. T. W. Th., 3.

*120. TACITUS—GERMANIA ET AGRICOLA (Fall) 3 Hrs.
*121. QUINTILLIAN—DE INSTITUTIONE ORATORIA (Winter) 3 Hrs.
*122. VIRGIL—GEORGICS

A group of extensive reading courses for juniors and seniors. T. W. Th., 3.

* Not given in 1933-34.
ENGLISH LANGUAGE, LITERATURE
AND SPEECH

PROFESSOR FREEMAN, PROFESSOR DEMING
ASSISTANT PROFESSOR WILDER
AND MR. LAWRENCE FREEMAN

The work is arranged with three chief ends in view: first, to provide the student with such skill in writing and speaking that, regardless of what field of business or what profession he may later enter, he may express his ideas clearly and adequately; second, to give the student a knowledge of two great literatures, the English and the American, so that he may, after he has finished his college work, read with some critical ability, understanding, and appreciation of literature as an art and as an interpretation of life; and third, to offer advanced work to those who are planning to specialize in the field of English or American literature as teachers.

Students majoring in English are advised to minor in French, Latin, or German, and to elect a year of English history. A minor may be completed in history.

COMPOSITION

101. COMPOSITION (Fall, Winter) 3 Hrs.
102. COMPOSITION (Winter) 3 Hrs.
102a. COMPOSITION (Spring) 3 Hrs.
Four sections, M. W. F., 2, 4, 5; T. Th. F., 6.
201. COLLEGE GRAMMAR (Winter) 3 Hrs.
Required for English majors. T. Th. F., 7.
204. THE SHORT STORY (Winter) 2 Hrs.
224. THE SHORT STORY (Spring) 2 Hrs.
Permission of the instructor required. T. Th., 3.
205. EXPOSITORY WRITING (Fall) 2 Hrs.
225. EXPOSITORY WRITING (Winter) 2 Hrs.
Required of all students who major in English. T. Th., 3.

JOURNALISM

128. NEWS WRITING (Fall) 3 Hrs.
129. NEWS WRITING (Winter) 3 Hrs.
130. COPY READING AND EDITING (Spring) 3 Hrs.
T. Th. F., 1.

ENGLISH LITERATURE

103. FROM THE BEGINNING TO THE ROMANTIC MOVEMENT (Fall) 3 Hrs.
104. FROM THE ROMANTIC MOVEMENT TO 1920 (Winter) 3 Hrs.
105. AN INTRODUCTORY SURVEY OF ENGLISH DRAMA (Spring) 3 Hrs.
Prerequisites: English 101 and 102. M. W. F., 3.
*106. EIGHTEENTH CENTURY PROSE (Fall) 3 Hrs.
*107. EIGHTEENTH CENTURY PROSE (Winter) 3 Hrs.
*108. EIGHTEENTH CENTURY POETRY (Spring) 3 Hrs.
A year's work in sophomore English. M. W. F., 2.

*121. AMERICAN POETRY (Fall) 3 Hrs.
*122. AMERICAN PROSE (Winter) 3 Hrs.
*122a. AMERICAN PROSE (Spring) 3 Hrs.

210. SHAKESPEARE: HISTORIES (Fall) 3 Hrs.
211. SHAKESPEARE: TRAGEDIES (Winter) 3 Hrs.
212. SHAKESPEARE: COMEDIES (Spring) 3 Hrs.
Open to juniors and seniors. M. W. F., 4.

214. NINETEENTH CENTURY POETRY (Fall) 3 Hrs.
215. NINETEENTH CENTURY POETRY (Winter) 3 Hrs.
216. NINETEENTH CENTURY POETRY (Spring) 3 Hrs.
A year's work open to juniors and seniors. M. W. F., 7.

217. NINETEENTH CENTURY ESSAYISTS (Fall) 3 Hrs.
218. NINETEENTH CENTURY ESSAYISTS (Winter) 3 Hrs.

219. THE ENGLISH NOVEL (Spring) 3 Hrs.
English 217, 218 and 219 constitute a year's work. M. W. F., 2.

231. ENGLISH PROBLEMS 1-3 Hrs.
Minor investigations for qualified seniors.

SPEECH

101. PUBLIC SPEAKING (Fall, Winter) 3 Hrs.

102. PUBLIC SPEAKING (Winter) 3 Hrs.

103. LITERARY INTERPRETATION (Spring) 3 Hrs.
M. W. F., 1.

110. ARGUMENTATION (Fall) 3 Hrs.

111. ARGUMENTATION (Winter) 3 Hrs.
Prerequisite: English 101, 102. M. W. F., 6.

112. DRAMATIC TECHNIC (Fall) 2 Hrs.
Prerequisite: Speech 103. T. Th., 7.

220. INTERPRETATIVE READING (Fall) 3 Hrs.
The art of effective oral reading. M. W. F., 2.

221. PLAY DIRECTING (Winter) 3 Hrs.
Prerequisite: Speech 103. T. W. Th., 7.

222. EXTEMPORE SPEAKING (Spring) 2 Hrs.
Prerequisite: Speech 101, 102. T. Th., 6.

230. INTERCOLLEGIATE DEBATE (Fall) 2-3 Hrs.

231. SHAKESPEARIAN READING (Winter) 3 Hrs.

232. HIGH SCHOOL DRAMATICS (Spring) 2 Hrs.
Prerequisite: Some training in the speech arts. T.

Th., 7.

* Not given in 1933-34.
MODERN LANGUAGES

PROFESSOR HERRICK AND MISS KAMPMEIER

The modern languages are designed to meet both cultural and practical needs. The advanced courses afford opportunity for students to major or minor in French. If a student expects to do graduate work, or to specialize in science, he should have a working knowledge of French or German.

Major in French. Requirements, three years of college French in addition to Elementary French or the equivalent, and two quarters of French Phonetics; a total of 38 hours.

For a minor in French, the requirement is two years in addition to Elementary French.

Students majoring in this department should elect courses in English literature, history, Latin, and speech.

FRENCH

Introductory Courses

101. ELEMENTARY FRENCH (Fall) 3 Hrs.
102. ELEMENTARY FRENCH (Winter) 3 Hrs.
103. ELEMENTARY FRENCH (Spring) 3 Hrs.

First year courses in French. M. W. F., 1.

104a. INTERMEDIATE FRENCH (Fall) 3 Hrs.
105a. INTERMEDIATE FRENCH (Winter) 3 Hrs.
106a. INTERMEDIATE FRENCH (Spring) 3 Hrs.

Second year courses in French. T. Th. F., 3.

Advanced Courses

223a. MODERN LITERATURE (Fall) 3 Hrs.
224a. MODERN LITERATURE (Winter) 3 Hrs.
225a. MODERN LITERATURE (Spring) 3 Hrs.

For juniors or seniors. Prerequisite: French 104a-106a. In alternate years with French 206a-208a. M. W. F., 4.

*206a. GENERAL SURVEY OF FRENCH LITERATURE (Fall) 3 Hrs.

*207a. GENERAL SURVEY OF FRENCH LITERATURE (Winter) 3 Hrs.

*208a. GENERAL SURVEY OF FRENCH LITERATURE (Spring) 3 Hrs.

Prerequisite: French 104a-106a. Given in alternate years with French 223a-225a. T. Th. F., 6.

224a. FRENCH PHONOGRAMS (Fall) 1 Hr.
225a. FRENCH PHONOGRAMS (Winter) 1 Hr.
226a. FRENCH PHONOGRAMS (Spring) 1 Hr.

Hour to be arranged. Prerequisite: French 101-103.

GERMAN

Introductory Courses

101. ELEMENTARY GERMAN (Fall) 3 Hrs.
102. ELEMENTARY GERMAN (Winter) 3 Hrs.
103. ELEMENTARY GERMAN (Spring) 3 Hrs.

First-year course in German. M. W. F., 5.

* Not given in 1933-34.
104a. INTERMEDIATE GERMAN (Fall) 3 Hrs.
105a. INTERMEDIATE GERMAN (Winter) 3 Hrs.
106a. INTERMEDIATE GERMAN (Spring) 3 Hrs.
Second-year courses in German. T. Th. F., 2.

*118. SCIENTIFIC GERMAN (Winter) 3 Hrs.
The reading of scientific texts and periodicals with particular emphasis on individual needs. Prerequisite: German 101-103. Hours to be arranged.

MUSIC

PROFESSOR DEWEES, MR. GAILEWICZ
MISS ALICE O. MOORE, MRS. ELLA IRICK
W. P. LAMALE

Instruction is provided for those who desire to become musicians, either as performers or as teachers, and an opportunity is afforded to those who wish to devote themselves to the literature of music. 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.

EQUIPMENT

Presser Hall, the home of the Department of Music, built in memory of Theodore Presser, an early faculty member, cost nearly $145,000. It contains the Willis Auditorium, with a seating capacity of 500, a large stage, 7 fine studios, 18 practice rooms, 3 classrooms, and 14 upright pianos. In Lehr Auditorium is a large organ and a grand piano.

SPECIAL STUDENTS

A student who desires to register for work in applied music or theoretical subjects without having graduation in view, may register as a special student. There are no requirements for registration as a Special Student other than evidence of talent and the ability to pursue a selected course with success.

JUNIOR DEPARTMENT

The Applied Music Department is open to children of public school age without any restriction other than an interest and a willingness to study. In all teaching the ideal of musical feeling is sought in companionship with those of beautiful tone, and accurate intonation. Group playing is stressed as much as possible and students of orchestral instruments are encouraged to enter the local high school orchestra.

Classes are formed in Piano, Voice, and Orchestral Instruments provided that a minimum of five pupils enroll.

The usual private lesson periods of all instructors are available at special rates for those who prefer individual instruction.

BACHELOR OF ARTS WITH MAJOR IN MUSIC

A major of 45 hours of music or a minor of 25 hours of music is accepted towards the Bachelor of Arts degree. The major consists of the following courses of Theoretical and Applied Music: Sight Singing and Ear Training, History of Music, Harmony, Musical Form, Applied Music and Ensemble Participation. Theoretical Music should constitute about 30 hours of this major.

The courses listed above are not inflexible but may be changed to meet the requirements of the individual by consulting the Dean and the Head of the Department.
PUBLIC SCHOOL MUSIC COURSE

This course 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. See curriculum under Division of Teacher Training.

GRADUATE IN MUSIC

Students who are unable to offer the required number of entrance credits permitting work towards a degree may follow a course of professional studies in music and earn a Diploma as Graduate in Music. The course may be completed in about three years. A public graduation recital must be given.

THEORETICAL MUSIC

PROFESSOR DEWEES, MR. GAILEWICZ, AND MISS MOORE

101. ELEMENARY SIGHT SINGING AND EAR TRAINING (Fall) 3 Hrs.
     Daily, 2.

102. ELEMENARY SIGHT SINGING AND EAR TRAINING (Winter) 3 Hrs.
     Continuation of 101. Daily, 2.

103. ELEMENARY SIGHT SINGING AND EAR TRAINING (Spring) 3 Hrs.
     Continuation of 102. Daily, 2.

104. ADVANCED SIGHT SINGING AND EAR TRAINING (Fall) 3 Hrs.
     Daily, 3.

105. ADVANCED SIGHT SINGING AND EAR TRAINING (Spring) 3 Hrs.
     Continuation of 104. Daily, 3.

106. ADVANCED SIGHT SINGING AND EAR TRAINING (Spring) 3 Hrs.
     Continuation of 105. Daily, 3.

111. ELEMENARY HARMONY (Fall) 3 Hrs.
     Prerequisite: the ability to play common hymns at sight on the piano. M. W. F., 4.

112. ELEMENARY HARMONY (Winter) 3 Hrs.

113. ELEMENARY HARMONY (Spring) 3 Hrs.

114. ADVANCED HARMONY (Fall) 3 Hrs.

115. ADVANCED HARMONY (Winter) 3 Hrs.

211. FORM AND ANALYSIS (Fall) 2 Hrs.
     The musical sentence, its subdivisions and extensions; double periods, two and three-part song forms. Prerequisite: Harmony 115. M. W. F., 3.

212. FORM AND ANALYSIS (Winter) 2 Hrs.
     The theme and variations, the suite, and the sonata. Analysis of selected Beethoven sonatas. M. W. F., 3.
251. School Orchestration (Winter) 3 Hrs.
Prerequisites: Harmony 115; Advanced Sight Singing 106. M. W. F., 2.

252. Advanced Orchestration (Spring) 3 Hrs.
A continuation of 251, with scoring for full band and orchestra. Prerequisite: School Orchestration 251. M. W. F., 2.

241. Conducting (Fall) 3 Hrs.

242. Advanced Conducting (Winter) 3 Hrs.
Conducting full band and orchestra scores. Prerequisite: Conducting 241. M. W. F., 1.

153. History and Appreciation (Fall) 3 Hrs.
The origin and development of music, studied from an appreciative basis. M. W. F., 2.

154. History and Appreciation (Winter) 3 Hrs.
Continuation of 153. M. W. F., 2.

155. History and Appreciation (Spring) 3 Hrs.
Continuation of 154. M. W. F., 2.

202. Primary Music Methods and Observation (Fall) 4 Hrs.
Four observations each week are required. Prerequisite: Advanced Sight Singing 106; Harmony 114. M. W. F., 5.

203. Intermediate Music Methods and Observation (Spring) 4 Hrs.
Materials and methods. Four observations each week are required. Prerequisite: Primary Methods 202. M. W. F., 5.

204. Junior and Senior High School Methods and Observation (Winter) 4 Hrs.
The adolescent voice and its care. Four observations each week are required. Prerequisite: Intermediate Music Methods 203. M. W. F., 5.

*268. School Music Supervision (Fall) 3 Hrs.
The meaning, purpose, and special problems of supervision. Prerequisite: Junior and Senior High School Methods 204. M. W. F., 5.

213. Supervised Teaching in the Primary Grades (Spring) 3 Hrs.
Prerequisite: Primary Music Methods 202.

214. Supervised Teaching in the Intermediate Grades (Fall) 3 Hrs.
Prerequisite: Intermediate Methods 203.

PIANO

Professor Lamale and Mrs. Irick

Instruction in piano playing involves a special adaptation to the needs of the individual. A minute study of each student's deficiencies and previous habits of work is made and technical studies and selections best adapted to his needs are given him. Music is a means of intellectual culture and artistic enjoyment; the works of the best masters are therefore employed through all grades.

* Not given in 1933-34.
PIANO 151, 152, 153

PIANO 154, 155, 156

PIANO 251, 252, 253

PIANO 254, 255, 256

ORGAN

PROFESSOR LAMALE

No student will be accepted who has not reached the fourth grade in piano.
The course of study provides for thorough training in preparation for church and concert work. The course has been arranged to give a knowledge of the French school of organ music through the study of the works of the best composers in this particular school.

ORGAN 151, 152, 153

ORGAN 154, 155, 156

ORGAN 251, 252, 253

ORGAN 254, 255, 256
VIOLIN

MR. GALEWICZ

Elementary
A thorough grounding in the fundamentals. Fischer's Graded Course, Books I and II.

Intermediate
Fischer's Graded Course, Books III and IV. Maza's Etudes, Schradieck's School of Technic are used.

VIOLIN 151, 152, 153

VIOLIN 154, 155, 156
Florillo and Rode's Etudes, Concertos by Mozart, Mendelssohn, Bruch, and Bach. Recital material by Wieniawski, Leonard, Corelli, and others.

VIOLIN 251, 252, 253
Rode and Gavinies' Etudes, Wieniawski and Vieuxtemps' Concertos, Sonatas and solo material from nineteenth and twentieth century repertoire.

VIOLIN 254, 255, 256

REED AND BRASS INSTRUMENTS

The course of instruction includes both private and class lessons, and daily band rehearsals. Private instruction on a solo instrument to be selected by the student, constitutes the major subject. Class instruction in which the student is given a playing knowledge of every band instrument is also included.
Group II. Natural Sciences

A student who is likely to choose one of the departments in this group for his major is advised to schedule two laboratory sciences, and in most cases a course in mathematics, and acquire a reading knowledge of foreign language, if graduate work is anticipated.

**BIOLOGY**

**Professor Huber and Assistant Professor Dobbins**

The aims of this department are to enable the student to understand the life world in which he lives, to prepare for the teaching field, to obtain a biological foundation for the study of medicine and dentistry, and to qualify for admission to graduate work.

A student who plans to complete a major in biology is advised to include a course in chemistry, one in physics, an introduction to statistical methods, courses in psychology and sociology, and have a reading knowledge of German and French if he intends to enter upon graduate work. A course in philosophy is strongly recommended.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>101</td>
<td>Zoology (Fall)</td>
<td>3 Hrs.</td>
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<tr>
<td>102</td>
<td>Zoology (Winter)</td>
<td>3 Hrs.</td>
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<tr>
<td>103</td>
<td>Zoology (Spring)</td>
<td>3 Hrs.</td>
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<td></td>
<td>Section 1, M. W. 3, 4; F., 3. Section 2, T. Th., 3, 4; F., 4. Section 3, T. Th., 5, 6; F., 6. Section 2, Spring, T. Th., 7, 8; F., 8.</td>
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<tr>
<td>106</td>
<td>Comparative Vertebrate Anatomy (Fall)</td>
<td>5 Hrs.</td>
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<td></td>
<td>Recitations three hours; laboratory six hours. M. W. F., 2; T. Th., 2, 3, 4.</td>
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<tr>
<td>113</td>
<td>Mammalian Anatomy and Physiology (Winter)</td>
<td>5 Hrs.</td>
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<td></td>
<td>Prerequisite: Comparative Vertebrate Anatomy. M. W. F., 2; T. Th., 2, 3, 4.</td>
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<tr>
<td>107</td>
<td>Botany (Fall)</td>
<td>3 Hrs.</td>
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<td>108</td>
<td>Botany (Winter)</td>
<td>3 Hrs.</td>
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<tr>
<td>109</td>
<td>Botany (Spring)</td>
<td>3 Hrs.</td>
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<td></td>
<td>M. W., 5, 6; F., 5 or M. W., 7, 8; F., 7.</td>
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<td>110</td>
<td>Local Flora (Spring)</td>
<td>3 Hrs.</td>
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<td>S., 1, 2, 3, 4; T. Th., 1. Alternates with course 217.</td>
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<tr>
<td>*230</td>
<td>Heredity (Spring)</td>
<td>3 Hrs.</td>
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<td></td>
<td>Prerequisite: Zoology 101, 102, 103, or Botany 107, 108, 109. T. Th. F., 1.</td>
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<tr>
<td>218</td>
<td>Vertebrate Embryology (Spring)</td>
<td>5 Hrs.</td>
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<td></td>
<td>Prerequisite: Zoology 101, 102, 103. M. W. F., 2; T. Th., 2, 3, 4.</td>
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<tr>
<td>219</td>
<td>Histology and Technique (Winter)</td>
<td>3 Hrs.</td>
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<td></td>
<td>Time schedule to be arranged.</td>
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<tr>
<td>220</td>
<td>Biological Problems</td>
<td>1-3 Hrs.</td>
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<td></td>
<td>By arrangement any quarter.</td>
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<tr>
<td>222</td>
<td>Plant Physiology (Winter)</td>
<td>3 Hrs.</td>
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<tr>
<td>*224</td>
<td>Plant Morphology (Winter)</td>
<td>3 Hrs.</td>
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<tr>
<td>235</td>
<td>Evolution (Spring)</td>
<td>3 Hrs.</td>
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<tr>
<td></td>
<td>Prerequisite: Zoology or Botany. T. Th. F., 1.</td>
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* Not given in 1933-34.
CHEMISTRY

PROFESSOR HARROD AND ASSISTANT PROFESSOR GIBSON

The aim is to lay the foundation for an understanding of this basic science. The four fundamental courses, general chemistry, quantitative chemistry, organic chemistry, and physical chemistry studied in the order mentioned, together with allied courses in physical and social sciences, prepare the student for industrial work. In addition, by completing required courses in teacher training, preparation may be made for the teaching of chemistry in secondary schools. In anticipation of graduate work in chemistry, courses in mathematics through calculus and a reading knowledge of German and French are required.

101a. INTRODUCTORY CHEMISTRY (Fall) 5 Hrs.
102a. INTRODUCTORY CHEMISTRY (Winter) 5 Hrs.
103a. INTRODUCTORY QUALITATIVE ANALYSIS (Spring) 5 Hrs.

Two sections. Lecture and quiz, M. W. F., 1 or 3. Laboratory for Pharmacy students, M. W., 6, 7, 8; Liberal Arts and Engineering students, T. Th., 2, 3, 4; or 6, 7, 8.

101. GENERAL CHEMISTRY (Fall) 5 Hrs.
102. GENERAL CHEMISTRY (Winter) 5 Hrs.
103. QUALITATIVE ANALYSIS (Spring, Summer) 5 Hrs.

Prerequisite: One unit of high school chemistry. Two sections. Lecture and quiz, M. W. F., 2 or 4. Laboratory, Pharmacy students, M. W., 6, 7, 8; Liberal Arts and Engineering students, T. Th., 2, 3, 4 or 6, 7, 8.

104. QUANTITATIVE ANALYSIS (Fall) 5 Hrs.
105. QUANTITATIVE ANALYSIS (Winter) 5 Hrs.
106. QUANTITATIVE ANALYSIS (Spring) 5 Hrs.

Prerequisite: Chemistry 103a or 103. Lecture T. Th., 5 or 6; laboratory, M. W. F., 5, 6, 7.

206. ORGANIC CHEMISTRY (Fall) 5 Hrs.
207. ORGANIC CHEMISTRY (Winter) 5 Hrs.
208. ORGANIC CHEMISTRY (Spring) 5 Hrs.

Prerequisite: Chemistry 103a or 103. Lecture and quiz, M. W. F., 5; laboratory, T. Th., 5, 6, 7.

209. INDUSTRIAL INORGANIC CHEMISTRY (Winter) 4 Hrs.
210. INDUSTRIAL ORGANIC CHEMISTRY (Spring) 4 Hrs.


211a. ADVANCED QUALITATIVE ANALYSIS (Fall) 5 Hrs.
211b. ADVANCED QUALITATIVE ANALYSIS (Winter) 5 Hrs.
212. INORGANIC PREPARATIONS (Spring) 5 Hrs.

Prerequisites: Chemistry 104 and 105. Lecture T. Th., 3; laboratory, M. W. F., 5, 6, and 7.

215. PHYSICAL CHEMISTRY (Fall) 3 Hrs.
216. PHYSICAL CHEMISTRY (Winter) 3 Hrs.
217. PHYSICAL CHEMISTRY (Spring) 3 Hrs.

Prerequisite: Quantitative Analysis, Organic Chemistry and General Physics. Mathematics through calculus is strongly recommended. Lecture and quiz, M. W. F., 2.

231. CHEMISTRY PROBLEMS 3 Hrs.

Minor investigations for qualified seniors who are majoring in chemistry. Consult head of department.
MATHEMATICS

Professor Whitted and Professor Fairchild

The aim 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 the exercises and practical problems when possible.

Students majoring in mathematics are advised to follow the sequence of courses 101 to 109 inclusive and to complete at least five quarter hours from other offerings in this department. Those planning to do graduate work in this field should complete courses 212, 215, and 216 with enough additional courses to bring the total to a minimum of forty-five hours. Physics is recommended as a minor. A reading knowledge of German or French is advised.

101a. Freshman Algebra (Fall) 3 Hrs.
102a. Freshman Algebra (Winter) 3 Hrs.
M. W. F., 2.
103a. Geometry of Space (Spring) 3 Hrs.
This course is offered to meet the needs of engineering students who present but one unit of geometry. The course is required but no college credit is given. M. W. F., 5.
101. College Algebra (Fall, Winter) 5 Hrs.
Prerequisite: Plane Geometry and one and one-half units of high school algebra. Daily, Fall, 4 or 5.
102. College Algebra (Winter) 4 Hrs.
Prerequisite: Mathematics 101, Winter, M. T. W. Th., 3; or by arrangement.
103. Trigonometry (Winter, Spring) 5 Hrs.
Prerequisite: high school algebra (1½ units). Plane and solid geometry (1½ units). Two sections: Winter, 4 or 5; Spring, 6.

*104. Spherical Trigonometry (Spring) 3 Hrs.
Prerequisite: Mathematics 105. M. W. F., 3.
105. Analytical Geometry (Spring) 5 Hrs.
Prerequisite: Mathematics 103. Daily or 4 or 5.

*106. Analytical Geometry of Space (Winter) 3 Hrs.
Prerequisite: Mathematics 105. M. W. F., 3.
107. Calculus: Differential (Fall) 4 Hrs.
Prerequisite: Mathematics 105. M. T. W. Th., 4.
108. Calculus: Differential and Integral (Winter) 4 Hrs.
109. Calculus: Integral (Spring) 4 Hrs.

*111. Descriptive Astronomy (Fall) 5 Hrs.
Not accepted toward a major in mathematics. Prerequisite: Mathematics 103. Daily, 2.

*112. Statistical Methods (Spring) 3 Hrs.
M. W. F., 2.
212. Differential Equations (Winter) 3 Hrs.
Prerequisite: Mathematics 109. M. W. F., 3.
215. Vector Analysis (Spring) 3 Hrs.
Prerequisite: Mathematics 109. M. W. F., 3.
216. **CALCULUS: ADVANCED INTEGRAL** *(Fall)* 4 Hrs.

*217. **THEORY OF EQUATIONS AND DETERMINANTS** *(Winter)* 3 Hrs.

**PHYSICS**
- **PROFESSOR BERGER**

The primary aim of this department is to train the student to reason from fundamental experimental facts in solving the problems of physics. In conjunction with this the department aims to give a training sufficiently broad to
a. Appreciate the physics of popular scientific articles.
b. Teach physics in the public schools.
c. Apply physics in engineering, medicine, etc.
d. Pursue graduate work to the best advantage.

The physics major must include courses 213, 214, and 220. A year of general chemistry should be completed. A year of economics is recommended.

For those contemplating graduate work in physics 45 hours each of physics and mathematics should be completed. An introductory course in philosophy and a reading knowledge of German are strongly recommended.

104. **GENERAL PHYSICS** *(Fall)* 5 Hrs.
105. **GENERAL PHYSICS** *(Winter)* 5 Hrs.
106. **GENERAL PHYSICS** *(Spring)* 5 Hrs.
For engineers and science majors. Open to sophomores. M. T. W. Th., 2. One 2-hour laboratory period.

109. **GENERAL PHYSICS** *(Fall)* 3 Hrs.
110. **GENERAL PHYSICS** *(Winter)* 3 Hrs.
111. **GENERAL PHYSICS** *(Spring)* 3 Hrs.
Open to freshmen. Prerequisites: One year each of algebra and geometry. M. W. F., 8.

109a. **GENERAL PHYSICS** 2 Hrs.
110a. **GENERAL PHYSICS** 2 Hrs.
111a. **GENERAL PHYSICS** 2 Hrs.
Laboratory to precede or accompany 109, 110, 111. T. Th., two 2-hour periods. Any quarter.

213. **MECHANICS** *(Fall)*
Daily, 3.

214. **MATHEMATICS OF PHYSICS** *(Spring)* 5 Hrs.
Daily, 7.

216. **ADVANCED LABORATORY:** MECHANICS

217. **ADVANCED LABORATORY:** LIGHT, HEAT, SOUND

218. **ADVANCED LABORATORY:** ELECTRICITY
Maximum credit in any one course, 6 hours. Laboratory time by arrangement. Any quarter.

*219. **ELECTRICAL MEASUREMENTS** *(Winter)* 4 Hrs.
Class, Th., 7. Laboratory, by arrangement.

220. **MODERN PHYSICS** *(Winter)* 3 Hrs.
M. W. F., 5.

* Not given in 1933-34.
Group III. Social Sciences.

A student who plans to make his major elections from a department in this group should complete at least two year courses in the social sciences during the freshman and sophomore years. Proficiency in English is indispensable. A course in statistical methods will prove useful, and a reading knowledge of French or German is essential if graduate work is anticipated.

ECONOMICS AND BUSINESS ADMINISTRATION

Professor McBride

The aim is to help the student acquire a sympathetic understanding of the origin and functions of our business institutions. Aside from its cultural value, such an understanding should enable the student to adjust himself intelligently to his industrial environment, and to prepare himself for the wise performance of the duties of a citizen in an industrial democracy.

It is recommended that the course in Principles of Economics be completed during the first two college years. Students majoring in this department are expected to take courses in history, political science, and sociology, especially such courses as coordinate with the field of economics. An acquaintance with the physical sciences is also important.

121. Principles of Economics (Fall) 3 Hrs.
122. Principles of Economics (Winter) 3 Hrs.
123. Principles of Economics (Spring) 3 Hrs.
   Required of all majors. Not open to freshmen. M. W. F., 5.

131. Principles of Accounting (Fall) 3 Hrs.
132. Principles of Accounting (Winter) 3 Hrs.
133. Principles of Accounting (Spring) 3 Hrs.
   Required of all majors. Prerequisite or concurrent.

Economics 121, 122, 123. M. W. F., 3.

*204. Labor Problems (Fall) 3 Hrs.
*207. Money and Banking (Winter) 3 Hrs.
*208. Money and Banking (Spring) 3 Hrs.
   Prerequisite: Economics 121, 122, 123. M. W. F., 6.

214. Business Finance (Fall) 3 Hrs.
215. Business Finance (Winter) 3 Hrs.
   Prerequisite: Economics 121, 122, 123, and Accounting

217. Public Finance (Spring) 3 Hrs.
   Prerequisites: Economics 121, 122, 123. M. W. F., 6.

241. Marketing (Winter) 3 Hrs.
242. Marketing (Spring) 3 Hrs.
   Prerequisite: Economics 121, 122, 123. M. W. F., 1.

251. Risk, Risk-Bearing, and Insurance (Fall) 3 Hrs.
   Prerequisite: Economics 121, 122, 123. M. W. F., 1.
* Not given in 1933-34.
HEALTH AND PHYSICAL EDUCATION

PROFESSOR CLYDE LAMB
ASSISTANT PROFESSOR HARRIS LAMB
ASSISTANT PROFESSOR MILDRED BRUCKHEIMER

GENERAL STATEMENT

Some form of physical activity is required of all students during their first two years in the University. The nature and amount of this 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 of both a theoretical and practical nature. A strong intramural sports program is designed to provide some form of activity for nearly every student on the campus; while for those who wish to specialize in the physical education field, a four-year professional curriculum is offered, leading to the Bachelor of Science in Education degree and to a special state four-year provisional certificate.

FOUR-YEAR PROFESSIONAL COURSE

The curriculum for the four-year professional course for teachers and supervisors of physical education will be found under the Division of Teacher Training.

DESCRIPTION OF COURSES

101. PHYSICAL EDUCATION (Fall) 1 Hr.
102. PHYSICAL EDUCATION (Winter) 1 Hr.
103. PHYSICAL EDUCATION (Spring) 1 Hr.
104. PHYSICAL EDUCATION (Fall) 1 Hr.
105. PHYSICAL EDUCATION (Winter) 1 Hr.
106. PHYSICAL EDUCATION (Spring) 1 Hr.

Men — six sections. M. W., 1, 2, 3, 4, 5, or 6. Women — four sections. T. Th., 1, 2, 3, 4.

101a. PHYSICAL EDUCATION FOR MAJORS (Fall) 1 Hr.
102a. PHYSICAL EDUCATION FOR MAJORS (Winter) 1 Hr.
103a. PHYSICAL EDUCATION FOR MAJORS (Spring) 1 Hr.
104a. PHYSICAL EDUCATION FOR MAJORS (Fall) 1 Hr.
105a. PHYSICAL EDUCATION FOR MAJORS (Winter) 1 Hr.
106a. PHYSICAL EDUCATION FOR MAJORS (Spring) 1 Hr.

Men and Women. T. Th., 5.

115. PERSONAL AND GENERAL HYGIENE (Fall) 2 Hrs.
Open to freshmen. T. Th., 3.

117. HEALTH EDUCATION (Fall) 3 Hrs.
Open to sophomores. M. W. F., 5.
151. Health Education (Winter)  
Open to sophomores. M. W. F., 4.  
3 Hrs.

152. Health Education (Spring)  
Open to sophomores. M. W. F., 4.  
3 Hrs.

156. Theory and Practice of Plays and Games (Spg.)  
Open to sophomores. M. W. F., 6.  
3 Hrs.

201. Principles and Methods of Physical Education  
(Fall)  
4 Hrs.

202. Principles and Methods of Physical Education  
(Winter)  
4 Hrs.

203. Methods of Physical Education (Spring)  
4 Hrs.

221a. Methods in Coaching Football (Fall)  
T. Th. F., 4.  
3 Hrs.

221b. Methods in Coaching for Women (Fall)  
M. W. F., 6.  
3 Hrs.

222. Methods in Coaching Basketball (Winter)  
3 Hrs.

223. Methods in Coaching Baseball and Track (Spg.)  
Courses 221a-223 open to juniors. Men—T. Th. F., 4.  
Women—M. W. F., 7.  
3 Hrs.

252. Normal Diagnosis (Winter)  
Open to seniors. T. Th., 3.  
2 Hrs.

254. Organization and Administration of Physical Education—Men and Women (Fall)  
For seniors. T. Th., 2.  
3 Hrs.

255. Individual Gymnastics (Winter)  
Senior course. T. Th., 2.  
2 Hrs.

258. First Aid and Athletic Training (Spring)  
Open to seniors. T. Th., 3.  
2 Hrs.

260. History of Physical Education (Spring)  
Senior course. T. Th., 2.  
2 Hrs.

263. Student Teaching—Physical Education  
(Fall, Winter, Spring)  
6 Hrs.

Hours to be arranged.

271. Advanced Coaching Practice (Fall)  
1 Hr.

272. Advanced Coaching Practice (Winter)  
1 Hr.

273. Advanced Coaching Practice (Spring)  
1 Hr.

Hours to be arranged.
HISTORY AND POLITICAL SCIENCE

Professor Binkley and Professor Schieber

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 in the allied social sciences particularly political science, sociology, psychology, and economics. The department will recommend no graduate for the teaching of history who has not taken nine hours in American Government.

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 graduate study in this field. Those majoring in political science are required to pursue courses in sociology, psychology, history and economics.

HISTORY

104. English History to 1558  (Fall)  3 Hrs.
105. English History: 1558-1783  (Winter)  3 Hrs.
106. English History: 1783 to the Present Time  
(Spring)  3 Hrs.
Open to freshmen. Three sections. M. W. F., 1, 2, 3.
113. History of the United States to 1815  
(Fall)  3 Hrs.
114. History of the United States: 1815 to 1865  
(Winter)  3 Hrs.
115. History of the United States: 1865 to the  
Present Time  
(Spring)  3 Hrs.
Not open to freshmen. T. Th. F., 4.
131. History of Europe: 1500-1660  (Fall)  3 Hrs.
132. History of Europe: 1660-1815  (Winter)  3 Hrs.
133. History of Europe: 1815 to the Present Time  
Not open to freshmen. T. Th F., 5.

*216. Recent American History  (Fall)  2 Hrs.
*217. Recent American History  (Winter)  2 Hrs.
*218. Recent American History  (Spring)  2 Hrs.
An investigation and intensive study of some of the major movements of the United States since the Civil War. Prerequisite: History 113, 114, 115. T. Th., 6.

224. Constitutional History of the United States  
(Fall)  2 Hrs.
225. Constitutional History of the United States  
(Winter)  2 Hrs.
226. Constitutional History of the United States  
(Spring)  2 Hrs.
Prerequisite: Political Science 101, 102, 103, and History 113, 114, 115. T. Th., 6.
235. Bourbon France and the Revolutionary Era  
(Fall)  2 Hrs.
236. **Bourbon France and the Revolutionary Era**  
*Winter*  
2 Hrs.

237. **Bourbon France and the Revolutionary Era**  
*Spring*  
2 Hrs.

Prerequisite: History 131, 132, 133. T. Th., 7.

*251. **Recent European History**  
*Fall*  
2 Hrs.

*252. **Recent European History**  
*Winter*  
2 Hrs.

*253. **Recent European History**  
*Spring*  
2 Hrs.

Prerequisite: History 131, 132, 133. T. Th., 7.

**Political Science**

101. **American Government**  
*Fall*  
3 Hrs.

102. **American Government**  
*Winter*  
3 Hrs.

103. **American Government**  
*Spring*  
3 Hrs.

Not open to freshmen. M. W. F., 1 and 5.

104. **Introduction to Political Science**  
*Fall*  
2 Hrs.

105. **Introduction to Political Science**  
*Winter*  
2 Hrs.

106. **Introduction to Political Science**  
*Spring*  
2 Hrs.

Cannot be used to satisfy requirement of eighteen hours in Social Science. Primarily for freshmen. T. Th., 2.

204. **Municipal Government**  
*Winter*  
3 Hrs.

Prerequisite: Political Science 101, 102, 103. M. W. F., 6.

*208. **Comparative Government**  
*Fall*  
3 Hrs.

*209. **Comparative Government**  
*Winter*  
3 Hrs.

Prerequisite: Political Science 101, 102, 103, or the consent of the instructor. M. W. F., 6.

210. **American Political Parties**  
*Fall*  
3 Hrs.

Prerequisite: Nine hours of political science or the consent of the instructor. M. W. F., 3.

* Not given in 1933-34.
211. Political Science Problems 3 Hrs.
   Individual investigation in the field of political science.
   Open to qualified seniors majoring in this department.

212. American Political Theories (Spring) 3 Hrs.
   Prerequisite: Nine hours of political science or the consent of the instructor. M. W. F., 3.

230. European Political Theories (Spring) 3 Hrs.
   Prerequisite: Political Science 101, 102, 103, or the consent of the instructor. M. W. F., 3.

PSYCHOLOGY AND SOCIOLOGY

Professor Gray

The purpose of this department is to acquaint the student with the traits of human nature and the problems of social organization in order that he may become a better citizen, a more efficient teacher, and be better able to further his interests and studies either in private life or in institutions of learning.

Students who desire to major in this department will find it profitable to take courses in biology and such courses in mathematics as will aid in the use of statistical data. For those desiring to place major emphasis on sociology a good background of history is essential.

PSYCHOLOGY

101. General Psychology (Fall) 5 Hrs.
     Open to sophomores. Daily, 1.

102. Applied Psychology (Winter) 5 Hrs.
     Prerequisite: Psychology 101.

104. Social Psychology (Spring) 3 Hrs.
     Prerequisite: Psychology 101. M. W. F., 7.

112. Educational Psychology, Introduction (Winter) 3 Hrs.
     M. W. F., 5.

135. Educational Psychology (Winter) 3 Hrs.
     Prerequisite: General Psychology 101. M. W. F., 5.

136. Adolescent Psychology (Spring) 3 Hrs.
     Prerequisite: General Psychology 101. M. W. F., 5.

210. Abnormal Psychology (Spring) 5 Hrs.
     Prerequisite: Psychology 101, 102. Daily 1.

212. Psychological Problems 1-3 Hrs.
     Open only to qualified seniors.

SOCIOLOGY

151. General Sociology (Fall) 3 Hrs.

152. General Sociology (Winter) 3 Hrs.
     Not open to freshmen. M. W. F., 2.

153. American Society (Spring) 3 Hrs.
     Prerequisite: Sociology 151 and 152. M. W. F., 2.

211. Criminology (Spring) 3 Hrs.

212. The Family (Spring) 3 Hrs.
     Prerequisites: Sociology 151 and 152 or consent of the instructor. M. W. F., 2.

* Not given in 1933-34.
RELIGION AND PHILOSOPHY

Professor Potter

This department seeks to be of service to students interested in courses of a religious nature. Major emphasis is placed upon the contributions of the Old and New Testament to present day religious thinking. Particular attention is given to the social and religious teachings of Jesus so that the student may be in a position to meet more effectively the problems of modern life and be able constantly to reconstruct his religious thinking in the light of Christian idealism.

The historical and sociological phases of the Bible are also given attention in order that the student may understand the contribution of the various books to the gradual unfolding of moral and religious concepts and the factors which produce them.

Students preparing for the ministry are urged to work out their majors in the social sciences, especially psychology and sociology, and also to obtain a good background in the natural sciences.

BIBLICAL LITERATURE

151. OLD TESTAMENT (Fall) 3 Hrs.
152. OLD TESTAMENT (Winter) 3 Hrs.
153. THE LIFE OF CHRIST (Spring) 3 Hrs.
Not open to freshmen. M. W. F., 6.
231. THE SOCIAL TEACHING OF THE BIBLE (Spring) 3 Hrs.
232. THE LIFE OF PAUL (Fall) 3 Hrs.
233. LATER NEW TESTAMENT LITERATURE (Winter) 3 Hrs.
Courses 231-233 open to juniors and seniors. M. W. F., 3.

RELIGIOUS EDUCATION

*221. PRINCIPLES AND METHODS OF RELIGIOUS EDUCATION (Fall) 3 Hrs.
222. CURRICULUM OF RELIGIOUS EDUCATION (Winter) 3 Hrs.
Prerequisite: Religious Education 221.
*223. RELIGION OF CHILDHOOD AND YOUTH (Spring) 3 Hrs.
M. W. F., 3.

RELIGION

210. HISTORY OF RELIGION (Fall) 3 Hrs.
211. PSYCHOLOGY OF RELIGION (Winter) 3 Hrs.
Prerequisite: Psychology 101.
212. PHILOSOPHY OF RELIGION (Spring) 3 Hrs.
Prerequisite: Religion 210. T. Th. F., 5.

PHILOSOPHY

201. INTRODUCTION TO PHILOSOPHY (Fall) 3 Hrs.
202. LOGIC (Winter) 3 Hrs.
203. ETHICS (Spring) 3 Hrs.
M. W. F., 1.
205. HISTORY OF PHILOSOPHY (Fall) 3 Hrs.
206. HISTORY OF PHILOSOPHY (Winter) 3 Hrs.
207. HISTORY OF PHILOSOPHY (Spring) 3 Hrs.

The courses must be taken in sequence. T. Th. F., 7.

* Not given in 1933-34.
Division of Teacher Training

PROFESSOR FRANK L. LOY, Director of Teacher Training
PROFESSOR HERSCHEL LITHERLAND, PROFESSOR WALTER GRAY,
PROFESSOR WINONA PEARL GEETING
PROFESSOR MAUD HALEY

The Teacher Training work at Ohio Northern University, organized within the College of Liberal Arts, is designed to aid its students in forming clear conceptions of the dignity and importance of the teacher's work; to trace in the history of education the origin and development of modern principles of teaching; to present in theory and practice approved and rational methods of instruction; to create and maintain high professional standards among present and prospective teachers; and to offer such courses for the professional training of teachers as will broaden their horizon and advance them to higher planes of usefulness, ability, and service.

The Ohio Northern University is accredited by the State Department of Education to train teachers in the regular Elementary and Secondary Fields and to train supervisors and teachers of Health and Physical Education and Public School Music. Those who complete the courses described in the following pages will be granted the state Four-Year Provisional Certificate, and, after twenty-four months of successful teaching experience, the certificate may be made permanent by the State Board of School Examiners of Ohio.

I. ELEMENTARY EDUCATION

Grades One to Six

Ohio Northern University offers two and four-year curricula for the training of elementary teachers. The two-year curriculum leads to a diploma, and the four-year curriculum leads to the degree, Bachelor of Science in Education. Either curriculum entitles the student to the State Elementary Four-Year Provisional Certificate.

During the freshman year, the student will be required to take diagnostic tests in arithmetic, geography, history, and English to determine his knowledge of the content of the subjects. Students failing in any of these tests will be assigned to non-credit courses until their deficiencies are made up.

TWO-YEAR CURRICULUM FOR ELEMENTARY TEACHERS

First Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education 101</td>
<td>Physical Education 102</td>
</tr>
<tr>
<td>English 101</td>
<td>English 102</td>
</tr>
<tr>
<td>Zoology 101</td>
<td>Zoology 102</td>
</tr>
<tr>
<td>College Algebra 101a or Introduction to Political Science 104</td>
<td>College Algebra 102a or Science 105</td>
</tr>
<tr>
<td>or Teaching of Reading in Elementary Grades 117</td>
<td>Introduction to Political Science 105</td>
</tr>
<tr>
<td>Public School Music 124</td>
<td>Teaching of Literature in Elementary Grades 118</td>
</tr>
<tr>
<td></td>
<td>Public School Music 125</td>
</tr>
</tbody>
</table>
## SPRING QUARTER
- Physical Education 103 1
- Zoology 103 3
- Introduction to Political Science 106 2
  or
- Elective
- Teaching Elementary
- Arithmetic 119 3
- Health Education 117 3
- Geography 155 3
- Public School Music 126 1

## Second Year
### FALL QUARTER
- Physical Education 104 1
- *Student Teaching and Technique of Teaching 170 6
- English 121 3
- History 113 3
- General Psychology 101 5
- Professionalized Course in Industrial Arts 140 1
  or
- Principles of Education 153a 3
  or
- Principles of Teaching 154 3

### WINTER QUARTER
- Physical Education 105 1
- Student Teaching and Technique of Teaching 170 6
- English 122 3
- History 114 3
- Educational Psychology 112 3
- Organization and Administration 107 3
- Professionalized Course in Industrial Arts 141 1
- Teaching of Elementary Geography 156 3

* Student Teaching offered each quarter during senior year. Only six hours required.

## SPRING QUARTER
- Physical Education 106 1
- Student Teaching and Technique of Teaching 170 6
- English 122a 3
- History 115 3
- Child Psychology 152 3
  or
- Elective
- Theory and practice of Plays and Games 156 3
- Professionalized Course in Industrial Arts 142 1
- Teaching of Elementary History 176 3

Graduates from the Two-Year Elementary Curriculum may receive the degree, BACHELOR OF SCIENCE IN EDUCATION, by completing the following courses:

## Third Year
### FALL QUARTER
- Economics 121 or American Government 101 3
- History 131 3
- Botany 107 3
- Electives 7

### WINTER QUARTER
- Educational Psychology 136 3
- Economics 122 or American Government 102 3
- History 132 3
- Botany 108 3
- Electives 4

### SPRING QUARTER
- Economics 123 or American Government 103 3
- History 133 3
- Botany 109 3
- Electives 7
Fourth Year

FALL QUARTER

English
Educational Measurements and Statistics 229
Electives

WINTER QUARTER

English
Electives

SPRING QUARTER

Student Teaching
Electives

For sequence of major and minor courses see later pages in this section.

Four-Year Curriculum for Elementary Teachers

First Year

FALL QUARTER

Physical Education 101
English 101
History 104
Zoology 101
College Algebra 101a
Introduction to Political Science 104
Elective

WINTER QUARTER

Physical Education 102
English 102
History 105
Zoology 102
College Algebra 102a
Introduction to Political Science 105
Elective

SPRING QUARTER

Physical Education 103
English 102a
History 106
Zoology 103
Health Education 117
Introduction to Political Science 106
Elective

Second Year

FALL QUARTER

Physical Education 104
English 106 or 121
History 113
General Psychology 101
Professionalized Course in Industrial Arts 140
Elective

WINTER QUARTER

Physical Education 105
English 107 or 122
History 114
Educational Psychology 112
Professionalized Course in Industrial Arts 141
Organization and Administration 107
Elective

SPRING QUARTER

Physical Education 106
English 108 or 122a
History 115
Theory and Practice of Plays and Games 156
Professionalized Course in Industrial Arts 142
Geography 155
Elective
### Third Year

**FALL QUARTER**  
- Principles of Education 153a 3  
- Teaching of Reading in Elementary Grades 117 5  
- Public School Music 124 2  
- Economics 121 3  
  or  
- American Government 101 3  
- Elective 3

**WINTER QUARTER**  
- Literature for Elementary Grades 118 5  
- Public School Music 125 2  
- Economics 122 3  
  or  
- American Government 102 3  
- Teaching Elementary Geography 156 3  
- Elective 3

**SPRING QUARTER**  
- Teaching of Elementary Arithmetic 119 3  
- Public School Music 126 1  
- Teaching of History 176 3  
- Economics 123 3  
  or  
- American Government 103 3  
- Elective 6

### Fourth Year

**FALL QUARTER**  
*Student Teaching and Technique of Teaching 170 6  
- Educational Measurements 229 3  
- Principles of Teaching 154 3  
- Electives 3 or 9

**WINTER QUARTER**  
- Student Teaching and Technique of Teaching 170 6  
- History of Education 138 3  
- Electives 7 or 12

**SPRING QUARTER**  
- Student Teaching and Technique of Teaching 170 6  
- History of Education 139 2  
- Electives 7 or 13

* Student Teaching offered each quarter during senior year. Only six hours required.

In the four-year curriculum a rich choice of electives is offered. The purpose of this is two-fold: first, to permit choice of subjects closely related and leading to specialization; second, to give an opportunity for broadening education beyond the field of the major and minors.

### Majors and Minors

Electives must be chosen so that when combined with required work they will offer a major consisting of 36 quarter hours in one field and a minor consisting of 18 quarter hours in another field.

The teacher in the elementary schools is responsible for teaching several subjects. A major and two or more minors is therefore advised.

### Requirements for a Degree in Elementary Education

Upon the satisfactory completion of 186 quarter hours, including 6 hours of physical education, the student will be recommended for the degree of Bachelor of Science in Education. The student must have an average scholarship rating of at least one quality point for each scheduled hour.
II. SECONDARY EDUCATION

Requirements for the Bachelor of Science in Education Degree

(Requirements for the Bachelor of Arts degree will be found in earlier pages of this bulletin.)

A. Prescribed Courses

1. English
   English Composition 101, 102, 102a. 9 Hrs.

2. Biological Science
   A biological science shall mean Zoology 101, 102, 103 or Botany 107, 108, 109. 9 Hrs.

3. Social Science
   The completion of any one of the following courses will meet the social science requirement: History 104, 105, 106; History 113, 114, 115; Political Science 101, 102, 103. 9 Hrs.

4. Physical Education
   Physical education is required in addition to the one hundred eighty quarter hours required for graduation. 6 Hrs.

   Constants for Freshman year in all four-year curricula leading to the Bachelor of Science in Education degree follow:

   FALL QUARTER
   Physical Education 1
   English 101 3
   Biological Science 3
   Social Science 3

   WINTER QUARTER
   Physical Education 1
   English 102 3
   Biological Science 3
   Social Science 3

   SPRING QUARTER
   Physical Education 1
   English 102a 3
   Biological Science 3
   Social Science 3

B. Professional Requirements

1. General Psychology
   Required as prerequisite to the professional courses in Education. 5 Hrs.

2. Educational Psychology
   Psychology 135, 136. 3 or 6 Hrs.

3. Principles of Education
   Principles 207, 208. 3 or 6 Hrs.

4. School Administration
   Administration 252. 3 Hrs.

5. Special Methods or Professionalized Subject Matter Courses in Teaching Major
   Education 250. 3 to 5 Hrs.

6. Student Teaching, Including Technique of Teaching
   Education 270. 6 Hrs.

7. Electives.
   The following courses are offered as electives in Education:
   Education 136, or 137, 138, 139, 229.

   The above courses meet the professional requirements of the Ohio Department of Education.
The minimum professional requirements are 30 quarter hours. The professional requirements of the various states may be secured from the Director of the Division of Teacher Training.

In order to secure the proper correlation with academic courses the student is expected to distribute the work in Education over several quarters. The following sequence is very desirable:

Second Year: General Psychology 101, Educational Psychology 135 or 136.

Third Year: Principles of Education 207, 208; Special Methods and Observation.

Fourth Year: Administration 252; Special Methods (if not completed), and student teaching.

C. MAJOR AND MINOR SUBJECTS

All candidates for the degree of Bachelor of Science in Education or Bachelor of Arts, who expect to teach must have a teaching major of 36 quarter hours and two minors of 18 quarter hours each. Students should confer with their advisers before electing their major and minor subjects.

LIST OF MAJORS AND MINORS

<table>
<thead>
<tr>
<th>Subject</th>
<th>High School Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>English, public speaking,</td>
<td></td>
</tr>
<tr>
<td>composition, literature, but no</td>
<td></td>
</tr>
<tr>
<td>one should undertake the</td>
<td></td>
</tr>
<tr>
<td>teaching of English in a high</td>
<td></td>
</tr>
<tr>
<td>school who has had less than</td>
<td></td>
</tr>
<tr>
<td>six hours of college</td>
<td></td>
</tr>
<tr>
<td>composition</td>
<td>3</td>
</tr>
<tr>
<td>History, political science,</td>
<td></td>
</tr>
<tr>
<td>constitution</td>
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<tr>
<td>Sociology, economics</td>
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<tr>
<td>Biology, physiology, botany,</td>
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<tr>
<td>zoology, agriculture</td>
<td>2</td>
</tr>
<tr>
<td>Physics, chemistry</td>
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<tr>
<td>Geography, geology, physiography</td>
<td></td>
</tr>
<tr>
<td>Home economics, related subjects</td>
<td></td>
</tr>
<tr>
<td>Commerce, related subjects</td>
<td></td>
</tr>
<tr>
<td>Mathematics, astronomy, surveying</td>
<td></td>
</tr>
<tr>
<td>Each modern language</td>
<td></td>
</tr>
<tr>
<td>Latin</td>
<td>4</td>
</tr>
<tr>
<td>Physical education, hygiene,</td>
<td></td>
</tr>
<tr>
<td>health, games, coaching,</td>
<td></td>
</tr>
<tr>
<td>swimming</td>
<td>0</td>
</tr>
<tr>
<td>Music, voice, instrumental,</td>
<td></td>
</tr>
<tr>
<td>composition, harmony,</td>
<td></td>
</tr>
<tr>
<td>counterpoint</td>
<td>0</td>
</tr>
<tr>
<td>Manual arts, related subjects</td>
<td></td>
</tr>
<tr>
<td>Art</td>
<td>0</td>
</tr>
</tbody>
</table>

Students should take the courses in their major and minor subjects in the order given below. Failure to follow the major and minor sequences may result in loss of credit.

ENGLISH

Major

First Year—English 101, 102, 102a.
Second Year—English 121, 122, 122a, or Speech.
Third Year—English 217, 218, 219, 205, 225.
Fourth Year—English 211, 215, 216, or 204, 224.

Minor

First Year—English 101, 102, 102a.
Second Year—121, 122, or Speech 110, 111.
Third Year—English 210, 211.
Fourth Year—English 216.
Note: Entrance requirement 3 or 4 units.

FRENCH

Major

First Year—French 104a, 105a, 106a.
Second Year—French 206a, 207a, 208a.
Third Year—French 223a, 224a, 225a, 250.
Fourth Year—French 231a, 232a, 233a.

Minor

First Year—French 104a, 105a, 106a.
Second Year—French 206a, 207a, 208a.
Third Year—French 250.
Note: Entrance requirement 2 units.

LATIN

Minor

First Year—Latin 110, 111, 112.
Second Year—Latin 115, 116, 117.
Third Year—Latin 120, 121, 122, 250.
Note: Entrance requirement 4 units.

HISTORY

Major

First Year—History 104, 105, 106.
Second Year—History 113, 114, 115 or 131, 132, 133.
Third Year—History 216, 217, 218 or 235, 236, 237, 250.
Fourth Year—History 251, 252, 253.

Minor

First Year—History 104, 105, 106.
Second Year—History 113, 114, 115 or 131, 132, 133.
Third Year—History 216, 217, 218.
Note: Entrance requirement 2 units.

HISTORY-POLITICAL SCIENCE

Major

First Year—History 104, 105, 106; Political Science 104, 105, 106.
Second Year—Political Science 101, 102, 103 or History 113, 114, 115.
Third Year—Political Science 208, 209, 210.
Fourth Year—Political Science 212 and History 216, 217, 218, or 251.
Note: Entrance requirement 2 units.
Note: Combined major 50 hours, 30 hours of which must be History.

HISTORY-ECONOMICS

Minor

First Year—History 104, 105, 106, or Economics 101, 102, 103.
Second Year—Economics 121, 122, 123 or History 113, 114, 115.
Third Year—Economics 207, and History 216, 217, 218.
Fourth Year—Economics 214, and History 235, 236, 237.
Note: Entrance requirement, 2 units.
Note: Combined major 50 hours, 30 hours of which must be History.

MATHEMATICS

Major

First Year—Mathematics 101, 103, 105.
Third Year—Mathematics 104, 106, 212.
Fourth Year—Mathematics 213, 214, 216.

Minor

First Year—Mathematics 101, 102.
Second Year—Mathematics 105.
Note: Entrance requirement 2½ units.

MATHEMATICS — PHYSICS

Major

First Year—Mathematics 101, 103, 105.
Second Year—Physics 109, 110, 111.
Fourth Year—Physics 213, 214.
Note: Entrance requirement, 3 or 4 units.
Note: Combined major 50 hours, 30 hours of which must be Mathematics.

PHYSICS
Minor
First Year—None.
Second Year—Physics 109, 110, 111.
Third Year—Physics 213, 214, 220.
Note: Entrance requirement, mathematics 2½ units and physics 1 unit.

CHEMISTRY
Major
First Year—101, 102, 103.
Second Year—Chemistry 104, 105, 106.
Third Year—Chemistry 206, 207, 208; 250.
Fourth Year—Chemistry 215, 216, 217.
Minor
First Year—Chemistry 101, 102, 103.
Second Year—Chemistry 104, 105.
Third Year—Chemistry 206, 207.
Note: Entrance requirement, 2 units, (Physics and Chemistry.)

CHEMISTRY — PHYSICS
Major
First Year—Chemistry 101, 102, 103.
Second Year—Physics 109, 110, 111.
Third Year—Chemistry 206, 207, 208.
Fourth Year—Chemistry 211a, 211b, and Physics 220.
Note: Entrance requirement, mathematics 2 units, physics 1 unit. It is recommended that students electing this major take mathematics during the Freshman year.
Note: Combined major 50 hours, 30 of which must be Chemistry.

BIOLOGICAL SCIENCE
Major
First Year—Biology 107, 108, 109, or 101, 102, 103.
Second Year—Biology 101, 102, 103 or 107, 108, 109, 110.
Third Year—Biology 106, 113, 218 or 222, 224.
Fourth Year—Biology 219, 220, 230, 235.
Minor
Second Year—Biology 101, 102, 103.
Third Year—Biology 110, 230.
Fourth Year—Biology 219, 235.
Note: Entrance requirement, 1 unit of biological science.

PHYSICAL EDUCATION
Major
Note: For description of the four-year curricula for the training of Physical Education teachers and supervisors, see the general catalogue.

Minor
First Year—Physical Education 115, 116.
Second Year—Physical Education 151, 152, 155.
Third Year—Physical Education 201, 202, 250 and 221 or 222 or 223.
Fourth Year—Physical Education 252, 258.
HEALTH AND PHYSICAL EDUCATION

The purpose of this curriculum is the preparation of teachers and supervisors of physical education, athletic coaches, and recreation directors. Students majoring or minoring in Physical Education must have their schedules approved by their adviser in the Department of Health and Physical Education. Students completing the following curriculum will be granted the degree of Bachelor of Science in Education with a major in Health and Physical Education.

The department recommends that all Majors in physical education secure minors in some of the sciences, such as mathematics, physics or chemistry.

This curriculum is fully approved and accredited by the Ohio Department of Education, and students who complete it in a satisfactory manner are eligible to receive the state high school provisional certificate for the teaching and supervision of physical education.

### CURRICULUM FOR STUDENTS MAJORING IN HEALTH AND PHYSICAL EDUCATION

#### First Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education 101a 1</td>
<td>Physical Education 102a 1</td>
</tr>
<tr>
<td>Biology 101 3</td>
<td>Biology 102 3</td>
</tr>
<tr>
<td>English 101 3</td>
<td>English 102 3</td>
</tr>
<tr>
<td>Hygiene 115 2</td>
<td>Mathematics, Foreign Language, or Social Science 7</td>
</tr>
<tr>
<td>Mathematics, Foreign Language, or Social Science 7</td>
<td></td>
</tr>
</tbody>
</table>

#### SPRING QUARTER

| Physical Education 103a 1     | Biology 103 3               |
| English 102a 3                | Theory and Practice of Plays and Games 156 3 |
| Mathematics, Foreign Language, or Social Science 6 | |

#### Second Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education 104a 1</td>
<td>Physical Education 105a 1</td>
</tr>
<tr>
<td>Comparative Anatomy 106 5</td>
<td>Mam. Anat. and Physiology 113 5</td>
</tr>
<tr>
<td>Health Education 117 3</td>
<td>Health Education 151 3</td>
</tr>
<tr>
<td>General Psychology 101 5</td>
<td>Educational Psychology 112 or 136 3</td>
</tr>
<tr>
<td>Electives 3</td>
<td>Electives 4</td>
</tr>
</tbody>
</table>

#### SPRING QUARTER

| Physical Education 106a 1     | Heredity and Evolution 217 3   |
| Health Education 152 3        | Ed. Psychology 136 3           |
| Electives 5                   | |
### Third Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principles and Methods of Physical Education 201</td>
<td>Principles and Methods of Physical Education 202</td>
</tr>
<tr>
<td>Football Coaching 221</td>
<td>Basketball Coaching 222</td>
</tr>
<tr>
<td>Coaching (Women) 221</td>
<td>Coaching (Women) 222</td>
</tr>
<tr>
<td>Principles of Ed. 207</td>
<td>Educational Methods 250</td>
</tr>
<tr>
<td>Sociology 151</td>
<td>Sociology 152</td>
</tr>
<tr>
<td>Electives</td>
<td>Electives</td>
</tr>
</tbody>
</table>

#### SPRING QUARTER

| Methods of Physical Education 203 | 4 |
| Baseball and Track Coaching 223 or Coaching (Women) 223 | 3 |
| Sociology 153 | 3 |
| Electives | 6 |

### Fourth Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organ. and Admin. of Phys. Education 254</td>
<td>Individual Gymnastics 255</td>
</tr>
<tr>
<td>Advanced Coaching 271</td>
<td>Normal Diagnosis 252</td>
</tr>
<tr>
<td>Student Teaching 263a</td>
<td>Advanced Coaching 272</td>
</tr>
<tr>
<td>Educational Measurements 229</td>
<td>Student Teaching 263b</td>
</tr>
<tr>
<td>Electives</td>
<td>History of Education 138</td>
</tr>
</tbody>
</table>

#### SPRING QUARTER

| First Aid and Athletic Training 258 | 2 |
| History of Phys. Ed. 260 | 2 |
| Educational Administration 252 | 3 |
| Advanced Coaching 273 | 1 |
| Student Teaching 263c | 2 |
| Electives | 6 |

Twenty-seven hours of credit in educational subjects are required of all teachers in secondary education.

Students offering less than one unit of Chemistry for entrance must schedule Chemistry 101a, 102a, and 103a, not later than the sophomore year.

It is recommended that students majoring in Health and Physical Education complete a minor in some field such as physical or biological science.
# PUBLIC SCHOOL MUSIC

This course is designed for students who wish to prepare themselves for the teaching and supervision of music in public schools. Applicants for admission are expected to possess a reasonable amount of musical intelligence. Students completing this course receive the degree Bachelor of Science in Education and the Four-Year Provisional Certificate from the State Department of Education.

## CURRICULUM FOR TEACHERS AND SUPERVISORS
OF PUBLIC SCHOOL MUSIC

### First Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education</td>
<td>Physical Education</td>
</tr>
<tr>
<td>English 101</td>
<td>English 102</td>
</tr>
<tr>
<td>Sight Singing and Ear Training 101</td>
<td>Sight Singing and Ear Training 102</td>
</tr>
<tr>
<td>Harmony 111</td>
<td>Harmony 112</td>
</tr>
<tr>
<td>Applied Music</td>
<td>Applied Music</td>
</tr>
<tr>
<td>Liberal Arts Elective</td>
<td>Liberal Arts Elective</td>
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</tbody>
</table>

### SPRING QUARTER

<table>
<thead>
<tr>
<th>Physical Education</th>
<th>Education Psychology</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 102a</td>
<td>Educational Psychology 112</td>
</tr>
<tr>
<td>Sight Singing and Ear Training 103</td>
<td>Sight Singing and Ear Training 105</td>
</tr>
<tr>
<td>Harmony 113</td>
<td>History and Appreciation 154</td>
</tr>
<tr>
<td>Applied Music</td>
<td>Harmony 115</td>
</tr>
<tr>
<td>Liberal Arts Elective</td>
<td>Applied Music</td>
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</tbody>
</table>

### Second Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education</td>
<td>Physical Education</td>
</tr>
<tr>
<td>General Psychology 101</td>
<td>Educational Psychology 112</td>
</tr>
<tr>
<td>Sight Singing and Ear Training 104</td>
<td>Sight Singing and Ear Training 105</td>
</tr>
<tr>
<td>Harmony 114</td>
<td>History and Appreciation 155</td>
</tr>
<tr>
<td>Applied Music</td>
<td>Harmony 115</td>
</tr>
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</table>

### SPRING QUARTER

<table>
<thead>
<tr>
<th>Physical Education</th>
<th>Adolescent Psychology 136</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sight Singing and Ear Training 106</td>
<td>History and Appreciation 155</td>
</tr>
<tr>
<td>Harmony 115</td>
<td>Applied Music</td>
</tr>
<tr>
<td>Applied Music</td>
<td>Liberal Arts Elective</td>
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### Third Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Music Methods 202</td>
<td>Student Teaching 213</td>
</tr>
<tr>
<td>Public Speaking 101</td>
<td>Public Speaking 102</td>
</tr>
<tr>
<td>Form and Analysis 211</td>
<td>Form and Analysis 212</td>
</tr>
<tr>
<td>Orchestral Instruments 220</td>
<td>Orchestral Instruments 221</td>
</tr>
<tr>
<td>Applied Music</td>
<td>Applied Music</td>
</tr>
<tr>
<td>Liberal Arts Elective</td>
<td>Liberal Arts Elective</td>
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</tbody>
</table>

### SPRING QUARTER

| Intermediate Music Methods 203                    |                                                         |
| Festivals and Pageants 264                         |                                                         |
| School Orchestration                               |                                                         |
| Orchestral Instruments 222                         |                                                         |
| Applied Music                                     |                                                         |
| Liberal Arts Elective                              |                                                         |
### Fourth Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Teaching 214</td>
<td>3 Junior and Senior</td>
</tr>
<tr>
<td>Conducting 241</td>
<td>3 High School Methods</td>
</tr>
<tr>
<td>School Administration 251</td>
<td>3 Conducting 242</td>
</tr>
<tr>
<td>Applied Music</td>
<td>3 Applied Music</td>
</tr>
<tr>
<td>Music Elective</td>
<td>3 Music Elective</td>
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<td>3 Liberal Arts Elective</td>
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<table>
<thead>
<tr>
<th>SPRING QUARTER</th>
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</thead>
<tbody>
<tr>
<td>Student Teaching 215</td>
</tr>
<tr>
<td>Applied Music</td>
</tr>
<tr>
<td>Music Elective</td>
</tr>
<tr>
<td>Education Elective</td>
</tr>
</tbody>
</table>

### DESCRIPTION OF PROFESSIONAL COURSES IN EDUCATION

#### EDUCATIONAL PSYCHOLOGY

112. **Educational Psychology, Introductory (Winter)** 3 Hrs.

M. W. F., 5.

135. **Educational Psychology, Advanced (Winter)** 3 Hrs.

Prerequisite: Education 112. M. W. F., 5.

136. **Adolescent Psychology (Spring)** 3 Hrs.

M. W. F., 5.

152. **Child Psychology (Spring)** 3 Hrs.

M. W. F., 5.

#### PRINCIPLES AND HISTORY OF EDUCATION

154. **Principles of Teaching in the Elementary Grades (Fall)** 3 Hrs.

T. Th., 7.

153a. **Principles of Education for Kindergarten-Primary Teachers (Fall)** 3 Hrs.

M. W. F., 6.

207. **Principles of Secondary Education (Fall)** 3 Hrs.

Prerequisite: Psychology 136. M. W. F., 3.

208. **Principles of Teaching (Secondary) (Winter)** 3 Hrs.

Prerequisite: Principles of Education 207. M. W. F., 3.

138. **History of Education: Europe (Winter)** 3 Hrs.

M. W. F., 7.

139. **History of Education: United States (Spring)** 2 Hrs.

T Th., 3.

#### SCHOOL ADMINISTRATION AND ORGANIZATION

107. **Organization and Administration of Elementary Schools (Winter)** 3 Hrs.

M. W. F., 7.

252. **High School Administration (Spring)** 3 Hrs.

Prerequisite: Education 207 or 208. M. W. F., 7.

229. **Educational Measurements (Fall)** 3 Hrs.

Prerequisite: Education 207 or 208. T. Th. F., 5.
PROFESSIONALIZED SUBJECT MATTER COURSES

117. Teaching of Reading in Elementary Grades
        (Fall) 5 Hrs.
        Daily, 3.

118. Teaching of Literature in Elementary Grades
        (Winter) 5 Hrs.
        Daily, 3.

119. Teaching of Elementary Arithmetic (Spring) 3 Hrs.
        M. W. F., 3.

155. Geography (Spring) 3 Hrs.
        M. W. F., 8.

156. Teaching of Elementary Geography (Winter) 3 Hrs.
        Prerequisite: Geography 155. M. W. F., 6.

176. Teaching of Elementary History (Spring) 3 Hrs.
        M. W. Th., 7.

117. Health Education (Spring) 3 Hrs.
        M. W. F., 5.

156. Theory and Practice of Plays and Games
        (Spring) 3 Hrs.
        M. T. W. Th., 6.

140. Public School Drawing and Industrial Arts
        (Fall) 1 Hr.
        M. W., 4.

141. Public School Drawing and Industrial Arts
        (Winter) 1 Hr.
        M. W., 4.

142. Public School Drawing and Industrial Arts
        (Spring) 1 Hr.
        M. W., 4.

124. Public School Music (Fall) 2 Hrs.
        M. W. F., 4 and M., 6.

125. Public School Music (Winter) 2 Hrs.
        Prerequisite: Public School Music 124, M. W. F., 4 and
        M., 6.

126. Public School Music (Spring) 1 Hr.
        Prerequisite: Public School Music 125. M. W., 4.

SPECIAL METHODS IN HIGH SCHOOL SUBJECTS

These courses are professionalized subject-matter courses and
deal with subject-matter that is necessary for the successful teaching
of high school subjects. They also cover the selection of materials,
methods of instruction, and the organization of the work in each sub-
ject under consideration. Observation in the training school is re-
quired. Prerequisite: Education 207 or 208. Credit 3 to 5 hours.
Fall, Winter, Spring.

250. Teaching English
250. Teaching History and Social Sciences
250. Teaching Mathematics
250. Teaching Latin
250. Teaching Modern Languages
250. Teaching Biological Sciences
250. Teaching Physics and Chemistry

Note: These courses in special methods do not count toward the academic major.

OBSERVATION AND PARTICIPATION

The work in observation and participation is integrated with the courses in Educational Theory and Student Teaching.

STUDENT TEACHING

Student teaching will be required of all candidates for the degree, Bachelor of Science in Education or Bachelor of Arts, who expect to teach, and of all candidates for the diploma in elementary education. The Training School is the center around which all courses are organized.

PREREQUISITES

1. Students preparing for teaching in the elementary field, may do student teaching in the sophomore year, or in later years of their college course. High school student teaching may be done in the senior year.

2. The student is expected to have a general scholarship rating of one and one-fourth (1\(\frac{1}{4}\)) quality points per scheduled hour. This means that a student should have a rank of C plus before student teaching is done in any training school.

3. A student who wishes to do student teaching in the elementary field, must be able to make a score of 80 on the Ayers Scale for Handwriting.

4. A senior who wishes to do student teaching in the high school, must have completed 24 hours of work including special methods in his major subject, or not less than 18 hours in a minor subject. It is highly recommended that student teaching be done in a major subject in which the student's scholarship ranks highest. A rating of less than C plus or B should be looked upon as disqualifying one for student teaching.

5. The student must have the recommendation of both his major and minor professors and the Director of Teacher Training. Continuance in student teaching depends upon the attitude, preparation, and progress of the student teacher.

170 Student Teaching—Elementary Grades
\(\text{(Fall, Winter or Spring)}\) 6 Hrs.

270. Student Teaching—Junior and Senior High School \(\text{(Fall, Winter or Spring)}\) 6 Hrs.

263. Student Teaching—Physical Education \(\text{(Fall, Winter or Spring)}\) 6 Hrs.

215. Student Teaching—Music
\(\text{(Fall, Winter or Spring)}\) 6 Hrs.

For course offerings see Department of Music.
This Bulletin contains information concerning the

COLLEGE OF ENGINEERING

CALENDAR

Fall Quarter: September 18, 1933
Winter Quarter: January 2, 1934
Spring Quarter: March 26, 1934

Entered as second-class matter July 3, 1907, under act of July 16, 1894 New Series, Vol. XXV, No. 2
Ohio Northern University
ADA, OHIO

College of Liberal Arts
Scholarly faculty; strong courses; standardized departments. Majors and minors in all departments. Pre-professional courses offered.

Division of Teacher Training
Fully accredited by the State Department of Education. Certificates and degrees offered in elementary, intermediate and high school teachers' professional courses. Approved for certification in music and physical education.

College of Engineering
Four fields of Engineering: Civil, Mechanical, Electrical and Chemical.

College of Pharmacy
In addition to a group of courses which are constant for all candidates for a degree, the curriculum is flexible enough to allow preparation in specialized activities of the profession of Pharmacy.

College of Law
Strong courses leading to the degree of LL.B. Students admitted after completion of two years of college work.

Department of Music
Courses offered in Public School Music, Voice, Pianoforte, Pipe Organ, Violin, Stringed, Wind and Reed Instruments, History and Theory of Music.

Department of Physical Education
Gymnasium Instruction, Athletic Coaching, and Educational Games.

For literature and information address
ROBERT WILLIAMS, President
This portion of the plant comprises two floors (each 60x60). The space illustrated is being converted into a complete Electrical Laboratory.
Portion of Machine Shop

The equipment in this large, well lighted room (40x150) is rearranged and augmented in such manner as to provide a model Machine Shop and testing laboratories in Mechanical and Civil Engineering.
Portion of Machine Shop

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ADMINISTRATIVE OFFICERS

ROBERT WILLIAMS, M.A., D.D., LL.D.
President

ALBERT EDWIN SMITH, D.D., Ph.D., LL.D.
President Emeritus

THOMAS J. SMULL, C. E., Eng. D.
Business Manager

MARGARET E. WHITWORTH, B.S.
Registrar

ZILLOH LAVERNE DARING, M.A.
Treasurer

JOHN AUSTIN POTTER, B.S., B.D.
Dean of Men

AUDREY KENYON WILDER, M.A.
Dean of Women

JOHN ALFRED NEEDY, M.E., M.S.M.E.
Dean of College of Engineering

COLLEGE OF ENGINEERING FACULTY

JOHN ALFRED NEEDY, M.E., M.S.M.E.
Mechanical Engineering

ALEXANDER R. WEBB, M.S.E., C.E.
Civil Engineering

IVOR ST. CLAIR CAMPBELL, M.E., M.S.
Electrical Engineering

JESSE RAYMOND HARROD, M.S.
Chemical Engineering

JOHN THEODORE FAIRCCHILD, M.A., C.E., Ph.M.
Higher Mathematics

JAMES A. WHITTED, Ph.B., M.A.
Mathematics

FRANK LEWIS BERGER, B.A., M.S.
Physics

CHILDE HAROLD FREEMAN, B.S., D.Lit.
English

JOHN WESLEY McBRIDE, M.A.
Economics

LAWRENCE FREEMAN, B.A.

AUDREY KENYON WILDER, M.A.
Freshman English

ROBERT CHALMERS GIBSON, Ph.D.
Chemistry

LAURA MAY KAMPMEIER, M.A.
German
UNIVERSITY CALENDAR

Special Spring Term (1933)
May 1, Monday, six weeks to June 9, Friday
(Exclusively for Teachers)

Summer Session (1933)
First Term, Tuesday, June 13, to Saturday, July 15
Second Term, Monday, July 17, to Saturday, August 19

Fall Quarter (1933)
September 18, Monday ................. Freshman Preregistration
September 19, Tuesday ............... Upperclass Preregistration
September 20, Wednesday .......... Registration and Payment of Fees
September 21, Thursday (7:50 A.M.) .... Classes Begin
October 21, Saturday .................. Homecoming Day
November 28, Tuesday (5:30 P.M.) ......... Thanksgiving Vacation Begins
December 4, Monday (8:45 A.M.) .......... Classes Resumed
December 11, 12, 13, 14, Monday to Thursday,
inclusive .......................... Final Examinations
December 14, Thursday (5:30 P.M.) ...... Fall Quarter Ends

Winter Quarter (1934)
January 2, Tuesday (8:30 A.M.) .......... Preregistration
January 3, Wednesday ........ Registration and Payment of Fees
March 13, 14, 15, 16, Wednesday to Saturday,
inclusive .......................... Final Examinations
March 17, Saturday .................... Winter Quarter Ends

Spring Quarter (1934)
March 26, Monday ....................... Preregistration
March 27, Tuesday ..................... Registration and Payment of Fees
April 9, Monday ....................... Founder's Day
May 30, Wednesday ................... Memorial Day
June 4, 5, 6, 7, Monday to Thursday, inclusive .......................... Final Examinations
June 9, Saturday ........ Annual Meeting of the Board of Trustees
June 9, Saturday ................ Class Day and Alumni Day
June 10, Sunday (3:00 P.M.) .......... Commencement Exercises
Ohio Northern University Buildings

LEHR MEMORIAL
HILL MEMORIAL
TAFT GYMNASIUM
BROWN MEMORIAL
BIOLOGY BUILDING
PRESIDENT'S HOME
FACULTY RESIDENCES (Seven)

TURNER HALL FOR WOMEN
Dukes Memorial
Law Building
Presser Music Hall
Pharmacy Building
Greenhouse
Power Plant
Farm Buildings

ENGINEERING SHOPS AND LABORATORIES

ATHLETIC FIELD
Gridiron, Baseball Diamonds, Cinder Track, Tennis Courts
THE College of Engineering of Ohio Northern University offers an ample opportunity to young men to secure thorough training in the field of engineering, and it especially appeals to young men of limited means, for at Ohio Northern they can obtain education in their chosen profession at moderate cost.

To the many young men who, because of lack of funds or because of obligations to their families, have been prevented from entering college immediately after graduation from high school, the University makes a strong appeal. It has long been one of the policies of this school that no social distinctions shall be drawn among its students. Character and application are the passports that open the doors of the college to all alike. Friends and guests of the College of Engineering have often commended the institution for the spirit of comradeship that exists here, not only between faculty and students but also among the students themselves.

The method of instruction is by classroom work, drafting room, field work, and laboratory practice. In addition to the regular courses of instruction, lectures are given by prominent outside speakers during the week of Washington's Birthday. These lectures which all Engineering students are required to attend cover all branches of Engineering.

HISTORY

The first catalog of the University included a course in surveying. In 1880, a department of Civil Engineering was organized. Later, departments in Mechanical and Electrical Engineering were established. In 1906, the department of Chemical Engineering was inaugurated. Since then all the courses of the various curricula have been revised and greatly strengthened.

PURPOSE

Engineering has been defined as "the art and science of directing the great sources of power in nature, for the use and convenience of mankind". As a rule engineering appeals to the student who is especially interested in science and mathematics. With this objective in mind it is the aim of the College of Engineering of Ohio Northern University, to give ambitious young men of ability an opportunity to secure a thorough training in this field of education.

SUMMER WORK

Realizing the benefit to be derived by actually making contact with work in progress it is very desirable that students of engineering should obtain practical experience while pursuing
their college course. It is therefore strongly urged that all students in the College of Engineering obtain employment during their summer vacations with some company engaged in engineering construction. Vacations devoted to surveying, drafting, work in factories, repair shops, electric light and railway stations and similar work cannot help but give the interested student commercial experience and a better appreciation of the relation of technical training to practical work.

EXPENSES

A recent survey of the student body reveals two very significant facts:

1. The average cost of tuition fees, room, board, books and equipment for men students is $401.48 per year. Women students, $414.04 per year. With a decided drop in the cost of room and board, this average will be materially reduced for the ensuing year.

2. One student out of every five came to Ohio Northern University for financial reasons.

Upon application the University will furnish tuition (including general fee), room and board in the College of Engineering for $375.00 per year (36 weeks).

No matriculation or entrance fee is required to enter the University.

TUITION

Tuition for instruction in the College of Engineering is $35.00 per quarter, payable in advance. These charges admit a student to enrollment and instruction in all the colleges of the University.

GENERAL FEE

A general fee of $25.00 per quarter is charged for all colleges at the time tuition is paid. This fee is not refundable and includes in general all costs exclusive of instruction such as cost of administration, maintenance of plant and general library. For Special Fees see General Catalogue.

ROOMS AND BOARD

Rooms are available in Ada at very reasonable prices, ranging from $1.00 to $2.25 per week. Board may be secured at prices from $3.50 to $5.00 per week.

The University will furnish tuition, room and board for $375.00 per year.

The University Cafeteria. The University operates a Cafeteria where excellent food is obtainable at reasonable prices. Students are earnestly urged to patronize the University Cafeteria as the matter of regular habits in eating guards physical health and in addition is the most economical mode of living while in college.

Very many students when members of fraternities or sororities find comfortable room and good board in the various fraternity and sorority houses.

GOVERNMENT

The opportunities and advantages of the University are offered to all sincerely desiring to develop the best in them-
selves, and aiming at a broad culture and a thorough preparation for useful service.

The University aims to develop a wholesome type of physical, social, intellectual, moral and religious life. It believes that the preparation for life is best that furnishes opportunity during college days for students to come in contact with men and women of high ideals, broad culture and sympathetic understanding of life. All the activities of the University therefore are devoted to the development of men and women so that they may find places of real happiness and usefulness in the modern world.

With this objective in mind the University does not seek to impose burdensome restrictions, but it does seek and expect full cooperation on the part of faculty and students in the achievement of these ideals.

ATTENDANCE

Regular and prompt attendance at all class and laboratory exercises is expected of every student. The student is responsible to the instructor for all work missed on account of absence. Instructors make a daily report of all absences to the Dean of Men or the Dean of Women.

Requests for excuses must be presented in writing to the Dean of Men or the Dean of Women within 24 hours after class or laboratory work is resumed. Instructors are not authorized to grant excuses for absences from their classes.

For each unexcused absence from class or laboratory appointments, the total number of quality points earned is reduced by one-half point. Absences the day before or the day after a regular college holiday or recess involve the deduction of one quality point for each absence.

Chapel attendance is required except when excused by the Committee on Chapel Excuses. Five unexcused absences are allowed each quarter.

One-fifth hour credit is deducted from the student's total credit for each convocation missed above five.

WITHDRAWING A COURSE

The student is held responsible for the work scheduled on the registration card. No course may be dropped or changed except by consent of the Dean and the instructors concerned. Withdrawal from a course without permission shall be checked as a failure in the course.

In case a student wishes to drop or change a course, it must be done within the first week of the quarter, and with the consent of the Dean and the professor concerned. A charge of $1.00 is made for each withdrawal or addition of a course.

Any student wishing to withdraw from the College in which he is registered must notify the Dean of his intentions. Failure to do this will jeopardize the standing of the student.

DISCIPLINE

Students of the University are expected to possess qualities of character and to maintain certain levels of scholarship. The rules and regulations of the University pertaining to conduct
and scholarship are enforced. Students may be dismissed for moral delinquencies and for continued low scholarship. Students who obviously are at variance with the spirit and ideals of the institution may be dismissed for the good of the University, even though no specific offense be charged against them.

ELIGIBILITY

Students on probation for any cause shall not represent in a public manner, the University, their class, or any University organization in any extra-curricular activity.

To be eligible for the office of President or Vice President of the Sophomore, Junior or Senior Class, Editor or Business Manager of the Northern Review, Editor or Business Manager of the University Annual, Student Member of the Discipline Board, President of the Y. M. C. A. or Y. W. C. A., the candidate must have a scholarship rating of at least one and one-half (1½) quality points per hour.

GRADE MARKS AND QUALITY POINTS

The credit value of a course is expressed in hours, an hour of credit being given for the satisfactory completion of work requiring one class exercise a week for one quarter. It is equivalent to two-thirds of a semester hour.

The following grade and point system is in effect:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Significance</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Excellent</td>
<td>3</td>
</tr>
<tr>
<td>B</td>
<td>Good</td>
<td>2</td>
</tr>
<tr>
<td>C</td>
<td>Fair, average</td>
<td>1</td>
</tr>
<tr>
<td>D</td>
<td>Passing, but unsatisfactory</td>
<td>0</td>
</tr>
<tr>
<td>F</td>
<td>Failed</td>
<td>0</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td>Absent from examinations</td>
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</tbody>
</table>

EXAMINATIONS

1. Mid-term examinations are held at the discretion of the instructor. Final examinations are held at the close of each quarter.

2. All students must be present at final examinations. Absence from any final examination, unless caused by sickness or other unavoidable conditions, will result in no credit for the course.

3. A student absent from examination may, on presenting a satisfactory excuse, receive permission from the Dean to take the examination at a later time.

4. All required courses in which a grade of F is made must be taken again in class the first quarter in which the subject is given after the failure occurs.

5. All incompletes must be removed within eight weeks of the beginning of the next quarter in attendance in order to obtain credit without again taking the work in class. In case this matter is not attended to, the mark will lapse into a failure.

ORGANIZATION FEATURES

The University year is divided into three quarters of approximately equal length, designated as Fall, Winter and
Spring. Early in the fall quarter, the Freshman, Sophomore, Junior and Senior classes are formally organized under the direction of a member of the faculty. Student classification is based upon credit hours. Each student is required to present a certificate from the Registrar showing his eligibility to participate in class organization and honors.

TECHNICAL ORGANIZATIONS

The Ohio Northern Student Chapter of the American Society of Civil Engineers holds bi-monthly meetings. All civil engineering students are eligible for membership.

The O. N. U. Society of Chemical Engineers holds meetings every two weeks. Technical papers pertaining to chemical engineering are read and chemical and metallurgical subjects discussed. All students of chemical engineering are eligible for membership.

The Ohio Northern Branch of the American Institute of Electrical Engineers holds bi-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 Ohio Northern Branch of the American Society of Mechanical Engineers holds bi-monthly meetings at which original papers in this field of engineering are read and discussed by the members of the society. Students enrolled in the department of mechanical engineering are eligible for membership.

The Ohio Northern University Radio Club maintains a short-wave station, W8AOT, gives code practice and short-wave operating experience and holds bi-monthly meetings at which papers and talks on radio subjects are presented.

The Chemists Club of Ohio Northern University holds meetings every month. Scientific men of national and often international renown appear before this group from time to time.

During the junior and senior years an attendance of eighty per cent of the meetings of his society entitles the student to one hour each year "Seminar" credit, to be applied against cuts only.

PRE-REGISTRATION AND REGISTRATION

Pre-registration and registration days are indicated in the calendar. Pre-registration day is devoted to conferences with advisers and making the students' schedule of classes for the quarter. Registration day is given over to the transfer of the schedule of classes to the permanent cards, the payment of tuition, and securing of tickets of admission to classes. Failure to attend to these duties on the proper day will subject the student to the payment of a $5.00 fee for late registration. This does not apply to new registrants.

TIME TO ENTER

Those desiring to enter at the beginning of any quarter other than the fall quarter are advised to correspond with the Dean of the College relative to the advisability of admission at that particular time.
ADMISSION

Candidates of good moral character may apply for admission upon 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, on presentation of properly signed entrance certificates. Distribution of fifteen units must be as follows:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics, including solid geometry</td>
<td>3</td>
</tr>
<tr>
<td>Physics</td>
<td>1</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
</tr>
<tr>
<td>Two units to be chosen from the following list:</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td></td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
</tr>
<tr>
<td>Science</td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td></td>
</tr>
<tr>
<td>History</td>
<td></td>
</tr>
</tbody>
</table>

Applicants deficient in advanced algebra, solid geometry or physics are required to make up deficiencies.

2. Examination. Candidates who are graduates of first grade high schools or academies and are therefore deficient in some of the units for admission may be admitted upon examination.

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 will not be given for more than 162 quarter hours (108 semester hours).

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.

GRADUATION AND DEGREES

The work of the College of Engineering of the University is entirely undergraduate.

No student who has not been in residence for at least three quarters and completed a minimum of 54 hours in the College of Engineering of Ohio Northern University may be a candidate for a degree.

Two hundred and sixteen (216) credit hours are required for graduation. The student must have an average scholarship rating of at least one quality point for each scheduled hour. A student cannot be a candidate for more than one degree at any one time.

The University is empowered to grant the customary scholastic degrees, which in the College of Engineering are Bachelor of Science in Civil Engineering, (B. S. in C. E.);
Bachelor of Science in Mechanical Engineering, (B. S. in M. E.); Bachelor of Science in Electrical Engineering, (B. S. in E. E.); and Bachelor of Science in Chemical Engineering, (B. S. in Chem. E.) Three years after graduation, upon the presentation of evidence of a creditable record, an approved thesis and a comprehensive examination, the professional degree is conferred.

Degrees are conferred at the commencement exercises which are held at the close of the Spring Quarter. Seniors who have finished their work at the close of any previous quarter are expected to be present at the commencement exercises. Those whose work will be finished by the close of the Summer School are entitled to the privileges of the senior class, but their diplomas are not issued until the requirements for graduation are fully met.

SENIOR HONORS

Two forms of senior honors are recognized and conferred at graduation: honors (with distinction) granted to those who have a quality point average of 2.3 with no grade below D; and honors (with high distinction) granted to those who have a quality point average of 2.6 with no grade below C. These honors in scholarship are recorded on the diplomas, recognition being given at commencement. The names of students receiving such honors are printed in the college catalogue. No student may receive senior honors who has not been in residence at Ohio Northern for at least six quarters.

FINANCIAL AID TO STUDENTS

SCHOLARSHIPS

A limited number of full time and part time scholarships are available. See General Catalogue.

LOAN FUNDS

A limited number of worthy students, members of the Methodist Episcopal Church, may secure loans from the Student Loan Fund administered by the Board of Education of that Church. Christian character, satisfactory scholarship, promise of usefulness, financial responsibility, and the recommendation of the church to which the applicant belongs are essential to a loan. Each borrower must sign an interest bearing promissory note.

The International Club maintains an Emergency Loan Fund for benefit of any of its members who may be temporarily embarrassed. This fund is kept on interest in the Building and Loan Society and is controlled by a Faculty Advisory Committee and the Executive Committee of the club.

SELF-HELP

It is strongly recommended that every student entering the University should arrange to finance at least one quarter's expenses before entering. This will afford the student an opportunity to come in personal touch with the employers of Ada and provide ample time to begin his academic or professional work.
For information concerning scholarships, loans, employment, etc., make application at the offices of the Dean of Men and the Dean of Women.

CHEMICAL ENGINEERING

Fundamental chemistry has in recent years become a vital factor in the industrial world and its application to the process of manufacture has become indispensable. It is the purpose of the curriculum in Chemical Engineering to give to the student adequate training in basic science both pure and applied so that he may successfully pursue as his life’s vocation this division of the world’s work. Because of its purpose the curriculum must be rather definitely fixed, but by substitution of appropriate courses for certain applied courses listed, it will be possible to meet the needs of students who desire special preparation for a particular type of work.
# CHEMICAL ENGINEERING CURRICULUM

## First Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education 101</td>
<td>Physical Education 102</td>
</tr>
<tr>
<td>English 101</td>
<td>English 102</td>
</tr>
<tr>
<td>Engineering Drawing I</td>
<td>College Algebra 102</td>
</tr>
<tr>
<td>Chemistry 101a or 101</td>
<td>Trigonometry 103</td>
</tr>
<tr>
<td>College Algebra 101</td>
<td>Chemistry 102a or 102</td>
</tr>
<tr>
<td>SPRING QUARTER</td>
<td></td>
</tr>
<tr>
<td>Physical Education 103</td>
<td></td>
</tr>
<tr>
<td>Analytical Geometry 105</td>
<td></td>
</tr>
<tr>
<td>Engineering Drawing II</td>
<td></td>
</tr>
<tr>
<td>Qualitative Analysis 103a or 103</td>
<td></td>
</tr>
<tr>
<td>English 102a</td>
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## Second Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education 104</td>
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<tr>
<td>Physics 104</td>
<td>Calculus 108</td>
</tr>
<tr>
<td>Quantitative Analysis 104</td>
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<td>SPRING QUARTER</td>
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<td>Physical Education 106</td>
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<td>Economics 123</td>
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<td>Integral Calculus 109</td>
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<td>Physics 105</td>
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<td>Quantitative Analysis 106</td>
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## Third Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
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</thead>
<tbody>
<tr>
<td>Organic Chemistry 206</td>
<td>Organic Chemistry 207</td>
</tr>
<tr>
<td>German 101</td>
<td>Mechanics of Materials I</td>
</tr>
<tr>
<td>Advanced Mechanics 213</td>
<td>Engineering Drawing III</td>
</tr>
<tr>
<td>Thermodynamics</td>
<td>German 102</td>
</tr>
<tr>
<td>SPRING QUARTER</td>
<td></td>
</tr>
<tr>
<td>Organic Chemistry 208</td>
<td></td>
</tr>
<tr>
<td>Mechanics of Materials II</td>
<td></td>
</tr>
<tr>
<td>German 103</td>
<td></td>
</tr>
<tr>
<td>Elementary Electric Machines</td>
<td></td>
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</tbody>
</table>

## Fourth Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
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<tbody>
<tr>
<td>Physical Chemistry 215</td>
<td>Advanced Qualitative</td>
</tr>
<tr>
<td>Advanced Qualitative</td>
<td>Analysis 211b</td>
</tr>
<tr>
<td>Analysis 211a</td>
<td>Industrial Chemistry 209</td>
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<tr>
<td>Metallurgy</td>
<td>Physics 217</td>
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<tr>
<td>Surveying</td>
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<tr>
<td>Physics 216</td>
<td>Scientific German 118</td>
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<tr>
<td>SPRING QUARTER</td>
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<tr>
<td>Inorganic Preparations 212</td>
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</tr>
<tr>
<td>Industrial Chemistry 210</td>
<td></td>
</tr>
<tr>
<td>Physics 218</td>
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<tr>
<td>Mathematics of Physics 214</td>
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<tr>
<td>Physical Chemistry 217</td>
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</tbody>
</table>

Total number of hours required for graduation 216.

Attendance at Engineering Lectures is required.

Attendance on Inspection Trip is required during third year.
CIVIL ENGINEERING

In the broader sense civil engineering includes all divisions of the field. Although many of the former divisions have grown into separate departments, civil engineering offers greater opportunities than ever before. No sharp line of distinction can be drawn in the fundamental training of civil, mechanical, electrical, and chemical engineering, for the reason that the basic engineering sciences — mathematics, physics, chemistry, and some applied science — are essential in all departments of engineering.

Practically all local improvements are under the direct supervision of the College of Engineering. Many thousands of dollars have been expended the past few years for street paving, macadamizing, sewerage, etc., the major portion of the engineering work being done by the students themselves. A few of the many essential features which we might mention, i. e., establishing street and sidewalk grades, cross-sectioning and computing earthwork, laying out street and alley intersections, installation of sewers and accessories, inspection, specifications, advertisements, proposals and lettings.

EQUIPMENT

For the use of students in the classes in surveying and railroad engineering, the University is fully equipped with transits, levels, rods, tapes, etc. Classes in stresses and bridge design are provided with a large collection of photographs and a number of models of different types of bridges. The testing laboratory contains a Riehle Testing Machine, a Fairbanks Briquette Testing Machine, complete apparatus for cement testing, sets of sieves for analysis of sand and coarse aggregates, a beam testing machine, and an American Rattler for testing paving bricks. The new hydraulic engineering laboratory contains a large underground concrete storage tank, and a large concrete stilling basin with weighing tank for tests on weirs and orifices. It is supplied with a 2½" discharge centrifugal pump, besides smaller pumps, and water meters for testing purposes. Besides, students of civil engineering have access to the laboratories of the Mechanical, Electrical and Chemical Departments.

The drafting room is enlarged and newly equipped with modern apparatus. Individual tables, planimeters, protractors, electric blue printing machine, and drawing models form part of the equipment of this room.

The following is a schedule of the course offered, showing the number of credit hours per week devoted to each subject:
## CIVIL ENGINEERING CURRICULUM

### First Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education 101</td>
<td>Physical Education 102</td>
</tr>
<tr>
<td>College Algebra 101</td>
<td>College Algebra 102</td>
</tr>
<tr>
<td>Engineering Drawing I</td>
<td>Trigonometry 103</td>
</tr>
<tr>
<td>Chemistry 101a or 101</td>
<td>Chemistry 102a or 102</td>
</tr>
<tr>
<td>English 101</td>
<td>English 102</td>
</tr>
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<td></td>
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</tr>
<tr>
<td><strong>SPRING QUARTER</strong></td>
<td></td>
</tr>
<tr>
<td>Physical Education 103</td>
<td></td>
</tr>
<tr>
<td>Analytical Geometry 105</td>
<td></td>
</tr>
<tr>
<td>Engineering Drawing II</td>
<td></td>
</tr>
<tr>
<td>Qualitative Analysis 103a or 103</td>
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</tr>
<tr>
<td>English 102a</td>
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</table>

### Second Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Physical Education 104</td>
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<tr>
<td>Economics 121</td>
<td>Economics 122</td>
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<tr>
<td>Differential Calculus 107</td>
<td>Differential and Integral</td>
</tr>
<tr>
<td>Physics 104</td>
<td>Calculus 108</td>
</tr>
<tr>
<td>Surveying I</td>
<td>Physics 106</td>
</tr>
<tr>
<td></td>
<td>Engineering Drawing III</td>
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<td></td>
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<tr>
<td><strong>SPRING QUARTER</strong></td>
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</tr>
<tr>
<td>Physical Education 106</td>
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<td>Economics 123</td>
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<td>Integral Calculus 109</td>
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<tr>
<td>Physics 105</td>
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<tr>
<td>Surveying II</td>
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### Third Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
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</thead>
<tbody>
<tr>
<td>Advanced Mechanics 213</td>
<td>Mechanics of Materials I</td>
</tr>
<tr>
<td>Railroad Engineering I</td>
<td>Elective</td>
</tr>
<tr>
<td>*Highway Engineering</td>
<td>Hydraulics</td>
</tr>
<tr>
<td>Descriptive Astronomy III</td>
<td>Mechanism</td>
</tr>
<tr>
<td></td>
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<tr>
<td><strong>SPRING QUARTER</strong></td>
<td></td>
</tr>
<tr>
<td>Mechanics of Materials II</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td></td>
</tr>
<tr>
<td>Testing of Materials</td>
<td></td>
</tr>
<tr>
<td>Elementary Electric Machines</td>
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<td>Geology 6</td>
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</table>

### Fourth Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural Engineering I</td>
<td>Structural Engineering II</td>
</tr>
<tr>
<td>Reinforced Concrete I</td>
<td>Reinforced Concrete II</td>
</tr>
<tr>
<td>Financial Engineering</td>
<td>Water Supply</td>
</tr>
<tr>
<td>Sewerage</td>
<td>*Foundations</td>
</tr>
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<tr>
<td><strong>SPRING QUARTER</strong></td>
<td></td>
</tr>
<tr>
<td>Structural Engineering III</td>
<td></td>
</tr>
<tr>
<td>Reinforced Concrete III</td>
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</tr>
<tr>
<td>Hydraulic Machinery</td>
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</tr>
<tr>
<td>Contracts and Specifications</td>
<td></td>
</tr>
</tbody>
</table>

Total number of hours required for graduation 216.
Attendance at Engineering Lectures is required.
Attendance on Inspection Trip is required during third year.

*Not given in 1933-1934.
ENGINEERING SHOPS AND LABORATORIES

For a number of years it was evident to those connected with engineering education on the campus that if the college was to grow, additional facilities would have to be obtained for training in the manual arts. Adequate equipment was not at hand nor the space to place it, if such equipment could have been purchased. The lack of equipment was keenly felt and fully realized by those in authority responsible for the training of the students in engineering. A new building was needed large enough to house and consolidate the various groups and to allow them to expand when necessary. An ideal location was found in the buildings and grounds of the McCurdy Manufacturing Company, situated just north of the Pennsylvania railroad and on the eastern edge of the village.

In April 1932 Ohio Northern University purchased the buildings and ground of the above mentioned company for the purpose of converting them into shops and laboratories for the College of Engineering. The purchase adds approximately 15,000 square feet of floor space making, with the additional facilities, a plant comparable to those of other modern technical schools.

The main shop building is of frame construction, well lighted and covered with sheet iron painted to represent imitation brick. The plan is in the form of the letter "L", that portion comprising the short side consisting of two floors. The lower floor has already been changed and modified to fit the requirements of electrical engineering. Large and commodious, being 3600 square feet in area, this space should accommodate the department for some time to come.

Running parallel to the Pennsylvania tracks the longer side of the building is a one story affair and is exceptionally well lighted. The floor in this portion is of concrete and in extent is 40 by 150 feet. In the eastern end, separated by a 6" wall, are located the offices of the former company now used as study and sleeping rooms for the student caretakers of the building. The western end of this division is occupied by the department of civil engineering, the equipment having been described in a former section of this bulletin.

Situated between the offices on the east, and the civil engineering department on the west, is located the machine shop and the mechanical laboratory. Here the usual instruction in machine work will be given and it is felt that, due to the different types of machines available, the instruction will be above the ordinary. Electric arc and spot welding will receive special attention. Since the space in this section is entirely adequate, it is planned in the future to add a foundry with its own cupola for melting cast iron, and a wood working department with the necessary benches and lathes where pattern making can be studied as a background for foundry practice.

In the mechanical laboratory, which will be entirely experimental, studies will be made of automobile power plants, carburetors, radiators, and other pieces of equipment pertaining to the internal combustion engine.

When all the necessary changes are made this building will form a valuable addition to those on the immediate campus. Though separated from it by about a fifteen minutes walk, it is felt that the distance is not great enough to cause serious difficulty.
ELECTRICAL ENGINEERING

Electrical Engineering is a comparatively new division but has developed more rapidly than any other in recent years. Every extensive engineering project now involves the use of electricity. New and better illumination, larger generating units and central stations, higher voltage power transmission over greater distances, high speed elevators with automatic control, traffic control devices, railway electrification, over-seas telephony, radio broadcasting and receiving, television, wire transmission of photographs, printing telegraph, sound pictures, and countless other developments are each year creating further demands for trained Electrical Engineers. Properly qualified graduates find unlimited opportunities for their services in such functional divisions as research, design, teaching, construction, application, operation, manufacturing, management and sales.

As a broad foundation for entrance into such an extensive field the first part of the course includes thorough preparation in English, economics, chemistry, physics, mathematics, drawing, mechanics and strength of materials. The second part of the course involves an intensive study of the fundamentals of electrical science, the applications of which are illustrated by the solution of many practical problems. Direct current circuits and machinery, alternating current circuits and machinery, electrical transmission, electrical design, electronics and high-frequency currents are intensively studied. Carefully chosen laboratory experiments supplement class instruction in theory to clarify and strengthen the student's grasp of the subject. Basic courses in other fields of engineering and suitably chosen electives serve to complete the well rounded training needed to equip the student for success in the field of Electrical Engineering.

EQUIPMENT

The University power plant supplies both direct and alternating current for laboratory test purposes. The laboratory equipment includes d. c. motor-generator sets, compound and series d. c. motors, converters, squirrel-cage and wound rotor induction motors, transformers, vacuum tube oscillators, a capacity bridge, teletypewriters, an artificial line, an oscillograph and all the necessary auxiliary equipment and instruments for thorough laboratory instruction.

Motor Testing
# ELECTRICAL ENGINEERING CURRICULUM

## First Year

### FALL QUARTER
- Physical Education 101
- College Algebra 101
- Engineering Drawing I
- Chemistry 101a or 101
- English 101

### WINTER QUARTER
- Physical Education 102
- College Algebra 102
- Trigonometry 103
- Chemistry 102a or 102
- English 102

### SPRING QUARTER
- Physical Education 103
- Analytical Geometry 105
- Engineering Drawing II
- Qualitative Analysis 103a or 103
- English 102a

## Second Year

### FALL QUARTER
- Physical Education 104
- Differential Calculus 107
- Physics 104
- Surveying
- Economics 121

### WINTER QUARTER
- Physical Education 105
- Differential and Integral Calculus 108
- Physics 106
- Engineering Drawing III
- Economics 122

### SPRING QUARTER
- Physical Education 106
- Integral Calculus 109
- Physics 105
- Elementary Electric Machines
- Economics 123

## Third Year

### FALL QUARTER
- Advanced Mechanics 213
- *Alternating Current Circuits
- Elective or Mathematics 216
- Shop Projects I
- Thermodynamics

### WINTER QUARTER
- Mechanics of Materials I
- Steam Power Plants I
- *Alternating Current Machines
- Elective or Mathematics 212
- Shop Projects II

### SPRING QUARTER
- Mechanics of Materials II
- Steam Power Plants II
- *Electrical Transmission
- Elective or Mathematics 215
- Shop Projects III

## Fourth Year

### FALL QUARTER
- †Direct Currents
- Elective or Advanced
- Electrical Laboratory I
- Electronics
- Financial Engineering
- Illumination or Elective

### WINTER QUARTER
- †High Frequency Currents I
- Electrical Machine Design I
- Elective or Advanced
- Electrical Laboratory II

### SPRING QUARTER
- †High Frequency Currents II
- Elective or Electrical
- Machine Design II
- Hydraulic Machinery
- Machine Design I

*Total number of hours required for graduation 216.
Attendance at Engineering Lectures is required.
Attendance on Inspection Trip is required during third year.
One-half credit hour per quarter will be allowed as elective credit for attendance and participation in the O. N. U. Student Branch of the A. I. E. E.*

*Not given in 1934-1935.
†Not given in 1933-1934.
MECHANICAL ENGINEERING

Mechanical Engineering deals with the transformation of heat energy into electrical energy or mechanical work, as practised in modern power plants and industries, and with design and construction of machinery based on scientific analysis, modified to agree with modern methods of shop production. The courses offered are planned to give the student a thorough knowledge of both the theoretical and practical applications of mechanical engineering.

The first half of the curriculum consists of the basic engineering studies. In the latter half an exhaustive study is made of all phases of heat engineering supplemented by laboratory tests of steam boilers, steam engines, gas engines, steam pumps, etc. Thorough training is given in mechanical drawing and in the detailed design of simple mechanisms and complete machines.

EQUIPMENT

The University has its own steam engine driven lighting plant and central steam heating plant, lighting and heating all the various buildings. The equipment is of modern type and conveniently installed for testing, making it a part of the mechanical laboratory equipment. Included in the equipment available for laboratory testing is a 186.5 H.P. Sterling boiler, a 75 K.W. direct connected Brownell Steam Engine Generator set and a Worthington Feed Water Heater. Boiler feed pumps, ventilating fans, vertical steam engines and steam traps make up additional equipment. The testing apparatus includes thermometers, pressure and vacuum gauges, tachometers, steam calorimeters, steam and gas engine indicators, draft gauges, electric pyrometer, prony brakes, oil vicosimeter, bomb calorimeter, planimeters, and other test instruments.

Quite recently the machine shop was greatly strengthened by the purchase of additional machinery. The shop is now equipped with a Number 25 Universal milling machine with attachments and parts, a Universal grinder with attachments and parts, a Racine power three speed hack saw, a Lodge and Davis shaper, a Webster double end rough grinder, a Walcott (quick change) lathe with attachments and parts, a Monarch (quick change) lathe with attachments and parts, five drill presses, a 16" swing engine lathe and the usual hand tools. The new equipment is valued at approximately $10,000.00.

The following is a schedule of the courses offered showing the number of credit hours per week devoted to each subject:
## MECHANICAL ENGINEERING CURRICULUM

### First Year

**FALL QUARTER**
- Physical Education 101: 1
- College Algebra 101: 5
- Engineering Drawing I: 4
- Chemistry 101a or 101: 5
- English 101: 3
- A. S. M. E. Student: 1/2

**WINTER QUARTER**
- Physical Education 102: 1
- College Algebra 102: 4
- Trigonometry 103: 5
- Chemistry 102a or 102: 5
- English 102: 3
- A. S. M. E. Student: 1/2

**SPRING QUARTER**
- Physical Education 103: 1
- Analytical Geometry 105: 5
- Engineering Drawing II: 4
- Qualitative Analysis 103a or 103: 5

**Second Year**

**FALL QUARTER**
- Physical Education 104: 1
- Economics 121: 3
- Differential Calculus 107: 4
- Physics 104: 5
- Surveying I: 5
- A. S. M. E. Student: 1/2

**WINTER QUARTER**
- Physical Education 105: 1
- Economics 122: 3
- Differential and Integral Calculus 108: 4
- Physics 106: 5
- Engineering Drawing III: 5
- A. S. M. E. Student: 1/2

**SPRING QUARTER**
- Physical Education 106: 1
- Elementary Electric Machines: 5
- Integral Calculus 109: 4
- A. S. M. E. Student: 1/2

**Third Year**

**FALL QUARTER**
- Advanced Mechanics 213: 5
- Thermodynamics: 5
- Calculus 216 or Direct Currents: 4-5
- Mechanical Laboratory I: 3
- A. S. M. E. Student: 1/2

**WINTER QUARTER**
- Mechanics of Materials I: 5
- Steam Power Plants 1: 4
- Hydraulics: 5
- Mechanism: 5
- Mechanical Laboratory II: 3
- A. S. M. E. Student: 1/2

**SPRING QUARTER**
- Mechanics of Materials II: 5
- Machine Design I: 4
- Testing of Materials: 2
- A. S. M. E. Student: 1/2

**Fourth Year**

**FALL QUARTER**
- Structural Engineering I or A. C. Machines: 6-5
- Metallurgy: 4
- *Gas and Oil Engineering: 5
- Financial Engineering: 3
- Shop Projects: 1
- A. S. M. E. Student: 1/2

**WINTER QUARTER**
- Hydraulics: 5
- Machine Design II: 4
- *Steam Turbines: 4
- Power Plant Operation or Electric Welding: 5
- A. S. M. E. Student: 1/2

**SPRING QUARTER**
- Gas Engine Design: 5
- Elective: 2
- A. S. M. E. Student: 1/2

Total number of hours required for graduation 216.

Attendance at Engineering Lectures is required.

Attendance on Inspection Trip is required during third year.

*Not given in 1933-1934.

†Not given in 1934-1935.
During Easter Vacation at the close of the Winter quarter an inspection trip is made to several of the industrial centers of the Middle West. The itinerary will be so arranged as to cover points of interest and value to all departments. Each engineering student will be required to make the trip during his third or junior year, and he may be allowed to accompany the party during his senior year.

The party will travel in chartered motor busses and will put up at first class hotels.

This year the cities of Chicago, Ill., and Detroit, Mich., were visited on a seven-day trip.

A distance of approximately 820 miles was covered, and the total necessary expense for transportation, meals and first class hotel accommodations was less than thirty dollars. It is not expected the necessary expenses for any trip will exceed this amount.

POSITIONS

Our experience in the past has been that the demand made upon the College of Engineering for graduates has been far in excess of the supply. Representatives of many of the leading utilities and industries visit our school to interview our seniors relative to employing them immediately upon graduation. The question is asked us sometimes whether we guarantee to secure positions for our graduates. This question must be answered in the negative, as no responsible school can afford to make such a guarantee.

JOHN H. TAFT GYMNASIUM AND FIELD HOUSE

This splendid building meets every requirement of the modern program of Physical Education
DESCRIPTION OF COURSES

Chemistry

101a. INTRODUCTORY CHEMISTRY (Fall)  5 Hrs.
102a. INTRODUCTORY CHEMISTRY (Winter)  5 Hrs.
103a. INTRODUCTORY QUALITATIVE ANALYSIS (Spring)  5 Hrs.

A series of courses designed for students who do not present chemistry for entrance credit. Courses 101a and 102a consist of a careful study of the fundamental laws of chemistry and of the properties of the common metallic elements and their compounds; course 103a is an introductory study in qualitative analysis of acids and metals, based upon the principles of ionization, mass action and chemical equilibrium. A brief study is made of the common metallic elements and their compounds.

Two sections. Lecture and quiz, M. W. F., 1 or 3. Laboratory, T. Th., 2, 3, 4 or 6, 7, 8.

101. GENERAL CHEMISTRY (Fall, Winter, Summer)  5 Hrs.
102. GENERAL CHEMISTRY (Winter, Spring, Summer)  5 Hrs.
103. QUALITATIVE ANALYSIS (Spring, Summer)  5 Hrs.

Basic courses in General Chemistry. Prerequisite: One unit of high school chemistry. Two sections. Lecture and quiz, M. W. F., 2 or 4. Laboratory, T. Th., 2, 3, 4 or 6, 7, 8.

104. QUANTITATIVE ANALYSIS (Fall)  5 Hrs.
105. QUANTITATIVE ANALYSIS (Winter)  5 Hrs.
106. QUANTITATIVE ANALYSIS (Spring)  5 Hrs.

These courses deal with the theory and practice of gravimetric and volumetric analysis. The use of the fundamental principles of modern theoretical chemistry, as well as the attainment of the ability to make quantitative separations and determinations, is emphasized. Prerequisite: Chemistry 103a or 103. Lecture, T. Th., 5 or 6; laboratory, M. W. F., 5, 6, 7.

206. ORGANIC CHEMISTRY (Fall)  5 Hrs.
207. ORGANIC CHEMISTRY (Winter)  5 Hrs.
208. ORGANIC CHEMISTRY (Spring)  5 Hrs.

These courses consist of a fundamental study of the compounds of carbon. Careful attention is given to group structure, group relationships, group properties, isomerism and nomenclature. Prerequisite: Chemistry 103a or 103. Lecture and quiz, M. W. F., 5; laboratory, T. Th., 5, 6, 7.

209. INDUSTRIAL INORGANIC CHEMISTRY (Winter)  4 Hrs.

Not open to students who have credit for Chemistry 214. Formerly course 214.

210. INDUSTRIAL ORGANIC CHEMISTRY (Spring)  4 Hrs.

These courses in Industrial Chemistry are a descriptive survey of industrial chemical processes and their products.

In addition to regular class work, visits at appropriate periods are made to industrial plants in neighboring cities. Daily, 1.

211a. ADVANCED QUALITATIVE ANALYSIS (Fall)  5 Hrs.
211b. ADVANCED QUALITATIVE ANALYSIS (Winter)  5 Hrs.

212. INORGANIC PREPARATIONS (Spring)  5 Hrs.

The fundamental purpose of these courses is to teach Inorganic Chemistry. Courses 211a and 211b deal with systematic Analysis on a semi-quantitative basis, and are more comprehensive than 103 in both theoretical consideration and number of elements studied. Course 212 consists of a preparation of pure inorganic compounds, and a study of the theoretical principles involved. In all these courses the Periodic Law is used as the basis for the classification of the elements and their properties.

Prerequisite: Chemistry 104 and 105. Lecture, T. Th., 3; laboratory, M. W. F., 5, 6 and 7.
215. **Physical Chemistry (Fall)** 3 Hrs.

216. **Physical Chemistry (Winter)** 3 Hrs.

217. **Physical Chemistry (Spring)** 3 Hrs.

A series of courses designed to develop a comprehensive conception of chemical change and the structure of matter. In the interest of the pre-medical student, special attention is given to osmosis, equilibrium, colloids and hydrogen ion determination. Prerequisite: Quantitative analysis, organic chemistry and general physics. Trigonometry as a minimum mathematical preparation is strongly recommended. Lecture and quiz, M. W. F., 4.

231. **Chemistry Problems** 3 Hrs.

Minor investigations for qualified seniors who are majoring in chemistry. This course, though not listed in the Chemical Engineering Curriculum, may be elected any quarter in the Senior year by any student who is qualified to carry it in addition to the regular schedule. It may be started in the Fall quarter and continued through the year. Credit will then be evaluated when the work is finished. This is an Honor course. Consult head of department.

**Drawing**

1. **Engineering Drawing I (Fall, Winter)** 4 Hrs.

   Use of instruments. Applied geometry, lettering, orthographic projections, and pictorial drawing. Ten hours drafting room work each week. Daily, 1, 4 and M. W. F., 6, 8.

2. **Engineering Drawing II (Spring)** 4 Hrs.

   Developments, intersections, perspective and working drawings. Prerequisite: Engineering Drawing I. Ten hours work in drafting room each week. Daily, 1, 4 and M. W. F., 6, 8.

3. **Engineering Drawing III (Winter)** 5 Hrs.

   Descriptive geometry, advanced orthographic projections, problems of point, line, plane, and curved surfaces. Shades and shadows. Prerequisite: Engineering Drawing II. Recitations, 3 hours. Six hours drafting room work each week. Class, T. Th., F., 3; laboratory, M. W., 6, 7, 8.

**Economics**

121. **Principles of Economics (Fall)** 3 Hrs.

122. **Principles of Economics (Winter)** 3 Hrs.

123. **Principles of Economics (Spring)** 3 Hrs.

Wants, scarcity, and economy; economic history; organization of production; value and price; monopoly and its control; financial organization; distribution of wealth and income; inequality and social reform; public finance; and international trade. Required of all majors. Not open to freshmen. Two sections. M. W. F., 4, 5, or 7.

**English**

101. **Composition (Fall, Winter)** 3 Hrs.

102. **Composition (Winter)** 3 Hrs.

102a. **Composition (Spring)** 3 Hrs.

These three courses constitute a year of work for freshmen. A thorough drill in the mechanics of written English, exposition and argumentation; description and narration. Considerable attention is given to the study of the structure of the short story. Daily themes. Students who show a high degree of proficiency in English may elect English 122a or English 105 in the place of Composition 102a. Six sections, M. W. F., 2, 4, 5; T. Th. F., 6, 7, 8.
**German**

*Introductory Courses*

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<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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<tbody>
<tr>
<td>101.</td>
<td>ELEMENTARY GERMAN (Fall)</td>
<td>3 Hrs.</td>
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<tr>
<td>102.</td>
<td>ELEMENTARY GERMAN (Winter)</td>
<td>3 Hrs.</td>
</tr>
<tr>
<td>103.</td>
<td>ELEMENTARY GERMAN (Spring)</td>
<td>3 Hrs.</td>
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Essentials of pronunciation, grammar and composition, verb drill, and easy graded texts for reading. M. W. F., 1.

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<tr>
<td>118.</td>
<td>SCIENTIFIC GERMAN (Winter)</td>
<td>2 Hrs.</td>
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The reading of scientific texts and periodicals with particular emphasis on individual needs. Required of premedical students. Prerequisite German 101-103. T. Th., 1.

**Mathematics**

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<th>Course</th>
<th>Description</th>
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<tr>
<td>101a.</td>
<td>FRESHMAN ALGEBRA (Fall)</td>
<td>3 Hrs.</td>
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<tr>
<td>102a.</td>
<td>FRESHMAN ALGEBRA (Winter)</td>
<td>3 Hrs.</td>
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This course is offered to those who present one unit of algebra and one unit of geometry for entrance. It treats a considerable portion of the material comprised in the study of algebra, trigonometry and analytical geometry with sufficient thoroughness to enable the student to pursue subsequent courses with profit. M. W. F., 2.

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<tr>
<td>103a.</td>
<td>GEOMETRY OF SPACE (Spring)</td>
<td>3 Hrs.</td>
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This course is offered to meet the needs of engineering students who present but one unit of geometry. The course is required but no college credit is given. M. W. F., 5.

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<tr>
<td>101.</td>
<td>COLLEGE ALGEBRA (Fall, Winter)</td>
<td>5 Hrs.</td>
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</table>

Topics: Rational fractions; binomial theorem; evolution; irrational fractions; quadratic equations; equations in quadratic form; simultaneous quadratic equations; ratio, proportion and variation; arithmetical, geometrical and harmonical progressions. Prerequisite: College entrance units, including one and one-half units high school algebra. Fall, 4 or 5; Winter, 6.

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<tr>
<td>102.</td>
<td>COLLEGE ALGEBRA (Winter)</td>
<td>4 Hrs.</td>
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Topics: Imaginary and complex numbers; logarithms; mathematical induction; theory of equations; determinants. Prerequisite: Mathematics 101. Winter, 2 or 3.

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<tr>
<td>103.</td>
<td>TRIGONOMETRY (Winter, Spring)</td>
<td>5 Hrs.</td>
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</table>

Topics: Definitions; trigonometric functions and equations; inverse functions; solutions of plane triangles with certain applications. Prerequisite: high school algebra (1 1/2 units), plane and solid geometry (1 1/2 units). Two sections; Winter, 4 or 5; Spring, 6.

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<tr>
<td>104.</td>
<td>SPHERICAL TRIGONOMETRY (Spring)</td>
<td>3 Hrs.</td>
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A course designed for students who plan to do practical work in astronomy and geodesy. Prerequisite: Mathematics 103. M. W. F., 3.

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<tr>
<td>105.</td>
<td>ANALYTICAL GEOMETRY (Spring)</td>
<td>5 Hrs.</td>
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Topics: Loci and their equations; the straight line; the circle; graphs in rectangular and polar coordinates; transformations; conic sections; tangents; parametric equations and loci; space coordinates and loci, the plane, special and quadratic surfaces; empirical equations. Prerequisite: Mathematics 103. Spring, 4 or 6.

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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>107.</td>
<td>CALCULUS: DIFFERENTIAL (Fall)</td>
<td>4 Hrs.</td>
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</table>

Topics: Functional notation; total and partial differentiation with certain applications; successive differentiation; differentials; implicit and explicit functions; convergence and divergence of infinite series; expansion of functions; indeterminate forms; maxima and minima of functions of one variable. Prerequisite: Mathematics 105. Two sections. M. T. W. Th., 4 or 5.
108. **Calculus: Differential and Integral (Winter)** 4 Hrs.
Topics: Change of variable; maxima and minima of functions of two or more variables; direction of curves; tangents and normals; tangent plane and normal line; direction of curvature and radius of curvature; oscillating circle; envelopes; methods of integration by type of integrand; certain applications of simple integration. Prerequisite: Mathematics 107. Two sections. M. T. W. Th., 4 or 5.

109. **Calculus: Integral (Spring)** 4 Hrs.
Topics: Integration by parts; reduction formulae; integration by substitution; integration as a summation with applications; successive integration and the application to surfaces; volumes; moment of inertia; center of gravity; fluid pressure; attraction at a point; hyperbolic functions; cycloid. Prerequisite: Mathematics 108. Two sections. M. T. W. Th., 4 or 5.

*111. Descriptive Astronomy (Fall) 5 Hrs.*
Topics: Reference points and lines; the constellations; the earth and its motion; time; the moon; the solar system; the planets, comets and meteors; the sun; the stars and nebulae. Eight hours of observations with notes are required. Not accepted toward a mathematics major. Prerequisite: Mathematics 103. Daily, 2.

212. **Differential Equations (Winter)** 3 Hrs.
Topics: Equations of the first order and degree; equations of the first order but not of the first degree; equations of the second order but not of the first degree; equations of the second order; linear equations with constant coefficients. Prerequisite: Mathematics 109 M. W. F., 3.

215. **Vector Analysis (Spring)** 3 Hrs.
This is an account of the methods of elementary vector analysis in two and three dimensional space, followed by simple applications to geometry and physics. Prerequisite: Mathematics 109. M. W. F., 3.

216. **Calculus: Advanced Integral (Fall)** 4 Hrs.
Topics: Plane areas by means of a double integration; volumes by triple integration; moment of inertia; center of gravity; fluid pressure; centroid of solids; hyperbolic functions; cycloid. Prerequisite: Mathematics 108, 109. M. T. W. Th., 6.

218. **Infinite Series (Fall)** 3 Hrs.
A study of infinite series and the applications of Calculus to Analytic functions. M. W. F., 3.

*Not given in 1933-34.*

**Physics**

104. **General Physics (Fall)** 5 Hrs.
105. **General Physics (Spring)** 5 Hrs.
106. **General Physics (Winter)** 5 Hrs.
A year of college physics for engineers. Prerequisite: High school physics and mathematics 105. Recitations, M. T. W. Th., 2; laboratory, any afternoon, one three-hour period.

213. **Advanced Mechanics (Fall)** 5 Hrs.

214. **Mathematics of Physics (Spring)** 5 Hrs.
A course dealing with the application of mathematics to physics and related sciences. Prerequisite: Physics 111 and calculus. Daily, 7.

216. **Advanced Laboratory: Mechanics**
217. **Advanced Laboratory: Light, Heat, Sound**
218. **ADVANCED LABORATORY: ELECTRICITY**

Credit is given in courses 216, 217, and 218 according to the amount of work done. However, not more than six hours of credit may be earned in any one of the three courses. Offered every quarter. **Prerequisite:** Physics 109, 110, 111 and Mathematics 103. Calculus is recommended. Two-three-hour laboratory periods each week.

220. **MODERN PHYSICS (Winter)** 3 Hrs.

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. **Prerequisite:** General Chemistry and General Physics. T. Th. F., 6.

**Civil Engineering**

1. **SURVEYING I (Fall)** 5 Hrs.

Use of chain, level and transit. **Prerequisite:** Trigonometry. Recitations, M. W. F., 3; laboratory, T. Th., 5, 6, 7, or M. W., 6, 7, 8.

2. **RAILROAD ENGINEERING (Fall)** 5 Hrs.

Simple curves, compound curves, reverse curves, spirals, switches and turnouts. **Prerequisite:** Surveying II. Recitations, M. T. W. Th., 4; laboratory, F., 5, 6, 7.

3. **HIGHWAY ENGINEERING (Fall)** 3 Hrs.

Design, construction and maintenance of earth roads, paved roads and streets. **Prerequisite:** Geology and Surveying II. Recitations, M. W. F., 1.

4. **GEOLOGY (Spring)** 3 Hrs.

A study of the earth's crust dealing with rock formation and structure, and the formation of mineral deposits, mountain folds and faults. **Prerequisite:** General Chemistry. Recitations, M. W. F., 1.

5. **SEWERAGE (Fall)** 5 Hrs.

General course on sewerage system and disposal of sewerage. **Prerequisite:** Hydraulics. Daily, 3.

6. **HYDRAULIC MACHINERY (Spring)** 5 Hrs.

Water power, hydrology. Types of turbines and setting, tangential water wheels, reaction turbines, governors, testing, selection of type. Centrifugal pumps, description, installation and operation, theory and classification. **Prerequisite:** Hydraulics I. Daily, 3.

7. **HYDRAULICS (Winter)** 5 Hrs.

Static water pressure, flotation, buoyancy, laws of falling bodies applied to hydraulics. Measurements of flow. **Prerequisite:** Physics, Calculus 109 and Mechanics. Daily, 3 or 4.

8. **MECHANICS (Fall)** 5 Hrs.

This course covers concurrent forces, nonconcurrent forces, center of gravity, moment of inertia. **Prerequisite:** Physics 104 and Calculus 109. Daily, 3.

9. **MECHANICS OF MATERIALS I (Winter)** 5 Hrs.

General principles of stresses, elastic limit, shear, riveted joints, torsion, beams, stresses in beams, deflection in beams. **Prerequisite:** Calculus 109 and Mechanics. Daily, 2 or 4.

10. **MECHANICS OF MATERIALS II (Spring)** 5 Hrs.

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 and failure, curved beams and hooks. **Prerequisite:** Mechanics of Materials I. Daily, 2 or 4.

11. **STRUCTURAL ENGINEERING I (Fall)** 6 Hrs.

An introductory course covering by analytical and graphical methods the determinations of reactions, moment, shears and stresses in simple trussed structures for fixed and moving loads. Design steel and wood beams, and design and make detail drawings of simple roof truss. **Prerequisite:** Mechanics of Materials I, II. M. W. F., 5, 6, 7.
12. **Structural Engineering II (Winter)** 6 Hrs.
   An extension of Structural Engineering I. Credit 6 hours covering the use of influence lines and the design of plate girders and columns. Design and make detail drawings of a plate girder viaduct. Prerequisite: Structural Engineering I. M. W. F., 5, 6, 7.

13. **Structural Engineering III (Spring)** 6 Hrs.
   A continuation of Structural Engineering II. Covering analytical and graphical methods of determining stresses due to fixed and moving loads in simple span railway bridge trusses of the larger type. Design and make detail drawings of a railway pin-truss span. Prerequisite: Structural Engineering II. M. W. F., 5, 6, 7.

14. **Reinforced Concrete I (Fall)** 4 Hrs.

15. **Reinforced Concrete II (Winter)** 4 Hrs.
   Design of buildings and retaining walls. Prerequisite: Reinforced Concrete I. Recitation 2 hours; drafting room 4 hours. T. Th., 5, 6, 7.

16. **Reinforced Concrete III (Spring)** 4 Hrs.
   Design of retaining walls and bridges. Prerequisite: Reinforced Concrete II. Recitations, 2 hours; drafting room 4 hours. T. Th., 5, 6, 7.

17. **Water Supply (Winter)** 5 Hrs.
   Requisites of a water supply, quality of water, collecting and distributing works, studies of rainfall and runoff, works for treating water. Theory of dams. Prerequisite: Hydraulics and Sewerage. Daily, 2.

18. **Testing Materials (Spring)** 2 Hrs.
   Testing cement mortars, tests of small wooden beams and columns with deflection instrument, tension test of steel and iron extensometer, tests for impurities in concrete aggregates, sieve analysis of concrete aggregates. Prerequisite: Mechanics of Materials I. Laboratory, T. Th., 5, 6 and 7, 8.

19. **Foundations (Winter)** 3 Hrs.
   A descriptive course dealing with pile foundations, pile driving, sheet piling cofferdams, open and pneumatic caissons, open wells, types of piers and abutments and underpinning. Prerequisite: Reinforced Concrete I. M. W. F., 3.
20. **Contracts and Specifications (Spring)** 3 Hrs.
   A study of the principle of specification writing and law of contracts. Examination and criticism of different current standard contracts and specifications. Cannot be taken before the seventh quarter. M. W. F., 2.

21. **Financial Engineering (Fall)** 3 Hrs.

**Electrical Engineering**

1. **Elementary Electric Machines (Spring)** 5 Hrs.
   Introductory or survey course for all engineering students. The electric and magnetic circuit, D. C. and A. C. generators and motors as well as transformers, storage batteries and illumination will be treated. Prerequisites: Physics 106. Daily, 1.

2. **Direct Currents (Fall)** 5 Hrs.
   This is a thorough course in the theory characteristics, application and control of direct current circuits and machinery. Prerequisites: Elementary Electric Machines. Recitations M. T. W. Th., 1; Laboratory T. Th., 6.

3. **Alternating Current Circuits (Fall)** 5 Hrs.
   A fundamental course in Alternating current circuit theory. Vector representation, the calculation of impedance in series and parallel circuits, polyphase circuits and elementary transients are studied. Prerequisite: Elementary Electric Machines. Recitations M. T. W. Th., 1; Laboratory T. Th., 6.

4. **Electrical Transmission (Spring)** 5 Hrs.
   This is a course in the electrical transmission of energy. Overhead and underground systems and high voltage phenomena. Prerequisite: Alternating Current Circuits. Recitations M. T. W. Th., 4; Laboratory T. Th., 6.

5. **Alternating Current Machines (Winter)** 5 Hrs.
   The theory, characteristics and control of transformers, induction motors, synchronous motors, converters and alternating current generators. Prerequisite: Elementary Electric Machines. Recitations M. T. W. Th., 4; Laboratory T. Th., 6.

6. **Electronics (Fall)** 5 Hrs.
   This is a course in the theory of electronic flow in vacuum tubes. Characteristics and application of newer types of tubes. Prerequisite: Alternating Current Circuits. Recitations M. W. F., 2.

   A course in the detailed electrical calculation of direct current generators and controllers. Prerequisite: Direct Currents. Recitations M. T. W. Th., 2.

8. **Electrical Machine Design II (Spring)** 3 Hrs.
   The electrical design of alternating current generators, motors and transformers. Prerequisite: Alternating Current Machines. Recitations M. W. F., 2.

9. **High Frequency Currents I (Winter)** 5 Hrs.
   This is a course in the theory and calculation of circuits and apparatus performance at communication frequencies. Prerequisite: Alternating Current Circuits. Recitations M. T. W. Th., 4; Laboratory T. Th., 6.

10. **High Frequency Currents II (Spring)** 5 Hrs.
    This is a continuation of the above course involving the mathematical and experimental analysis of equipment characteristics and circuit performance at radio frequencies. Prerequisites: High Frequency Currents I. Recitations M. T. W. Th., 4; Laboratory T. Th., 6.
11. **Shop Projects (Fall, Winter, Spring)** 3 Hrs.

   Required for graduation. Practical projects involving calculation, drafting, 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 no class room or text book work and the course is usually covered in one hour per quarter for three quarters. Individual assignments are made to each student. M. T. W. Th., 6-8.

12. **Advanced Electrical Laboratory I, II, III** 3 Hrs.

   Elective in the senior year. Special laboratory problems and investigations more intricate and advanced than included in the required courses. Minor research projects may be undertaken. Hours to be arranged to suit balance of schedule.

13. **Illumination (Fall)** 3 Hrs.

   Theory and modern applications of lighting. Prerequisite: Elementary Electric Machines. M. W. F., 3.

### Mechanical Engineering

1. **Thermodynamics (Fall)** 5 Hrs.


2. **Steam Power Plants I (Winter)** 4 Hrs.

   A study of the combustion, handling and storage of fuel, and of steam generating machinery, including boilers, stokers, steam engines, and condensers. Prerequisite: Physics 105 and Thermodynamics. M. T. W. Th., 3.

3. **Steam Power Plants II (Spring)** 4 Hrs.

   A continuation of Steam Power Plants I with consideration given to complete installations, the cost of power, typical specifications and the power test codes. M. T. W. Th., 2.

4. **Steam Turbines (Winter)** 4 Hrs.

   Nozzle and blade design, mechanical losses, impulse turbines, reaction turbines, impulse reaction turbines, governing, economics of turbine operation, and the gas turbine. Prerequisite: Thermodynamics. M. T. W. Th., 2.

5. **Gas and Oil Engines (Fall)** 5 Hrs.

   Liberation of heat energy, combustion, engine burning gas, kerosene and gasoline, semi-Diesel and Diesel engines, automobile engines, carburetion, ignition, and testing. Prerequisite: Thermodynamics. M. W. F., 3.

6. **Metallurgy (Fall)** 4 Hrs.

   The manufacture of pig iron, wrought iron, and steel, mechanical treatment of steel, iron and steel founding, physical and chemical constitution of iron and steel, alloy metals, metallography. Prerequisite: Chemistry 103. M. T. W. Th., 4.

7. **Heating and Ventilating (Spring)** 5 Hrs.

   Heating and ventilation. Heat losses from buildings, methods of heating, boilers, radiators, and accessories, steam systems, hot water systems, automatic temperature control, hot air furnace heating, fan systems, air washers, and air conditioning. Prerequisite: Thermodynamics. M. T. W. Th., 6.

8. **Mechanism (Winter)** 5 Hrs.

   Mechanisms, motion and velocity, kinematic chains, instantaneous centers, velocity diagrams, parallel and straight line motion,cams, gearing, bevel gears, gear trains, belting, and intermittent motions. Daily, 6.
9. **MACHINE DESIGN I (Spring)** 4 Hrs.

10. **MACHINE DESIGN II (Winter)** 4 Hrs.
    Complete design and detail of machine units. M. T. W. Th., 4.

11. **GAS ENGINE DESIGN (Spring)** 5 Hrs.
    Design of gas or oil engine. Complete calculations and detail drawings required of each member of the class. Prerequisite: Gas and Oil Engines and Machine Design I. Daily, 4.

12. **MECHANICAL LABORATORY I (Fall)** 3 Hrs.
    Calibration of instruments, use of planimeter, study of engine indicators and their use, determination of steam quality, proximate coal analysis, heating value of coal by use of bomb calorimeter, flue gas analysis, testing of lubricating oils for flash point, fire point and viscosity. Prerequisite: Thermodynamics. T. Th., 5, 6.

13. **MECHANICAL LABORATORY II (Winter)** 3 Hrs.
    Boiler evaporative test, engine indicator and brake horsepower tests, indicator card analysis, efficiency tests of injector, electric motor, ventilating fan, centrifugal pump and automobile motor. Prerequisite: Mechanical Laboratory I. T. Th., 5, 6.

14. **MACHINE SHOP (Spring)** 3 Hrs.
    Bench work in filing, chipping, and fitting. Machine work in threading, turning, boring, drilling, milling, shaping, tool grinding. M. W. F., 6, 7, 8.

15. **POWER PLANT OPERATION (Winter, Spring)** 5 Hrs.
    Practical work in the operation and maintenance of the University Power Plant. Prerequisites: Steam Power Plants I and II. Daily, 7:00 a. m. to 5:00 p. m.

16. **A. S. M. E. STUDENT BRANCH MEETINGS** ½ Hr.
    Fall, Winter, and Spring Quarters. Professional professional meetings of the Student Branch of the American Society of Mechanical Engineers to hear lectures by prominent engineers, to read and discuss papers presented by members of the Branch, and to gain some experience in the conduct of such meetings.

17. **ELECTRIC WELDING (Spring)** 5 Hrs.
    The uses and principles of construction of arc welding equipment. Actual operation of arc welding and spot welding machines, including a study of lap, butt and perpendicular welding. Hours to be arranged.

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*Northern Circling Visitor's Left End*
COLLEGE OF ENGINEERING

Seniors of 1933

Candidates for degrees as indicated.

Bachelor of Science in Chemical Engineering

Croft, Maurice William... Lima, Ohio
Deniston, George Lowell... Lima, Ohio
Edwards, Thomas Charles....... New Philadelphia, Ohio
Fry, Fred.................. Findlay, Ohio
Jewell, Robert Klinedenst... Lima, Ohio
Kline, Russell Oliver....... Gilboa, Ohio
Sherard, Charles John... Findlay, Ohio

Bachelor of Science in Civil Engineering

Alpaugh, Elvin.......... Clinton, N. J.
Anderson, Kenneth Boxer... Lima, Ohio
Bennett, Robert Noble... McComb, Ohio
Bowen, Roger Thomas....... Cleveland Hts., Ohio
Castrence, Prudencio Caamped...
Bolinao, Pangasinan, P. I.
Clacier, Domingo Celso... Bohio, P. I.
Core, Edward Knight........ Bellefontaine, Ohio
Derr, Franklin Pierce....... Bethlehem, Pa.
Dowling, Francis Raymond...
Niagara Falls, N. Y.
Elder, Paul Franklin... Alliance, Ohio
Hofmann, Charles Frederick...
Lima, Ohio
Irwin, Frederick Bruce.... Upper Sandusky, Ohio
Lewis, Gordon Victor...... Bloomington, Ohio
Life, Harry Lewis......... Elyria, Ohio
MacClaren, Donald John... Niagara Falls, N. Y.
McCready, Henry Taylor..... Circleville, Ohio
Palmer, Charles Wallace... Cedarburg, Ohio
Osborn, Frank Milton...... Mayaguez, P. R.
Rickenberg, Edward Henry... Napoleon, Ohio
Roberts, Robert L........ Tiffin, Ohio
Rogers, Edward Regan...... Youngstown, Ohio
Schmidt, Manuel Castano... Havana, Cuba
Scott, Lester Gerald... McQuay, Ohio
Studer, John Eugene... Clinton, N. J.
Warren, William Edwin.... Rawson, Ohio
Witt, Ellwood Hohmann..... Millville, N. J.

Bachelor of Science in Electrical Engineering

Arnold, Lloyd Henderson... Lafayette, Ohio
Dietrich, George Herbert... Salamanca, N. Y.
Dreisbach, Robert James... Findlay, Ohio
Hauber, Bernard Glenn..... Harrison Valley, Pa.
Howard, John Wilbur... Dayton, Ohio
Moorhead, John Otis... Findlay, Ohio
Pees, Ronald Russell... Dunkirk, Ohio
Schneider, Harlon Casper... Marysville, Ohio
Stiles, Bernard.......... Quincy, Ohio
Wagner, Edgar George... Utica, Ohio
Worden, James Herbert.... Stow, Ohio
Williams, Calvin Marion... Greenfield, Ohio
Yeasting, Maynard Charles... Elmore, Ohio

Bachelor of Science in Mechanical Engineering

Brown, Henry Herbert....... Rochester, N. Y.
Hall, William Harold... Clinton, N. J.
Hawes, Orville William... Quincy, Ohio
Hester, Ezra Gorham... Cleveland, Ohio
Johnson, Lewis Fred....... Barberton, Ohio
King, Burdette Monroe...... Lancaster, Ohio
Landon, Richard... Salamanca, N. Y.
Phillips, Cecil Arthur... Panama, N. Y.
Sheets, Gilbert Stanley... Lima, Ohio
The School that Makes Successful Men

What is Your Ambition?

If it is political preference we want to tell you about our one Supreme Court Judge, three U. S. Senators, five U. S. Congressmen, and scores of State Representatives and County prosecutors.

If it is in the religious realm we call your attention to the many men we have in the high councils of the Church.

If it is in the great field of nature allow us to tell you about some of our successful scientists.

If it is technical in nature we can refer you to our engineers and pharmacists the world round, many of whom have gained prominence.

If it is in the business world we invite your investigation of our successful business men who are found everywhere.

If it is in the educational world we want to call your attention to the scores of City and County Superintendents, Principals of High Schools and members of various college faculties who have gone from here.

Among our Musical Alumni can be found men and women in the foreground of America's musical artists.

We have graduates holding prominent places in the fields of Agriculture, Fine Arts, Dramatics, and Physical Education.
OHIO NORTHERN UNIVERSITY BULLETIN is published Quarterly by the Ohio Northern University, Ada, Ohio. Entered as second-class matter, July 3, 1907, at the postoffice at Ada, Ohio, under the act of Congress of July 16, 1894.
This Bulletin contains information concerning the

COLLEGE OF LAW

Forty-ninth Year

CALENDAR

Fall Quarter...............September 18, 1933

Winter Quarter...........January 2, 1934

Spring Quarter...........March 26, 1934
Ohio Northern University
Ada, Ohio

College of Liberal Arts
Scholarly faculty; strong courses; standardized departments. Majors and minors in all departments. Pre-professional courses offered.

Division of Teacher Training
Fully accredited by the State Department of Education. Certificates and degrees offered in elementary, intermediate and high school teachers' professional courses. Approved for certification in music and physical education.

Department of Music
Courses offered in Public School Music, Voice, Pianoforte, Pipe Organ, Violin, Stringed, Wind and Reed instruments, History and Theory of Music.

Department of Physical Education
Gymnasium Instruction, Athletic Coaching, and Educational Games.

College of Engineering
Four fields of Engineering: Chemical, Civil, Electrical and Mechanical.

College of Pharmacy
In addition to a group of courses which are constant for all candidates for a degree, the curriculum is flexible enough to allow preparation in specialized activities of the profession of Pharmacy.

College of Law
Strong courses leading to the degree of LL. B. Students admitted after completion of two years of college work.

For literature and information address
ROBERT WILLIAMS, President
ADMINISTRATIVE OFFICERS AND FACULTY

ROBERT WILLIAMS, M. A., D. D., LL. D.
President

MARGARET E. WHITWORTH, B. S.
Registrar and Entrance Examiner

CLAUDE WESTCOAT PETTIT, B. A., LL. B., LL. M.
Acting Dean; Professor of Law

EDWIN VERGON SMITH, B. A., LL. B.
Professor of Law

CARL HILDING MANSON, B. A., LL. B., S. J. D.
Instructor in Law

WALTER S. JACKSON, B. A., LL. B.
Lecturer in Bankruptcy

College of Law Building
UNIVERSITY CALENDAR

Special Spring Term, 1933
May 1, Monday, six weeks to June 9, Friday..........................
..........................Exclusively for Teachers

Summer Session, 1933
First Term, Tuesday, June 13, to Saturday, July 15
Second Term, Monday, July 17, to Saturday, August 19

Fall Quarter, 1933
September 18, Monday...................Freshman Preregistration
September 19, Tuesday...................Upperclass Preregistration
September 20, Wednesday..............Registration and Payment of Fees
September 21, Thursday (7:50 A. M.)..........Classes Begin
October 21, Saturday...................Homecoming Day
November 28, Tuesday (5:30 P. M.)......................Thanksgiving Vacation Begins
December 4, Monday (8:45 A. M.)...................Classes Resumed
December 11, 12, 13, 14, Monday to Thursday, Inclusive
........................................Final Examinations
December 14, Thursday (5:30 P. M.)........Fall Quarter Ends

Winter Quarter, 1934
January 2, Tuesday (8:30 A. M.)...................Preregistration
January 3, Wednesday...................Registration and Payment of Fees
March 13, 14, 15, 16, Wednesday to Saturday, Inclusive
........................................Final Examinations
March 17, Saturday......................Winter Quarter Ends

Spring Quarter, 1934
March 26, Monday..........................Preregistration
March 27, Tuesday..................Registration and Payment of Fees
April 9, Monday.........................Founder's Day
May, 30, Wednesday......................Memorial Day
June 4, 5, 6, 7, Monday to Thursday, inclusive..............
........................................Final Examinations
June 9, Saturday.............Annual Meeting of the Board of Trustees
June 9, Saturday...................Class Day and Alumni Day
June 10, Sunday (3:00 P. M.)...........Commencement Exercises
The College of Law was organized as a department of the University in 1885, and has been in continuous operation since that date. It numbers among its alumni and former students many of the most prominent statesmen, judges, and lawyers in Ohio and other states. Its students have been successful beyond the average as candidates for admission to the Bar at the State Bar Examinations.

PURPOSE

The aim of its founders, continued through the ensuing years, was to afford an opportunity for students, both men and women, of limited means, to obtain a collegiate training in Law, and by connection with the University to offer them the added opportunity for the general preliminary education indispensable to its successful study and practice. Tuition rates, therefore, are low and reasonable. The courses are planned primarily to train students for the practice of law, but they may also be pursued advantageously by any one desiring to acquire a knowledge of the principles and history of law, either as part of a liberal education, or as part of the foundation for a business career.

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

1. To inculcate a systematic and complete grounding in the history and fundamental principles of law, and a readiness and accuracy in the application of these principles to the complicated relations, rights, and duties arising in our modern commercial social organization.

2. To impart a thorough and ready working knowledge of both the written and unwritten law, with special attention to the Ohio case law and statutes, to the end that the young lawyer may be prepared to serve his clients efficiently.

3. To show the place, importance and aims of the law in the social structure.

4. To inculcate the principles of legal ethics and of the
lawyer's public responsibility, so that the young lawyer may be prepared to take his place as a trusted leader, counselor, and guide in his community.

Schools Represented

An ever increasing proportion of our law students have secured their pre-legal collegiate 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 are the following: Baldwin-Wallace, University of Dayton, Defiance, Denison University, University of Cincinnati, Geneva, Heidelberg, Marshall College, Miami, Bowling Green, University of Michigan, Mt. Union, Ohio University, Ohio State University, Ohio Wesleyan University, Pittsburgh, Purdue, Rio Grande, Swarthmore, Kenyon, Toledo University, Virginia Military Institute, and Western Reserve University.

Building

The College of Law is located in a handsome two story building, built of ornamental brick in the classical style, erected in the year 1923. This building was especially designed to meet the requirements of the College of Law, and contains the classrooms, professorial offices, court room, library and reading rooms.

Library

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 school library requirements of the American Bar Association.
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 student upon the cases studied and informal discussions by instructors and students upon the underlying and distinguishing principles illustrated by the cases.

PRACTICE COURT

There is a court room in the law building, completely and correctly furnished and equipped for modern court proceedings. Practice Court, under the direct supervision of the faculty, forms a regular part of the work in which each student must participate. Students are required to prepare all the papers necessary in the case, and to follow the customary order of procedure. Pleadings, writs, motions and journal entries are thus prepared; juries impaneled, witnesses examined and cross-examined, arguments made to Court and jury, and in short, every step is taken in the moot case conforming to the procedure followed in a litigated action in a court of record; in a similar way, the Moot Court requires practice in the Appellate courts, giving practical acquaintance with the proceedings and preparation of the necessary papers, in instituting and carrying on to completion cases appealed or brought up for review on petition in error.

ADMISSION

Students entitled to admission may enter the College of Law at the beginning of any quarter; but to receive the fullest benefit of the regular law course, students who are entering as candidates for a degree are urged to enter in September, the beginning of the academic year.

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

1. Certificate. To enter the freshman year of law the requirements are (1) graduation from a first grade high school, and (2) two years of collegiate study in an approved College of Liberal Arts (60 semester hours or 90 quarter hours, exclusive of physical education.) A student desiring to enroll in the College of Law should cause to be sent to the University Entrance Examiner, at least ten days prior to the beginning of the quarter, his certificate of high school graduation and his
transcript of collegiate work; these two papers must be on file, either for entrance to the College of Law or for registration as a law student upon the rolls of the Supreme Court; in no case can a deficiency in pre-law study be made up concurrently with the work of the College of Law.

A Pre-Law course is required by order of the Supreme Court of Ohio. The Arts-Law Combination course, while not required, demands but one more year of study, and is strongly recommended by the law faculty, as valuable and profitable preliminary training. Pre-Law and Arts-Law courses are described in the Liberal Arts section of the University catalogue.

2. Advanced Standing. Advance 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.

3. 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. Any one desiring to enter as a special student or to secure fuller information in regard to preliminary education should write to the University Entrance Examiner or the Acting Dean of the College of Law.

PRE-LAW AND ARTS-LAW COURSES

The College of Liberal Arts of this University offers exceptional 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 undertaking.

The Arts-Law course is designed for the student who desires the degree of Bachelor of Arts in the College of Liberal Arts and the degree of Bachelor of Laws in the College of Law. 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 referred to the general catalogue of the University, which may be procured by application to the registrar.
GRADUATION

The degree of Bachelor of Laws is conferred on students (1) who have completed satisfactorily a total of one hundred twenty-six quarter hours including all the prescribed courses, or who have received credit therefor in accordance with the section entitled Advanced Standing, and (2) who have studied in residence at this College for at least three quarters immediately preceding graduation, and (3) who have at least one quality point average for every credit hour.

GENERAL REGULATIONS

1. Students may select from the courses offered such work as they desire, with the approval of the Dean, not to exceed a maximum of 16 credit hours per quarter. Special students may not become candidates for a degree.

2. Hours above 16 are considered as excess and are subject to special tuition rates. Only in exceptional cases are regular students allowed excess hours.

3. Chapel and class attendance are compulsory. The rules given under the heading "Class Attendance" in another section of this bulletin are strictly enforced.

4. Preregistration and registration are described in another section of this catalogue. Violation of this rule imposes penalty for late registration.

5. Students on probation for any cause shall not represent in a public manner, the University, their class, or any University organization in any extra-curricular activity.

6. The Board of Trustees and Faculty of the University reserve the right to make such changes as they deem necessary without published notice.

EXPENSES

No matriculation or entrance fee is required to enter the University.

TUITION

Tuition for instruction in the University is $35.00 per quarter, payable in advance. These charges admit a person to enrollment and instruction in all the colleges of the University.

FEES

A general fee of $25.00 per quarter is charged for all colleges and in addition, a special fee of $5.00 is charged for stu-
udents in the College of Law for library privileges. These fees are not refundable and include in general all costs exclusive of instruction such as cost of administration, maintenance of plant and general library.

A graduation fee of $10.00 is required of each person receiving a diploma.

PRE-REGISTRATION AND REGISTRATION

Pre-registration and registration days are indicated in the calendar. Pre-registration day is devoted to conferences with advisers and making the students' schedule of classes for the quarter. Registration day is given over to the transfer of the schedule of classes to the permanent cards, the payment of tuition, and securing of tickets of admission to classes. Failure to attend to these duties on the proper days will subject the student to the payment of $5.00 fee for late registration.

LIVING COSTS AND TUITION

Rooms are available in Ada at very reasonable prices, ranging from $1.00 to $3.00 per week. Board may be secured at prices from $3.50 to $5.00 per week.

A recent survey shows that some of our students are spending as little of four hundred dollars a year for board, room, tuition, fees, and books, but excluding clothing, laundry, and personal expenditures. While the average may be somewhat higher, five hundred dollars a year is ample for all these purposes, and the majority of our resident students actually spend during a school year less than five hundred dollars for the purposes indicated.

Note: A survey showing the actual cost per student for 1932-33 will be sent upon request.

The University Cafeteria. The University operates a Cafeteria where excellent food is obtainable at reasonable prices. Students are earnestly urged to patronize the University Cafeteria as the matter of regular habits in eating guards physical health and in addition is the most economical mode of living while in college.

Very many students when members of fraternities or sororities find comfortable room and good board in the various fraternity and sorority houses.
GOVERNMENT

The opportunities and advantages of the University are offered to all sincerely desiring to develop the best in themselves, and aiming at a broad culture and a thorough preparation for useful service.

The University aims to develop a wholesome type of physical, social, intellectual, moral and religious life. It believes that that preparation for life is best that furnishes opportunity during college days for students to come in contact with men and women of high ideals, broad culture and sympathetic understanding of life. All the activities of the University therefore are devoted to the development of men and women so that they may find real places of happiness and usefulness in the modern world.

With this objective in mind the University does not seek to impose burdensome restrictions, but it does seek and expect full cooperation on the part of faculty and students in the achievement of these ideals.

CLASS ATTENDANCE

Regular and prompt attendance at all class and laboratory exercises is expected of every student. The student is responsible to the instructor for all work missed on account of absence. Instructors make a daily report of all absences to the Dean of Men or the Dean of Women.

Requests for excuses must be presented in writing to the Dean of Men or the Dean of Women within 24 hours after class or laboratory work is resumed. Instructors are not authorized to grant excuses for absences from their classes.

For each unexcused absence from class or laboratory appointments, the total number of quality points earned is reduced by one-half point. Absences the day before or the day after a regular college holiday or recess involve the deduction of one quality point for each absence.

Chapel attendance is required except when excused by the Committee on Chapel Excuses. Five unexcused absences are allowed each quarter.

One-fifth hour credit is deducted from the student’s total credit for each convocation missed above five.
WITHDRAWING A COURSE

The student is held responsible for the work scheduled on the registration card. No course may be dropped or changed except by consent of the Dean and the instructors concerned. Withdrawal from a course without permission shall be checked as a failure in the course.

In case a student wishes to drop or change a course, it must be done within the first week of the quarter, and with the consent of the Dean and the professor concerned. A charge of $1.00 is made for each withdrawal or addition of a course after registration.

Any student wishing to withdraw from the College in which he is registered must notify the Dean of his intentions. Failure to do this will jeopardize the standing of the student.

DISCIPLINE

Students of the University are expected to possess qualities of character and to maintain certain levels of scholarship. The rules and regulations of the University pertaining to conduct and scholarship are enforced. Students may be dismissed for moral delinquencies and for continued low scholarship. Students who obviously are at variance with the spirit and ideals of the institution may be dismissed for the good of the University, even though no specific offense be charged against them.

EXAMINATIONS

1. Mid-term examinations are held at the discretion of the instructor. Final examinations are held at the close of each quarter.

2. All students must be present at final examinations. Absence from any final examination, unless caused by sickness or other unavoidable conditions, will result in no credit for the course.

3. A student absent from examination may, on presenting a satisfactory excuse, receive permission from the Dean to take the examination at a later time.

4. All required courses in which a grade of F is made must be taken again in class the first quarter in which the subject is given after the failure occurs.

5. All incompletes must be removed within eight weeks of the beginning of the next quarter in attendance in order to obtain credit without again taking the work in class. In case this matter is not attended to, the mark will lapse into a failure.
OTHER ADVANTAGES

There are musical, debating and dramatic, and other organizations on the campus to which any student in the College of Law is eligible.

FRATERNITIES

This group comprises seven national social fraternities, three national professional fraternities, and one local social fraternity for men and four local fraternities for women. Of the three professional fraternities, two are legal.

SUMMER SCHOOL

The College of Law offers several courses during the Summer Quarter. The subjects are taught by the regular instructors who are in residence during that period.

FINANCIAL AID TO STUDENTS

Scholarships

A limited number of full time and part time scholarships are available. See General Catalogue.

Loan Funds

A limited number of worthy students, members of the Methodist Episcopal Church, may secure loans from the Student Loan Fund administered by the Board of Education of that Church. Christian character, satisfactory scholarship, promise of usefulness, financial responsibility, and the recommendation of the church to which the applicant belongs are essential to a loan. Each borrower must sign an interest bearing promissory note.

Self-Help

It is strongly recommended that every student entering the University should arrange to finance at least one quarter's expenses before entering. This will afford the student an opportunity to come in personal touch with the employers of Ada and provide ample time to begin his academic or professional work. For information concerning scholarships, loans, employment, etc., make application at the offices of the Dean of Men and the Dean of Women.
COURSES OF INSTRUCTION

PROFESSORS PETTIT, SMITH AND DR. MANSON.

FIRST YEAR

(All Courses are Required)

AGENCY (Winter) 5 Hrs.

The nature and purposes of the agency relation, parties, methods of creating the relationship, the nature and extent of the authority, the duties and liabilities of the agent to the principal and third persons, the duties and liabilities of the principal to the agent and third persons, also a consideration of workman's compensation legislation, and other phases of the subject of master and servant.

COMMON LAW PLEADING (Fall) 3 Hrs.

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.

CONTRACTS I (Fall) 5 Hrs.
CONTRACTS II (Winter) 3 Hrs.

Fundamental courses dealing with the nature of a contract; the capacity of the parties, offer and acceptance; consideration; requisites of contracts under seal; 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.

CRIMINAL LAW AND PROCEDURE (Spring) 5 Hrs.

This course aims to give a comprehensive view of the general nature and theory of crimes, with a detailed study of the particular crimes against persons and property, and also of the machinery set up to enforce the criminal law, from the complaint and arrest through the trial to the execution of sentence.

DAMAGES (Spring) 2 Hrs.

In this course the rules governing the measure of damages in actions of contract and tort are considered.

DOMESTIC RELATIONS (Spring) 3 Hrs.

This course includes the law of marriage and divorce, parent and child, the rights and liabilities of husband and wife, the rights and liabilities of infants, and a thorough study of the statutes of Ohio in regard thereto.
LEGAL BIBLIOGRAPHY  (Fall)  1 Hr.

This course is required but no credit is given for it towards graduation. The purpose is to give the student training in the use of law books and in finding the law.

PERSONAL PROPERTY  (Fall)  3 Hrs.

This course deals with the distinctions between real and personal property; of the title to personal property and its transfer by convention and by law; its use and liabilities arising therefrom.

REAL PROPERTY I  (Winter)  3 Hrs.

This course treats of the historical origin of land law, tenure, seisin, the differentiation of estates in land, rights in air, water, easements, covenants running with land, licenses, rents, waste, and public rights.

REAL PROPERTY II  (Spring)  5 Hrs.

The title to real property and its transfer by act of parties and by operation of law.

TORTS I  (Fall)  3 Hrs.
TORTS II  (Winter)  4 Hrs.

Personal rights and duties, both absolute and those arising from social relations; violations of such rights, either by direct force or indirectly by fraud, negligence; different kinds and classes of torts; defenses, excuse, justification, and other defenses by way of confession and avoidance; self-defense, contributory negligence, its scope and limitations by modern Employer's Liability statutes; pleading, evidence and measure of damages.

SECOND AND THIRD YEAR

(Courses marked with a † are required)

BANKRUPTCY  (Spring)  2 Hrs.

The course treats of procedure and practice in bankruptcy proceedings.

† BUSINESS ORGANIZATION I  (Fall)  3 Hrs.
† BUSINESS ORGANIZATION II  (Winter)  3 Hrs.

A study of the various types of business association, including partnership, business trust, and corporation.

CONFLICT OF LAWS  (Winter)  2 Hrs.

This course treats of the principles of private international law; jurisdiction of courts; the law governing torts, contracts, divorce, transfers of property by deed, will and intestate succession; penal statutes; marriage, adoption, domicile; foreign judgments and such procedural matters as statutes of frauds and of limitations.
† Constitutional Law I *(Fall)* 3 Hrs.
† Constitutional Law II *(Winter)* 3 Hrs.

Courses include the interpretation of the constitutional limitations for the protection of life, liberty and property, police power, taxation, eminent domain, obligation of contracts; and a consideration of the law of the American federal system, with special reference to inter-state commerce, the powers of Congress and the jurisdiction of the federal courts.

† Equity I *(Fall)* 4 Hrs.
† Equity II *(Winter)* 4 Hrs.

This course involves the consideration of the rise of the court of equity; the powers of such court; principles governing the exercise of equitable powers.

† Evidence I *(Fall)* 3 Hrs.
† Evidence II *(Winter)* 3 Hrs.

Competency of witnesses at common law and under modern statutes; burden of proof, prima facie cases and presumptions of law; the best evidence rule, hear-say rule and exceptions, parole evidence rule and exceptions.

† Federal Jurisdiction and Procedure *(Spring)* 3 Hrs.

A study of the jurisdiction of the federal courts, including bankruptcy, admiralty, criminal and equity procedure.

† Future Interests *(Fall)* 3 Hrs.

A study of future interests, vested and contingent, in real property.

Insurance *(Spring)* 3 Hrs.

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.

† Legal Ethics *(Spring)* 1 Hrs.

This course treats of the rules of conduct governing the lawyer in the practice of his profession.
THE LEGAL PROFESSION  (*Spring*)  2 Hrs.

History, organization, and current problems of the legal profession; biographical study of leading jurists; the place, importance and aims of the law in the social structure; the qualifications and duties of an attorney in relation to society; professional conduct and ethics.

† MORTGAGES  (*Winter*)  3 Hrs.

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.

MUNICIPAL CORPORATIONS  (*Winter*)  3 Hrs.

This course treats of the general nature, and rights and liabilities of public corporations, (cities, villages, counties and townships.)

† NEGOTIABLE INSTRUMENTS  (*Fall*)  5 Hrs.

This course involves the consideration of the general principles governing bills of exchange, promissory notes, and checks, and the uniform negotiable instruments law.

† PLEADING I  (*Fall*)  3 Hrs.

† PLEADING II  (*Winter*)  3 Hrs.

Common law pleading and code pleading, with outstanding differences in systems. Pleadings in appellate courts, in error proceedings and in criminal cases.

PUBLIC SERVICE CORPORATIONS  (*Spring*)  3 Hrs.

This course treats of the history and development of the law regulating public utilities.

QUASI-CONTRACTS  (*Winter*)  4 Hrs.

The nature of the obligation; restitution at law for benefits conferred under mistake of fact or mistake of law; benefits conferred under a contract where impossibility, illegality, the statute of frauds or willful default is involved; benefits conferred without a contract; or benefits conferred under compulsion; waiver of tort.

† SALES  (*Spring*)  4 Hrs.

The topics included in this course are formation of the contract, the statute of frauds, the passing of the property, fraud and retention of possession, illegality, condition and warranties, performance, rights of the seller and the buyer in case of breach.

† SURETYSHIP  (*Spring*)  4 Hrs.

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.
† Trial and Appellate Practice (Spring)  4 Hrs.

Principles controlling the trial practice of civil actions; laying a foundation for review; methods and procedure of review and disposition upon review.

† Trial Practice (Spring)  1 Hr.

The actual litigation of legal controversies, including the use of witnesses and a jury; the preparation of pleadings and briefs; the presentation of oral arguments. The judge of each case is a visiting member of the Ohio Bench or Bar.

Trusts (Spring)  4 Hrs.

This course treats of the origin and development in courts of equity of the theory of trusts and trustees.

† Wills and Administration of Estates (Fall)  4 Hrs.

The course treats of the nature of testamentary dispositions.

Court Room — Law Building
The School that Makes Successful Men

What is Your Ambition?

If it is political preferment we want to tell you about our one Supreme Court Judge, three U. S. Senators, Five U. S. Congressmen, and scores of State Representatives and County Prosecutors.

If it is in the religious realm we call your attention to the many men we have in the high councils of the Church.

If it is in the field of nature allow us to tell you about some of our successful scientists.

If it is technical in nature we can refer you to our engineers and pharmacists the world round, many of whom have gained prominence.

If it is in the business world we invite your investigation of our successful business men who are found everywhere.

If it is in the educational world we want to call your attention to the scores of City and County Superintendents, Principals of High Schools and members of various college faculties who have gone from here.

Among our Musical Alumni can be found men and women in the foreground of America’s musical artists.

We have graduates holding prominent places in the fields of Agriculture, Fine Arts, Dramatics and Physical Education.
Ohio Northern University Bulletin is published quarterly by the Ohio Northern University, Ada, Ohio. Entered as second-class matter, July 16, 1907, at the Postoffice at Ada, Ohio, under the act of Congress of July 16, 1894.
This Bulletin contains information concerning the

COLLEGE OF PHARMACY

Forty-ninth Year

CALENDAR

Fall Quarter.........September 18, 1933
Winter Quarter........January 2, 1934
Spring Quarter........March 26, 1934
Ohio Northern University
ADA, OHIO

College of Liberal Arts
Scholarly faculty; strong courses; standardized departments. Majors and minors in all departments. Pre-professional courses offered.

Division of Teacher Training
Fully accredited by the State Department of Education. Certificates and degrees offered in elementary, intermediate and high school teachers' professional courses. Approved for certification in music and physical education.

Department of Music
Courses offered in Public School Music, Voice, Pianoforte, Pipe Organ, Violin, Stringed, Wind and Reed instruments, History and Theory of Music.

Department of Physical Education
Gymnasium Instruction, Athletic Coaching, and Educational Games.

College of Engineering
Four fields of Engineering: Chemical, Civil, Electrical and Mechanical.

College of Pharmacy
In addition to a group of courses which are constant for all candidates for a degree, the curriculum is flexible enough to allow preparation in specialized activities of the profession of Pharmacy.

College of Law
Strong courses leading to the degree of LL. B. Students admitted after completion of two years of college work.

For literature and information address
ROBERT WILLIAMS, President
OHIO NORTHERN UNIVERSITY

BULLETIN

FORTY-NINTH YEAR
(College of Pharmacy)

ANNOUNCEMENT OF COURSES
COLLEGE OF PHARMACY
ADA, OHIO
UNIVERSITY CALENDAR

Special Spring Term, 1933
May 1, Monday, six weeks to June 9, Friday
(Exclusive to Teachers)

Summer Session, 1933
First term, Tuesday, June 13, to Saturday, July 15
Second term, Monday, July 17, to Saturday, August 19

Fall Quarter, 1933
September 18, Monday --------------- Freshman Preregistration
September 19, Tuesday --------------- Upperclass Preregistration
September 20, Wednesday ------- Registration and Payment of Fees
September 21, Thursday (7:50 A.M.) ------- Classes Begin
October 21, Saturday ---------------- Homecoming Day
November 28, Tuesday (5:30 P.M.) ----------------- Thanksgiving Vacation Begins
December 4, Monday (8:45 A.M.) ------------ Classes Resumed
December 11, 12, 13, 14, Monday to Thursday,
inclusive ------------------ Final examinations
December 14, Thursday (5:30 P.M.) ------- Fall Quarter Ends

Winter Quarter, 1934
January 2, Tuesday (8:30 A.M.) -------------- Preregistration
January 3, Wednesday -------------- Registration and Payment of Fees
March 13, 14, 15, 16, Wednesday to Saturday,
inclusive ------------------ Final examinations
March 17, Saturday ---------------- Winter Quarter Ends

Spring Quarter, 1934
March 26, Monday ------------------ Preregistration
March 27, Tuesday ------------------ Registration and Payment of Fees
April 9, Monday ------------------ Founder's Day
May 30, Wednesday ------------------ Memorial Day
June 4, 5, 6, 7, Monday to Thursday,
inclusive ------------------ Final Examinations
June 9, Saturday ------- Annual Meeting of the Board of Trustees
June 9, Saturday ------------------ Class Day and Alumni Day
June 10, Sunday (3:00 P.M.) ------- Commencement Exercises
Robert Williams, M. A., D. D., LL. D.
President
502 South Johnson Street
B. A., Wesleyan University; M. A., Boston University; D. D., Albion College; LL. D., Ohio Wesleyan University.

Albert Edwin Smith, D. D., Ph. D., LL. D.
President Emeritus
B. A., Ohio Wesleyan University; D. D., Ohio Wesleyan University; Ph. D., Ohio Wesleyan University; LL. D., Ohio Northern University; LL. D., Asbury College.

Thomas Jefferson Smull, C. E., Eng. D.
Business Manager
301 South Main Street
C. E., Ohio Northern University; Graduate student, Lafayette College, one semester; University of Michigan, one semester; Eng. D., Oglethorpe University.

Margaret Eleanor Whitworth, B. S.
Registrar and University Entrance Examiner
409 South Johnson Street
B. S., Geneva College.

Ziloh LaVerne Daring, M. A.
Treasurer
311 South Gilbert Street
B. S. in Bus. Adm., Ohio State University; M. A., Ohio State University.

John Austin Potter, B. S., B. D.
Dean of Men
228 East North Avenue
B. S., Ohio Northern University; B. D., Garrett Biblical Institute; Graduate student, University of Chicago, one summer; Columbia University, one summer.

Audrey Kenyon Wilder, M. A.
Dean of Women
516 South Main Street
B. A., Albion College; M. A., Columbia University; Graduate student, Columbia University, one year and two summers; University of Chicago, one summer; Oxford University, England, one summer.

Rudolph Henry Raabe, Phar. D.
Dean of the College of Pharmacy
316 South Gilbert Street
B. S., Ohio Northern University; Ph. G., Ohio Northern University; Ph. C., Ohio Northern University; Phar. D., University of Havana.
Faculty*

Childe Harold Freeman, B. S., Lit. D.
Professor of English Literature on the John Davison Chair of English Literature 317 West University Avenue
B. S., Ohio Normal University; Lit. D., Taylor University; University of Chicago, one summer.

Rudolph Henry Raabe, Phar. D.
Professor of Pharmacy 316 South Gilbert Street
B. S., Ohio Northern University; Ph. G., Ohio Northern University; Ph. C., Ohio Northern University; Phar. D., University of Havana.

Frank Lewis Berger, M. S.
Professor of Physics 121 East Lehr Avenue
B. A., Ohio Northern University; B. S., University of Chicago; M. S., Ohio State University.

Harvey Evert Huber, M. A.
Professor of Biology 724 Union Street
B. A., Ohio Northern University; M. A., Yale University; University of Wisconsin, one summer.

Walter Gray, M. A.
Professor of Psychology 523 Union Street
B. S. in Ed., Ohio Northern University; M. A., Ohio State University; Ohio State University, one year.

Wilfred Ellsworth Binkley, M. A.
Professor of Political Science 803 Union Street
B. S., Ohio Northern University; B. A., Antioch College; M. A., Ohio State University; Harvard University, one year; Ohio State University, four quarters.

John Theodore Fairchild, Ph. M., C. E.
Professor of Mathematics 305 South Main Street
B. A., Ohio Normal University; Ph. M., Carnegie Institute; C. E., Ohio Northern University; Graduate student, University of Chicago, three summers; University of Michigan, two summers.

Jesse Raymond Harrod, M. S.
Professor of Chemistry 112 South Johnson Street
B. S. in Ed., Ohio Northern University; B. S., Ohio Northern University; M. S., Ohio State University; Graduate student, Ohio State University, four summers.

James Albert Whitted, M. A.
Professor of Mathematics 219 West Highland Avenue
B. Ped., Southwestern College; Ph. B., Southwestern College; M. A., Southwestern College; University of Chicago, one year and four summers; Columbia University, one summer.

Clyde Albert Lamb, M. A.
Professor of Health and Physical Education 327 West University Avenue
B. A., Coe College; M. A., Columbia University; Columbia University, two summers.

Louis Rowell Herrick, Ph. D.
Professor of Modern Languages 613 South Union Street
B. S., Amherst College; M. A., University of Wisconsin; Ph. D., University of Wisconsin; University of Paris; one summer.
RAYMOND ANSON DOBBINS, M. S.
*Assistant Professor of Biology* 620 Union Street
B. S., Ohio Northern University; B. A., Ohio State University; M. S., Ohio State University; Graduate student, Ohio State University, two years.

MILDRED SHARP BRUCKHEIMER, M. A.
*Assistant Professor of Physical Education* 709 South Gilbert Street
New Haven Normal School of Gymnastics, two years; B. S., Columbia University; M. A., Columbia University.

HARRIS ARTHUR LAMB, M. A.
*Assistant Professor of Physical Education* 325 West University Avenue
B. A., Coe College; M. A., Columbia University.

AUDREY KENYON WILDER, M. A.
*Assistant Professor of English* 516 South Main Street
B. A., Albion College; M. A., Columbia University; Graduate student, Columbia University, one year and one summer; University of Chicago, one summer; Oxford University, England, one summer.

ROBERT CHALMERS GIBSON, PH. D.
*Assistant Professor of Chemistry* 502 South Main Street
B. S., Adrian College; M. S., University of Michigan; Ph. D., University of Michigan.

LAWRENCE FREEMAN, B. A.
*Instructor in English* 701 South Johnson Street
B. A., Ohio Northern University; Graduate student, University of Michigan, two summers.

MARSHALL E. D. CLOSE, B. S. IN PHAR.
*Instructor in Pharmacy* 712 South Gilbert Street
B. S. in Phar., Ohio State University; Graduate student, Ohio State University, two summers; Purdue University School of Pharmacy, one summer.

EULA LINDA SMITH, PH. C.
*Instructor in Pharmacy* 701 South Main Street
Ph. C., Ohio Northern University.

LAURA MAY KAMPMEIER, M. A.
*Instructor in Modern Languages* 114 South Gilbert Street
B. A., Coe College; M. A., State University of Iowa.

MYRON HANNA, PH. G., M. D.
*Lecturer in Pharmacology* Findlay, Ohio
Ph. G., Ohio Northern University; M. D., Eclectic Medical College.

JOHN WESLEY McBRIEDE, M. A.
*Assistant Professor of Economics* 424 South Gilbert Street
B. A., Ohio University; M. A., Princeton University; Graduate student, American University, one year; Princeton University.

*Professors and Instructors arranged according to seniority.*
Ohio Northern University
Buildings

LEHR MEMORIAL
HILL MEMORIAL
TAFT GYMNASIUM
BROWN MEMORIAL
BIOLOGY BUILDING
PRESIDENT'S HOME
FACULTY RESIDENCES
(Seven)
TURNER HALL FOR WOMEN

DUKES MEMORIAL
LAW BUILDING
PRESSER MUSIC HALL
PHARMACY BUILDING
GREENHOUSE
POWER PLANT
FARM BUILDINGS
ENGINEERING SHOPS AND LABORATORIES

ATHLETIC FIELD
Gridiron, Baseball Diamonds, Cinder Track, Tennis Courts
ORIGIN AND DEVELOPMENT

HISTORICAL SKETCH

On August 14, 1871, in a three-story brick building erected on the campus where the Lehr Memorial now stands, the Northwestern Ohio Normal School, with Henry Solomon Lehr at its head, was formally opened "for the instruction and training of teachers in the science of education, the art of teaching and the best method of governing schools." On May 19, 1885, the state issued a charter to the school under the name of Ohio Normal University.

The school was under private control from the outset until September, 1898, when the owners sold to the Central Ohio (now the West Ohio) Conference of the Methodist Episcopal Church, the real estate and equipment belonging to the University. At the same time instruction was made departmental with the head teacher in each department as director thereof. The new charter was dated May 24, 1898.

In 1904 the institution was re-named the Ohio Northern University, and the charter was amended December 31, 1907.

The organization of the departments of instruction in the University is as follows:

The College of Liberal Arts, including:
(a) Division of Teacher Training
(b) Department of Music
(c) Department of Health and Physical Education

The College of Engineering
The Warren G. Harding College of Law
The College of Pharmacy

The College of Pharmacy of Ohio Northern University had its beginning in the departments of Science and Medicine. Following the passage of a law in Ohio in 1884, which required registration with the Ohio Board of Pharmacy of all who wished to engage in the practice of the profession, Pharmacy was changed from a sub-departmental to a separate and distinct division of the institution.

In 1885 the courses of study covered a period of thirty weeks, three terms of ten weeks each. From time to time the courses of study and facilities for instruction were increased.

On August 24, 1925, the Ohio Northern University College of Pharmacy was admitted to membership in the American Association of Colleges of Pharmacy.

LOCATION

Ohio Northern University is located in Ada, an attractive village in Hardin county, northwestern Ohio. Lying on the great watershed that separates the tributaries of the Ohio and Mississippi from those of the Great Lakes, Ada, with its population of three thousand, has
an elevation of nearly one thousand feet above sea level. The town is noted for its healthful climate and its freedom from epidemics. Owing to the enterprise of its citizens, Ada has nearly every modern convenience and public utility.

Situated on the Pittsburgh, Fort Wayne, and Chicago Division of the Pennsylvania Railroad, and on State Route 69, two miles north of the Harding Highway (Route 30S) and four miles south of the Lincoln Highway (Route 30N), Ada is easily accessible by rail or motor bus.

Ohio Northern’s Mission

Ohio Northern University opens her doors to all worthy young people, especially the self-dependent, who are ambitious to secure either a liberal or a professional education. Her purpose has been, and is, to create and maintain an atmosphere inspirational and congenial to all those whose lot in life has taught them the worth of industry and economy. A distinct characteristic of Ohio Northern is the spirit of democracy and good fellowship among the students, many of whom are making their own way through college. At a minimum of expense to the student all departments provide thorough and practical instruction.

Affiliation

This college is a member of the American Association of Colleges of Pharmacy, the object of which is to promote the interests of pharmaceutical education. It 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, and in the service of the pharmacist to the public, to the medical practitioners, and to the profession.

Campus, Buildings and Equipment

The University owns over 100 acres of ground in and around Ada, providing ample room for expansion.

The Central Campus lies a few blocks south of the railroad. Here in this central quadrangle, easily accessible from any part of the village, are located the following buildings:

Lehr Memorial, a modern three-story fireproof building, housing the offices of the administration, the Lehr auditorium, Young Women's Christian Association, Alumnae Hall, and the Northern Review office, is located in the center of the quadrangle. Lehr Auditorium, with a seating capacity of 1,600, provides an ample lecture and concert hall. It is equipped with stage settings, a pipe organ, and moving picture booths.

John Wesley Hill Memorial, a two-story fireproof building, housing the classrooms of the College of Liberal Arts and Division of Teacher Training.

Dukes Memorial, located at the south end of the campus, contains commodious classrooms, offices and laboratories devoted to chemistry, physics, mathematics, and engineering.
The Brown Memorial Library, situated at the north end of the front campus, is admirably adapted to the work of a modern college. Spacious and well lighted, it is capable of accommodating two hundred students. There are also opportunities at private tables for advanced study and research.

The library at present possesses about 21,000 live and well administered volumes, and affords opportunity for every student to find literature in his own and other fields for reference, reading, and study.

The University subscribes to all the needed reviews, magazines and newspapers so that any student may keep abreast of current knowledge and thought.

Pharmacy Hall, situated in the northwest corner of the Campus quadrangle, is well arranged and equipped for the study of pharmacy. In addition to the general biological, chemical, and physical laboratories of the University, the College of Pharmacy has three pharmaceutical and dispensing laboratories. The desk arrangement is such as to afford the student every facility for complete and thorough work, and the tables are supplied with an entire outfit of apparatus, including storing closet.

The laboratories for practical chemical work are equipped with the accessories necessary for chemical analysis and synthesis. In these laboratories the student is required to perform a satisfactory amount of analytical and synthetical work under personal supervision.

The microscopic laboratory is equipped with fine instruments for individual microscopic investigation.

Recent changes have been made in the pharmaceutical dispensing and quantitative chemistry laboratories. The pharmaceutical dispensing laboratory has been moved into new quarters, special work tables made by one of the leading drug-store fixture manufacturers have been added and each work table is equipped with a complete set of such apparatus as is needed in extemporaneous compounding and dispensing. The quantitative chemistry laboratory has been greatly enlarged, and new types of apparatus added to each work desk. Chainomatic balances are the predominating type of analytical balances used.

The Warren G. Harding College of Law occupies a splendid building north of the Central Campus on the corner of Main street and University avenue.

The Department of Biology occupies the hall at the corner of Gilbert street and College avenue. The building is a two-story structure suited for its purpose. Near the department of Biology is an experimental Greenhouse.

The Theodore Presser Music Hall, erected in 1929, is situated west of the quadrangle. The musical organizations are as follows: Choral Society, Men's Glee Club, Girls' Glee Club, University Orchestra, and University Band.

The John H. Taft Gymnasium, named in honor of the principal donor, is located at the corner of Union street and University avenue, adjacent to the University Athletic Field. Taft Gymnasium is an ideal Physical Education plant, Athletic Field house and Gymnasium. In addition to the main basketball court, there are a volley
ball court, two auxiliary playing courts, a fencing room, examination rooms with first aid equipment, a running track, offices for coaches and members of the faculty of Physical Education, and the Physical Education classrooms.

ATHLETIC FIELD

Adjacent to the Taft Gymnasium is the University Athletic Field, containing a well-drained and heavily sodded football gridiron, encircled by a cinder running track with 120-yard straightaway. There are also two auxiliary gridirons, a baseball diamond, and nine tennis courts.

MORAL AND RELIGIOUS CULTURE

Although the University is the property of the Ohio Conference of the Methodist Episcopal Church, it is in no sense sectarian. Students of all religious denominations are received on equal terms and treated with equal consideration. They are urged to identify themselves with the work and participate regularly in the services of the church of their choice.

RESIDENCES FOR WOMEN

All non-resident women students are required to live in Turner Hall. (This regulation does not apply to a woman who is commuting or to one who is doing work in exchange for her room). If the Hall is filled a list of approved residences will be furnished upon application to the office of the Dean of Women. No agreement between student and house-mother is recognized by the University until arrangements have been approved by the Dean of Women.

TURNER HALL

Turner Hall, a stately residence, rich in its university associations, is assigned to Freshmen women. This home, which was built by Henry Solomon Lehr, has just come into the possession of the University from Mr. and Mrs. Perry W. Turner, in whose honor it is named. It will accommodate twenty-two women and housemother. Throughout it has been furnished so as to make an attractive, comfortable home, all equipment being selected to meet the social and intellectual needs of the students. The rooms are beautifully equipped with single day beds (three feet, three inches in width), mattresses, pillows, ample dressers with mirrors, study tables, Windsor desk chairs, Windsor rockers, curtains, rugs. The entire house has excellent hardwood floors. Each student furnishes and launders all of her bedding, towels, dresser scarfs, and other accessories.

Residents are permitted laundry privileges, built-in tubs, pressing boards, electric iron, and a drying room, composing the equipment. Certain kitchen privileges are also permitted under the supervision of the housemother.

Three privately owned homes will also be used in connection with Turner Hall for housing Freshmen women.

Applications should be submitted promptly.

The fraternities for women rent their own residences and maintain them under the supervision of the Dean of Women and an approved resident housemother. Freshmen women are not permitted to live in the fraternity houses.
DORMITORY AND SOCIAL CENTER FOR WOMEN
MUSICAL ORGANIZATIONS

Choral Society. The Ohio Northern University Choral Society is made up of both University students and townspeople, and membership is open to all singers who love and appreciate good music.

Men’s Glee Club. A Glee Club of thirty men’s voices is organized each year for the purpose of giving home concerts and touring the state.

Girls’ Glee Club. This club is composed of thirty girls’ voices and their purpose is to sponsor the best music in their class. They give a home concert each year and make an extended tour of the state.

University Orchestra. A large orchestra is organized each year to take up standard works of the great composers, and to play at the concerts of the Choral Society.

University Band. Ohio Northern has a fine band of seventy members. Competition for the band is keen and a beginners’ section is maintained throughout the year. The band affords a splendid opportunity for practice to students playing brass or reed instruments. The band gives concerts in their statewide tours. A concert is also given in Lehr Auditorium each quarter.

Pharmacy students with musical ability are especially urged to seek membership in one or more of these musical organizations.

DEBATING AND DRAMATICS

The Ohio Northern Debating Association is a member of The Ohio Intercollegiate Debate Conference. There are other intra and inter-state forensic contests for either men’s or women’s teams. Membership is open to any student interested in the object of the association.

The Northern Players, a dramatic club sponsored by the Department of Speech, presents several plays each year. Enrollment in this club is open to all students of the University who pass the try-outs.

TECHNICAL ORGANIZATIONS

The following organizations have regular meetings. Topics pertaining to the several departments are discussed, and addresses are given by people prominent in their respective fields.

The Ohio Northern Mathematical Society.
The Chemists’ Club.
The Chemical Engineering Society.
The Pharmaceutical Association.
The Law Association.
The Pre-Medical Association.

FRATERNITIES

This group comprises seven national social fraternities, three national professional fraternities, and one local social fraternity for men and four local fraternities for women.

STUDENT PUBLICATIONS

The Northern, the annual yearbook published by the students of the University, contains a record of student activities for the year.
Each student receives a copy of the book at the close of the Spring quarter as a part of the University activity program.

The *Northern Review* is a weekly newspaper published throughout the regular year by the students of the University. Positions on the staff of the newspaper are open to all students on a competitive basis. Scholarships are awarded annually to the editor-in-chief and business manager.

All student publications are controlled by the Faculty Committee on Student Publications, and are under the direct supervision of the chairman of the committee.

**Athletics**

Ohio Northern is a member of the Ohio Athletic Conference and is represented by strong teams in football, basketball, baseball, and track. A well-rounded program of intramural sports is carried out, under proper direction, which aims to provide some form of activity for each student. The completion of the new Taft Gymnasium and recent additions to the athletic fields provide Ohio Northern with facilities for all forms of sports.

The Department of Health and Physical Education, in addition to being a service department for the entire University, is accredited by the State Department of Education.

**Scholarships, Loans and Prizes**

A limited number of worthy students may receive scholarships and loans. See the general catalogue for detailed information.

In addition to departmental prizes in Biology, Chemistry, Business Administration, English, Mathematics, Modern Language, Physics and Physical Education, the following apply to pharmacy students only:

Mr. Charles S. Ashbrook, of Cleveland, Ohio, gives a medal to the person proving himself superior in practical pharmacy.

Lehn & Fink, Inc., New York, gives a gold medal to the pharmacy student accomplishing the most toward the advancement of pharmaceutical science.

National Association of Drug Clerks gives three life memberships in their Association; one for high quality work in materia medica, one for the high quality work in chemistry, and one for excellence in pure pharmacy.

**Expenses**

A recent survey of the student body reveals two very significant facts:

1. The average cost of tuition, fees, room, board, books and equipment for men students is $401.48 per year. Women students, $414.04 per year. With a decided drop in the cost of room and board, this average will be materially reduced for the ensuing year.

2. One student out of every five came to Ohio Northern University for financial reasons.

Upon application the University will furnish tuition (including general fee), room and board in the College of Pharmacy for $375.00 per year (36 weeks).

No matriculation or entrance fee is required to enter the College of Pharmacy.
Tuition

Tuition for instruction in the College of Pharmacy is $35.00 per quarter, payable in advance.

General Fee

A general fee of $25.00 per quarter is charged for all colleges at the time tuition is paid. This fee is not refundable and includes in general all costs exclusive of instruction such as cost of administration, maintenance of plant, general library.

Summary of Tuition and Other Fees

One Quarter — Twelve Weeks

Tuition —

<table>
<thead>
<tr>
<th>Course</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacy, 11 to 18 credit hours</td>
<td>$35.00</td>
</tr>
<tr>
<td>TUTION for each credit hour above the maximum or below the minimum as indicated above</td>
<td>5.00</td>
</tr>
<tr>
<td>General Fee in all colleges</td>
<td>25.00</td>
</tr>
</tbody>
</table>

Fees —

<table>
<thead>
<tr>
<th>Course</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology 101, 102, 103, 106, 107, 108, 109, 218</td>
<td>3.00</td>
</tr>
<tr>
<td>Biology 113</td>
<td>5.00</td>
</tr>
<tr>
<td>Biology 222</td>
<td>3.50</td>
</tr>
<tr>
<td>Chemistry 101, 102, 103, 101a, 102a, 103a</td>
<td>4.00</td>
</tr>
<tr>
<td>Chemistry 104, 105, 106, 206, 207, 208, 211a, 211b, 212</td>
<td>5.00</td>
</tr>
<tr>
<td>Physics 104, 105, 106, 109, 110, 111, 216, 217, 218</td>
<td>3.00</td>
</tr>
<tr>
<td>Physical Education</td>
<td>2.00</td>
</tr>
<tr>
<td>Pharmacy Physiology</td>
<td>1.00</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>1.00</td>
</tr>
<tr>
<td>Pharmacognosy</td>
<td>1.00</td>
</tr>
<tr>
<td>Pharmacy (all laboratory courses)</td>
<td>4.00</td>
</tr>
<tr>
<td>Change of Schedule</td>
<td>1.00</td>
</tr>
<tr>
<td>Graduation</td>
<td>10.00</td>
</tr>
</tbody>
</table>

In addition to the non-returnable fees in Chemistry and Pharmacy, a breakage ticket costing $1.50 to $7.00 must be purchased to reimburse the department for broken apparatus and non-returnable chemicals and supplies. The unused portion of the ticket will be refunded to the student upon completion of the course.

No diploma, certificate, transcript, letter of honorable dismissal or recommendation will be granted to students who have an unadjusted indebtedness to the University.

A student suspended or dismissed from college, or withdrawing when under investigation for misconduct, is not entitled to any refund of tuition.

Refunds when allowed shall be made as follows:

- During the first two weeks: 80%
- During the third and fourth weeks: 60%
- During the fifth and sixth weeks: 40%

No refunds are made after six weeks. No refunds are made on fees.

Written notice of withdrawal must be sent to the Treasurer's Office; refunds are made as of the date of receipt of notice.

Rooms and Board

Rooms are available in Ada at very reasonable prices, ranging from $1.00 to $2.25 per week. Board may be secured at prices from $3.50 to $5.00 per week.
The University Cafeteria. The University operates a Cafeteria where excellent food is obtainable at reasonable prices.

Very many students when members of fraternities or sororities find comfortable room and good board in the various fraternity and sorority houses.

Rooms in Turner Hall are from $24.00 to $36.00 a quarter for each student, payable in advance. A deposit of $5.00 should be sent with the application. This deposit will be kept as a fee to cover breakage until the end of the college year or until the expiration of residence. No room will be leased for less than one quarter.

Note: Immediately upon arrival, women should report to the Dean of Women and men to the Dean of Men for an official list of recognized householders.

ADMISSION

Candidates who are at least seventeen years of age and of good moral character may apply for admission upon the following plans:

1. Certificate. Graduates from first grade high schools, accredited normal schools or academies are admitted without examination on presentation of properly signed entrance certificates. These certificates must be made out and signed by the proper official of the school from which the applicant comes, and a certificate of preliminary education issued by the Entrance Examiner of the Ohio Board of Pharmacy. Blanks for these purposes may be had by addressing the University Entrance Examiner.

2. Examination. Candidates who are not graduates of first-grade high schools, accredited normal schools, or academies and are therefore deficient in some of the units for admission may be admitted upon examination. Applicants must notify the Entrance Examiner of the Ohio Board of Pharmacy in advance so that arrangements may be made to hold examinations before the first day of registration.

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. He should submit a catalogue of his college.

Advanced credit is given for not more than 135 quarter hours (90 semester hours) exclusive of physical education in the four-year course, and 90 quarter hours (60 semester hours) exclusive of physical education in the three-year course.

4. Special Student. Persons who can qualify to take the examination for pharmacist under the laws existing on or before July 1, 1917, and who do not desire to earn a degree may enter any department and pursue the studies they choose, if, on consultation, the head of the department is satisfied that they have sufficient preparation to pursue the work successfully. Such applicants are classified as special students.

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 matriculate, prepare a schedule of study with the aid of an adviser and approval of the Dean, and pay tuition and fees as stated elsewhere in this catalog.
PRE-REGISTRATION AND REGISTRATION

Pre-registration and registration days are indicated in the calendar. Pre-registration day is devoted to conferences with advisers and making the student's schedule of classes for the quarter. Registration day is given over to the transfer of the schedule of classes to the permanent cards, the payment of tuition, and securing of tickets of admission to classes. Failure to attend to these duties on the proper day will subject the student to the payment of a $5.00 fee for late registration. This does not apply to new registrants.

SENIOR HONORS

Two kinds of senior honors are recognized and conferred at graduation: honors (with distinction) granted to those who have a quality point average of 2.3 with no grade below D; and quality point average of 2.6 with no grade below C. These honors in scholarship are recorded on the diplomas, recognition is given at commencement, and the names of the recipients are printed in the catalogue. To receive senior honors a student must be in residence at Ohio Northern at least six quarters.

REQUIREMENT FOR GRADUATION

Every person upon whom a degree is conferred must (1) be of good moral character, (2) satisfactorily complete all prescribed work, (3) spend the last year in resident study in this college, (4) have one quality point per scheduled hour; and (5) be present at the commencement exercises unless officially excused.

That the curriculum may be flexible enough to allow preparation in specialized activities of the profession, in addition to a group of courses which are constants for all candidates for the degree of Bachelor of Science in Pharmacy (B. S. in Pharm.), several groups of electives are offered.

CURRICULA

Old Three-Year and Four-Year Courses
Subject to the conditions as indicated below

CONSTANTS

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education</td>
<td>6 Hrs.</td>
</tr>
<tr>
<td>English</td>
<td>9 Hrs.</td>
</tr>
<tr>
<td>Pharmacognosy 151, 152, 153</td>
<td>15 Hrs.</td>
</tr>
<tr>
<td>Pharmacology 202, 203, 204</td>
<td>10 Hrs.</td>
</tr>
<tr>
<td>Chemistry</td>
<td>35 Hrs.</td>
</tr>
<tr>
<td>Pharmacy 102, 104, 151, 152, 251, 252, 299</td>
<td>35 Hrs.</td>
</tr>
<tr>
<td>Total</td>
<td>110 Hrs.</td>
</tr>
</tbody>
</table>

In addition to the constants as listed above, at least thirty-one credit hours of approved electives will be required for graduation from the three-year course and seventy-six credit hours for graduation from the four-year course.
Electives

Sciences—Biology, Chemistry, Pharmacology, Pharmacy ___ 35 Hrs.
Economics and Business Administration __________________________ 9 to 36 Hrs.
Language—English ____________________________________________ 9 to 36 Hrs.
German or French ____________________________________________ 12 Hrs.

Students who elect the sciences may be assigned to courses in German or French, or both, in order to acquire ability to read scientific texts and periodicals published in these languages. Those who elect Economics and Business Administration will choose the language which best serves their needs. All elections are subject to the approval of the Dean.

For beginning students registering for the academic year 1932-33 and thereafter, all colleges holding membership in the American Association of Colleges of Pharmacy shall require for graduation the satisfactory completion of not less than four full college years.

Students who matriculated in the three-year course and completed one or more quarters in residence on or before July 1, 1932, may continue such course of study and graduate, provided all the requirements are completed by September, 1935.
Keeping fit

Just a bunch of play boys

Turner-Tittle

In the old can, kid!

Bucketeers
THREE-YEAR COURSE IN PHARMACY

DEGREE: PHARMACEUTICAL GRADUATE

Admission of beginners to this course discontinued
March 30, 1932

**First Year**

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education</td>
<td>Physical Education</td>
</tr>
<tr>
<td>Pharmacognosy 101</td>
<td>Pharmacognosy 102</td>
</tr>
<tr>
<td>Chemistry 101 or 101a</td>
<td>Chemistry 102 or 102a</td>
</tr>
<tr>
<td>Pharmacy 101</td>
<td>Pharmacy 102</td>
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</tbody>
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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Physical Education</td>
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<tr>
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</tr>
<tr>
<td>Chemistry 103 or 103a</td>
</tr>
<tr>
<td>Pharmaceutical Latin</td>
</tr>
<tr>
<td>Pharmacy 104</td>
</tr>
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<table>
<thead>
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</thead>
<tbody>
<tr>
<td>Physical Education</td>
<td>Physical Education</td>
</tr>
<tr>
<td>Pharmacognosy 151</td>
<td>Pharmacognosy 152</td>
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<tr>
<td>Chemistry 104</td>
<td>Chemistry 105</td>
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<tr>
<td>Pharmacy 151</td>
<td>Pharmacy 152</td>
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<table>
<thead>
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<th>SPRING QUARTER</th>
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</thead>
<tbody>
<tr>
<td>Physical Education</td>
</tr>
<tr>
<td>Pharmacognosy 153</td>
</tr>
<tr>
<td>Chemistry 106</td>
</tr>
<tr>
<td>Pharmacy 201</td>
</tr>
<tr>
<td>Pharmacy 153</td>
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**Second Year**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Pharmacology 203</td>
<td>Pharmacology 202</td>
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<tr>
<td>Pharmacology 204</td>
<td>Chemistry 105 or 207</td>
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<td>Pharmacy 207</td>
<td>Pharmacy 252</td>
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<table>
<thead>
<tr>
<th>SPRING QUARTER</th>
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</thead>
<tbody>
<tr>
<td>Bacteriology</td>
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<td>Chemistry 106 or 208</td>
</tr>
<tr>
<td>Pharmacy 203</td>
</tr>
<tr>
<td>Pharmacy 253</td>
</tr>
<tr>
<td>Pharmacy 299</td>
</tr>
</tbody>
</table>

**Third Year**

At least 3,018 clock-hours are required to complete this course, 1000 clock-hours in lectures and recitations and 2018 clock-hours in the laboratory.

Note: Electives may be substituted for certain prescribed courses in the curriculum above.
## Four-Year Course in Pharmacy*

### Degrees Bachelor of Science in Pharmacy

#### First Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
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</thead>
<tbody>
<tr>
<td>Physical Education</td>
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</tr>
<tr>
<td>Zoology 101</td>
<td>3 Zoology 102</td>
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<tr>
<td>Physics 109</td>
<td>5 Physics 110</td>
</tr>
<tr>
<td>English, German or French</td>
<td>3 English, German or French</td>
</tr>
<tr>
<td>Chemistry 101 or 101a</td>
<td>5 Chemistry 102 or 102a</td>
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</table>

### SPRING QUARTER

| Physical Education | 1 |
| Zoology 103 | 3 |
| Physics 111 | 5 |
| English, German or French | 3 |
| Chemistry 103 or 103a | 5 |

#### Second Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>Chemistry 104</td>
<td>5 Chemistry 105</td>
</tr>
<tr>
<td>Pharmacy 101</td>
<td>5 Pharmacy 102</td>
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</table>

### SPRING QUARTER

| Physical Education | 1 |
| Pharmacology 101 | 5 |
| Chemistry 106 | 5 |
| Pharmacy 104 | 3 or 5 |
| Pharmacy 103 | 2 |

#### Third Year

<table>
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<th>WINTER QUARTER</th>
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</thead>
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<tr>
<td>Chemistry 206</td>
<td>5 Chemistry 207</td>
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<tr>
<td>Pharmacy 151</td>
<td>5 Pharmacy 152</td>
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</table>

### SPRING QUARTER

| Pharmacognosy 153 | 5 |
| Chemistry 208 | 5 |
| Pharmacy 153 | 5 |

#### Fourth Year

<table>
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<tbody>
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<td>Pharmacy 251</td>
<td>2 Elective</td>
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<tr>
<td>Elective</td>
<td>5</td>
</tr>
</tbody>
</table>

### SPRING QUARTER

| Bacteriology 203 | 5 |
| Pharmacy 299 | 3 |
| Pharmacy 253 | 2 |
| Elective | 5 |

At least 4,036 clock-hours are required to complete this course. 1200 clock-hours in lectures and recitations and 2836 clock-hours in laboratory.

Note: Electives may be substituted for certain prescribed courses in the curriculum above.

*Admission to this course of study and schedule will be discontinued July 1, 1933.
## Four-Year Curriculum

Not less than One Hundred Eighty-six Credit Hours, including Physical Education, are to be selected from the schedule below.

### Basic Subjects:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Class Hrs</th>
<th>Lab Hrs</th>
<th>Total Hrs</th>
<th>Class Hrs</th>
<th>Lab Hrs</th>
<th>Total Hrs</th>
<th>Credit Hrs</th>
</tr>
</thead>
<tbody>
<tr>
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<td>90</td>
<td>180</td>
<td>60</td>
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<tr>
<td>Biology 107, 108, 109</td>
<td>108</td>
<td>108</td>
<td>180</td>
<td>60</td>
<td>120</td>
<td>180</td>
<td>9</td>
</tr>
<tr>
<td>Business Administration</td>
<td>108</td>
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<td>60</td>
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<td>9</td>
</tr>
<tr>
<td>Chemistry 101, 102, 103</td>
<td>108</td>
<td>216</td>
<td>324</td>
<td>48</td>
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<td>124</td>
<td>10</td>
</tr>
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<td>Chemistry 104, 105</td>
<td>108</td>
<td>216</td>
<td>324</td>
<td>48</td>
<td>216</td>
<td>124</td>
<td>10</td>
</tr>
<tr>
<td>Chemistry 206, 207, 208</td>
<td>108</td>
<td>216</td>
<td>324</td>
<td>48</td>
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</tr>
<tr>
<td>English 101, 102, 102a</td>
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<td>108</td>
<td>180</td>
<td>60</td>
<td>120</td>
<td>180</td>
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<tr>
<td>French 101, 102, 103 or 118</td>
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<td>180</td>
<td>60</td>
<td>120</td>
<td>180</td>
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</tr>
<tr>
<td>German 101, 102, 103 or 118</td>
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<td>108</td>
<td>180</td>
<td>60</td>
<td>120</td>
<td>180</td>
<td>9</td>
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<tr>
<td>Mathematics</td>
<td>96</td>
<td>96</td>
<td>192</td>
<td>60</td>
<td>120</td>
<td>180</td>
<td>9</td>
</tr>
<tr>
<td>Physics 109, 110, 111</td>
<td>108</td>
<td>144</td>
<td>252</td>
<td>60</td>
<td>120</td>
<td>180</td>
<td>15</td>
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<td>Physical Education: Gym'a'm</td>
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<tr>
<td>Physiology and Zoology</td>
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### Professional and Applied Subjects:

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<th>Credit Hrs</th>
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<tbody>
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<td>Accounting</td>
<td>48</td>
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<td>Bio-assaying (Ph'col. 251)</td>
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### Pharmaceutical Chemistry:

<table>
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<th>Lab Hrs</th>
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<th>Credit Hrs</th>
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<td>Pharmacy 202</td>
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<td>36</td>
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<tr>
<td>Pharmacy 208</td>
<td>24</td>
<td>36</td>
<td>60</td>
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### Pharmacognosy:

<table>
<thead>
<tr>
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<th>Lab Hrs</th>
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<th>Credit Hrs</th>
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<tbody>
<tr>
<td>Course 101</td>
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</tr>
<tr>
<td>Courses 102, 151, 152</td>
<td>108</td>
<td>144</td>
<td>252</td>
<td>15</td>
</tr>
<tr>
<td>Course 153</td>
<td>36</td>
<td>48</td>
<td>72</td>
<td>5</td>
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### Pharmacology:

<table>
<thead>
<tr>
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<th>Lab Hrs</th>
<th>Total Hrs</th>
<th>Credit Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course 101 (Physiology)</td>
<td>36</td>
<td>48</td>
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</tr>
<tr>
<td>Course 102 (Physiology)</td>
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<td>48</td>
<td>84</td>
<td>5</td>
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<td>Course 201</td>
<td>36</td>
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<td>84</td>
<td>5</td>
</tr>
<tr>
<td>Course 202</td>
<td>36</td>
<td>48</td>
<td>84</td>
<td>5</td>
</tr>
<tr>
<td>Courses 203, 204</td>
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<td>72</td>
<td>144</td>
<td>6</td>
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### Course 251 (See Bio-assaying)

### Pharmacy:

<table>
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<th>Credit Hrs</th>
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<tbody>
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<td>Course 103 (Latin)</td>
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<td>72</td>
<td>3</td>
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<td>Course 104 (Arithmetic)</td>
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<td>36</td>
<td>72</td>
<td>3</td>
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<td>Courses 102, 151, 152, 153</td>
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<td>Courses 204, 205, 206 (Manif.)</td>
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### Public Health:

<table>
<thead>
<tr>
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<th>Credit Hrs</th>
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<td>48</td>
<td>36</td>
<td>4, 7</td>
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</tbody>
</table>
# Four-Year Course in Pharmacy
*Effective, July 1, 1933*

**Degree: Bachelor of Science in Pharmacy**

### First Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education</td>
<td>Physical Education</td>
</tr>
<tr>
<td>Pharmacy 101</td>
<td>Pharmacy 102</td>
</tr>
<tr>
<td>Chemistry 101 or 101a</td>
<td>Chemistry 102 or 102a</td>
</tr>
<tr>
<td>Biology (Botany) 107</td>
<td>Biology (Botany) 103</td>
</tr>
<tr>
<td>English 101</td>
<td>English 102</td>
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### Spring Quarter

<table>
<thead>
<tr>
<th>Physical Education</th>
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<tbody>
<tr>
<td>Pharmacy 103 (Latin)</td>
</tr>
<tr>
<td>Pharmacy 104 (Arithmetic)</td>
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<td>Chemistry 103 or 103a</td>
</tr>
<tr>
<td>Biology (Botany) 109</td>
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<td>English 102a</td>
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### Second Year

<table>
<thead>
<tr>
<th>FALL QUARTER</th>
<th>WINTER QUARTER</th>
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<tbody>
<tr>
<td>Physical Education</td>
<td>Physical Education</td>
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<tr>
<td>Pharmacognosy 102</td>
<td>Pharmacognosy 151</td>
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<tr>
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### Spring Quarter

<table>
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<td>Chemistry 208</td>
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<td>Pharmacology 101</td>
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### Third Year

<table>
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<th>WINTER QUARTER</th>
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<tbody>
<tr>
<td>Pharmacy 151</td>
<td>Pharmacy 152</td>
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<td>Chemistry 104 or Elective</td>
<td>Chemistry 105 or Elective</td>
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<td>Business Administration</td>
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<td>Business Administration</td>
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### Spring Quarter

<table>
<thead>
<tr>
<th>Pharmacy 153</th>
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<tbody>
<tr>
<td>Pharmacy 201</td>
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<td>Pharmacy 202</td>
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<td>Business Administration</td>
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### Fourth Year

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<td>Pharmacology 203</td>
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<td>Health 258</td>
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### Spring Quarter

<table>
<thead>
<tr>
<th>Pharmacy 253</th>
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<tbody>
<tr>
<td>Pharmacy 299</td>
</tr>
<tr>
<td>Pharmacology 204</td>
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DESCRIPTION OF COURSES

BIOLOGY

The subject of immunology includes the principles underlying the use of biological products in the prevention and treatment of disease. Terms involving biological and bacteriological information are used in the United States Pharmacopoeia and National Formulary. In order that the pharmacist may be able to read the U. S. P. and N. F. intelligently and to sell biologicals, disinfectants, germicides, antiseptics, preservatives, sterilized solutions for hypodermic and intravenous use, to disseminate information about common communicable diseases and to know the general principles involved in biological standardization, it is essential that he acquire the fundamentals of the science of biology and bacteriology.

101. ZOOLOGY (Fall) 3 Hrs.
102. ZOOLOGY (Winter) 3 Hrs.
103. ZOOLOGY (Spring) 3 Hrs.

These courses are designed for students who desire a general acquaintance with some of the biological laws and theories as evidenced by the animal world. A general survey of the animal kingdom based on classification, morphology, physiology, and ecology. Special attention is given to the problems of the organism, with emphasis on development, reproduction, genetics, and evolution. Section 1, M. W., 3, 4; F., 3; Section 2, T. Th., 3, 4; F., 4. Section 3, T. Th., 5, 6; F., 6. Section 2, Spring, T. Th., 7, 8; F., 8.

Professor Huber

107. BOTANY (Fall) 3 Hrs.
108. BOTANY (Winter) 3 Hrs.
109. BOTANY (Spring) 3 Hrs.

These courses are presented largely as cultural courses with emphasis placed on careful observation and logical conclusion. The time is devoted to a consideration of the physiological processes, ecology, structure, reproduction, genetics, distribution, and evolution of plants. Section 1, M. W., 5, 6; F., 5. Section 2, M. W., 7, 8; F., 7.

Assistant Professor Dobbins

110. LOCAL FLORA (Spring) 3 Hrs.

A systematic study which acquaints the student with many of the native and introduced plants. A field course supplemented by greenhouse and herbarium studies. S., 1, 2, 3, 4; T. Th., 1.

Assistant Professor Dobbins

219. HISTOLOGY AND TECHNIQUE (Winter) 3 Hrs.

Methods of collecting, killing, preserving and preparing material for demonstration and laboratory purposes are considered. A detailed microscopic study of various plant or animal tissues is made. Lecture and class work one hour, laboratory six to eight hours. Time schedule to be arranged. Fee to be fixed at registration. Open to seniors majoring in biology.

Professor Huber

220. BIOLOGICAL PROBLEMS 1-3 Hrs.

Minor investigations for qualified seniors who are taking a major or minor in biology. By arrangement any quarter. Fee depends on nature of work done.

Professor Huber
222. **Plant Physiology (Winter)** 3 Hrs.

224. **Plant Morphology (Winter)** 3 Hrs.

These courses are designed for students majoring in biology whose prime interest is in the botanical field. Course 222 consists of a critical study of some of the physiological processes of plants. Course 224 consists of a study of the structures and life histories of typical plants of playla. Prequisite: Botany 107, 108, 109. M. W., 3, 4; F., 3.

Assistant Professor Dobbins

**CHEMISTRY**

In order to read various texts in Pharmacy, official and non-official, and to be able to identify, manufacture, preserve, and compound certain types of pharmaceuticals, the pharmacist needs a knowledge of chemistry.

All students who are candidates for graduation from the College of Pharmacy will be required to complete Chemistry 101, 102, 103, 104, 105, 206, 207 and 208, or the equivalent. Those wishing to do work in chemistry beyond the constants as listed for all pharmacy students, should take Chemistry 211a and 211b.

Additional courses in chemistry may be elected, subject to the recommendation of the student adviser and approval of the Dean.

101a. **Introductory Chemistry (Fall)** 5 Hrs.

102a. **Introductory Chemistry (Winter)** 5 Hrs.

103a. **Introductory Qualitative Analysis (Spring)** 5 Hrs.

A series of courses designed for students who do not present chemistry credit. Courses 101a and 102a consist of a careful study of the fundamental laws of chemistry and of the properties of the common metallic elements and their compounds; course 103a is an introductory study in qualitative analysis of acids and metals. A brief study is made of the properties of the common metallic elements and their compounds.

Two sections. Lecture and quiz, M. W. F., 1 or 3. Laboratory for Pharmacy students, M. W., 6, 7, 8; Liberal Arts and Engineering students, T. Th., 2, 3, 4 or 6, 7, 8.

Professor Harrod

101. **General Chemistry (Fall, Winter, Summer)** 5 Hrs.

102. **General Chemistry (Winter, Spring, Summer)** 5 Hrs.

103. **Qualitative Analysis (Spring, Summer)** 5 Hrs.

Basic courses in General Chemistry. Prerequisite: One unit of high school chemistry. Two sections. Lecture and quiz, M. W. F., 2 or 4. Laboratory, Pharmacy students, M. W., 6, 7, 8; Liberal Arts and Engineering students, T. Th., 2, 3, 4 or 6, 7, 8.

Professor Harrod

104. **Quantitative Analysis (Fall)** 5 Hrs.

105. **Quantitative Analysis (Winter)** 5 Hrs.

106. **Quantitative Analysis (Spring)** 5 Hrs.

These courses deal with the theory and practice of gravimetric and volumetric analysis. The use of the fundamental principles of modern theoretical chemistry, as well as the attainment of the ability to make quantitative separations and determinations, is emphasized. Prerequi-
site: Chemistry 103a or 103. Lecture, T. Th., 5 or 6; laboratory, M. W. F., 5, 6, 7.

Assistant Professor Gibson

206. ORGANIC CHEMISTRY (Fall) 5 Hrs.
207. ORGANIC CHEMISTRY (Winter) 5 Hrs.
208. ORGANIC CHEMISTRY (Spring) 5 Hrs.

These courses consist of a fundamental study of the compounds of carbon. Careful attention is given to group structure, group relationship, group properties, isomerism and nomenclature. Prerequisite: Chemistry 103a or 103. Lecture and quiz, M. W. F., 5; laboratory, T. Th., 5, 6, 7.

Professor Harrod

211a. ADVANCED QUALITATIVE ANALYSIS (Fall) 5 Hrs.
211b. ADVANCED QUALITATIVE ANALYSIS (Winter) 5 Hrs.

212. INORGANIC PREPARATIONS (Spring) 5 Hrs.

The fundamental purpose of these courses is to teach Inorganic Chemistry. Courses 211a and 211b deal with systematic Analysis on a semi-quantitative basis, and are more comprehensive than Chemistry 103 in both theoretical consideration and number of elements studied. Course 212 consists of a preparation of pure inorganic compounds, and a study of the theoretical principles involved. In all these courses the Periodic Law is used as the basis for the classification of the elements and their properties. Prerequisites: Chemistry 104 and 105. Lecture T. Th. 3rd, 24 hours; laboratory M. W. F. 5th, 6th, and 7th, 72 hours.

Assistant Professor Gibson

215. PHYSICAL CHEMISTRY (Fall) 3 Hrs.
216. PHYSICAL CHEMISTRY (Winter) 3 Hrs.
217. PHYSICAL CHEMISTRY (Spring) 3 Hrs.

A series of courses designed to develop a comprehensive conception of chemical change and the structure of matter. In the interest of the pre-medical student, special attention is given to osmosis, equilibrium, colloids and hydrogen ion determination. Prerequisite: Quantitative analysis, organic chemistry and general physics. Trigonometry as a minimum mathematical preparation is strongly recommended. Lecture and quiz, M. W. F., 4.

Assistant Professor Gibson

231. CHEMISTRY PROBLEMS 3 Hrs.

Minor investigations for qualified seniors who are majoring in chemistry. Consult head of department.

Professor Harrod

ECONOMICS AND BUSINESS ADMINISTRATION

Ability to buy, sell, and organize business efficiently is without doubt one of the essentials in the profession of pharmacy. General courses in the principles of accounting, economics, and business organization may be elected by those who wish to acquire a broader knowledge of sound business procedure.

Pharmacy 203 is a course in commercial pharmacy dealing specifically with drug store business methods.
121. **Principles of Economics** *(Fall)*  
3 Hrs.

122. **Principles of Economics** *(Winter)*  
3 Hrs.

123. **Principles of Economics** *(Spring)*  
3 Hrs.  
Wants, scarcity, and economy; economic history; organization of production; value and price; monopoly and its control; financial organization; distribution of wealth and income; inequality and social reform; public finance; and international trade. Required of all majors. Not open to freshmen. Three sections. M. W. F., 4, 5, or 7.  
Assistant Professor McBride

131. **Principles of Accounting** *(Fall)*  
3 Hrs.

132. **Principles of Accounting** *(Winter)*  
3 Hrs.

133. **Principles of Accounting** *(Spring)*  
3 Hrs.  
Principles of the double-entry system; asset and equity accounts; journal and ledger; expense and revenue; periodic adjustment; working sheets; income statements; balance sheets; valuation and income determination; trading and manufacturing accounts; and partnership and corporate accounting. Required of all majors. Prerequisite or concurrent. Economics 121, 122, 123. M. W. F., 3.  
Assistant Professor McBride

**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, ability to speak and write English is essential.

101. **Composition** *(Fall, Winter)*  
3 Hrs.

102. **Composition** *(Winter)*  
3 Hrs.

102a. **Composition** *(Spring)*  
3 Hrs.  
These three courses constitute a year of work for freshmen. A thorough drill in the mechanics of written English, exposition and argumentation; description and narration. Considerable attention is given to the study of the structure of the short story. Daily themes. Students who show a high degree of proficiency in English, may elect English 122a or English 105 in the place of Composition 102a. Six sections, M. W. F., 2, 4, 5; T. Th. F., 6, 7, 8.  
Assistant Professor Wilder and Mr. Freeman

128. **News Writing** *(Fall)*  
3 Hrs.  
Basic course. Theory and practice in preparing news stories; methods of news gathering, and newspaper ethics. Open to members of the Northern Review staff and students majoring in English. T. Th. F., 1.  
Mr. Freeman

129. **News Writing** *(Winter)*  
3 Hrs.  
Continuation of the above. Special attention is given to the feature and human interest stories; comparison of methods of different papers in handling news, and practice in writing news stories and reviews. T. Th. F., 1.  
Mr. Freeman
130. **Copy Reading and Editing (Spring)**

3 Hrs.

Headline writing; use of style sheets and style books; terms and phrases used in handling copy. Lectures on the duties of members of an editorial staff. Visits to modern newspaper offices. Prerequisite: English 128 and 129. T. Th. F., 1.

Mr. Freeman

205. **Expository Writing (Fall)**

2 Hrs.

225. **Expository Writing (Winter)**

2 Hrs.

A study of the various types of the essay and the writing of short themes together with longer fortnightly themes. Considerable attention is given to the familiar essay. In order to receive credit both courses must be completed. Open to all juniors and seniors. Required of all students who major in English. T. Th., 3.

Mr. Freeman

**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 physical examination.

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 101, 102, 103, 104, 105, 106, 115, 252, 253, and 258 as given in the Department of Health and Physical Education, and Bacteriology 209 as given in the Department of Pharmacology are of special interest to the pharmacy student.

101. **Physical Education (Fall)**

1 Hr.

102. **Physical Education (Winter)**

1 Hr.

103. **Physical Education (Spring)**

1 Hr.

Men—Gymnasium and outdoor classes in season, natural gymnastics, informal play. Six sections. M. W., 1, 2, 3, 4, 5, or 6.

Assistant Professor H. A. Lamb

Women—A course in natural gymnastics including games and sports in season, dancing and tumbling. Six sections. T. Th., 1, 2, 3, 4, 5, or 6.

Assistant Professor Bruckheimer

104. **Physical Education (Fall)**

1 Hr.

105. **Physical Education (Winter)**

1 Hr.

106. **Physical Education (Spring)**

1 Hr.

Men—Continuation of course 103 with team games and apparatus added. Six sections. M. W., 1, 2, 3, 4, 5, or 6.

Assistant Professor H. A. Lamb

Women—A continuation of course 103. Six sections. T. Th., 1, 2, 3, 4, 5, or 6.

Assistant Professor Bruckheimer
115. **Personal and General Hygiene**  
(Fall, Winter, Spring) 2 Hrs.  
A course designed to cover the various phases of personal hygiene and health, from the individual aspect, with emphasis on preventive measures. T. Th., 3.  
Assistant Professor Bruckheimer

152. **Health**  
(Winter) 3 Hrs.  
The relation of hygiene to home and community life, including a study of sewage disposal, refuse disposal, transmission and control of diseases. M. W. F., 4.  
Assistant Professor Bruckheimer

258. **First Aid**  
(Winter) 2 Hrs.  
Lectures, discussion and practice in the giving of First Aid in cases of emergency. The American Red Cross First Aid Certificate may be obtained by students who pass a satisfactory examination. T. Th., 3.  
Professor C. A. Lamb

**MATHEMATICS**

Inaccurate computations in pharmacy may lead to serious results. A course in mathematics especially designed for the student of pharmacy is required of all candidates for graduation. It includes the mathematical processes involved in operative pharmacy and in the compounding of prescriptions. A limited amount of the mathematics involved in commercial pharmacy is included. This course is listed and described in the Department of Pharmacy, course 104. In addition to Pharmacy 104 at least nine credit hours in college mathematics or its equivalent will be required.

Those students who desire courses in chemistry beyond the prescribed constants will take additional courses in mathematics, subject to the recommendation of the student’s adviser and approval of the Dean.

101. **College Algebra**  
(Fall, Winter) 5 Hrs.  
This course covers much of the material of the traditional course in algebra with emphasis upon number theory, quadratic forms, functions and their graphs, and the theory of determinants as applied to the solution of simple sets of equations. Prerequisite: Plane Geometry and one and one-half units of high school algebra. Daily. Fall, 4 or 5; Winter, 6.  
Professor Whitted

102. **College Algebra**  
(Winter, Spring) 4 Hrs.  
This is a continuation of Mathematics 101, but making a more detailed study of equations, partial fractions, power functions, progressions, permutations and combinations. Prerequisite: Mathematics 101. Winter, M. T. W. Th., 2 or 3. Spring, M. T. W. Th., 3.  
Professor Whitted

103. **Trigonometry**  
(Winter, Spring) 5 Hrs.  
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. Prerequisite: Plane geometry and one and one-half units of high school algebra. Winter, 4 or 5. Spring, 6.  
Professors Whitted and Fairchild
107. **Calculus: Differential** *(Fall)*  
4 Hrs.  
The fundamental theorems for the differentiation of algebraic, trigonometric, logarithmic, and exponential functions are taken up with numerous applications to problems in geometry, mechanics, and physics. Prerequisite: Mathematics 105. M. T. W. Th., 4 or 5.  
Professor Fairchild

108. **Calculus: Differential and Integral** *(Winter)*  
4 Hrs.  
This course is a continuation of Mathematics 107, but giving a more extended use of differentiation to analytical functions of two or more variables with an introduction to the indefinite integral. Prerequisite: Mathematics 107. M. T. W. Th., 4 or 5.  
Professor Fairchild

109. **Calculus: Integral** *(Spring)*  
4 Hrs.  
This is a continuation of Mathematics 108, but giving a more detailed account of methods of integration by the aid of substitution, parts and reduction formulae. Integration as a summation and the definite integral with its application to problems in surfaces, volumes, moments of inertia, center of gravity and fluid pressure is studied. Prerequisite: Mathematics 108. M. T. W. Th., 4 or 5.  
Professor Fairchild

**MODERN LANGUAGES**

Many texts and periodicals pertaining to 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 in French and German are offered. If a student expects to do graduate work, he should have a working knowledge of at least two foreign languages, French and German. French 118 and German 118 are recommended for those who expect to enter graduate schools.

**FRENCH**

101. **Elementary French** *(Fall)*  
3 Hrs.

102. **Elementary French** *(Winter)*  
3 Hrs.

103. **Elementary French** *(Spring)*  
3 Hrs.  
The elements of pronunciation and phonetics, essentials of grammar and easy reading. Conversation suited to the needs and abilities of the class. M. W. F., 1 and 5.  
Professor Herrick

118. **Scientific French** *(Winter)*  
2 Hrs.  
The reading of scientific texts and periodicals with particular emphasis on individual needs. Required of pre-medical students. Prerequisite: a minimum of French 101-103. Given in alternate years with German 118. T. Th., 1.  
Professor Herrick

101. **Elementary German** *(Fall)*  
3 Hrs.

102. **Elementary German** *(Winter)*  
3 Hrs.
103. **Elementary German** *(Spring)*

Essentials of pronunciation, grammar and composition, verb drill, and easy graded texts for reading. M. W. F., 1

Miss Kampmeier

*118. **Scientific German** *(Winter)*

The reading of scientific texts and periodicals with particular emphasis on individual needs. Required of pre-medical students. Prerequisite: German 101-103. T. Th., 1.

Miss Kampmeier

**PHARMACOGNOSY**

**Dr. Hanna in Charge**

*101. **Pharmacognosy** *(Fall)*

The aim of this course is to acquaint the student with the main group of plants, their characteristics, economic importance in medicine. The course is progressive, beginning with the lowest types and ending with the highest. Lectures and recitations, M. W. F., 5, 36 hours; laboratory, T. Th., 5, 6 or 7, 8, 48 hours.

(To be supplied)

102. **Pharmacognosy** *(Fall)*

The general anatomy of the parts of the plant, such as root, stem, leaf, flower, fruit and seed, are the subjects of this course. A few drugs from each classification are considered with special reference to the terminology used in the U. S. P. and N. F. Lectures and recitations, M. W. F., 5, 36 hours; laboratory, T. Th., 5, 6 or 7, 8. 48 hours.

(To be supplied)

151. **Pharmacognosy** *(Winter)*

In this course the student is taught how to identify, select, and value drugs microscopically. He learns the official names, habitat, and constituents of each U. S. P. drug. Lectures and recitations, M. W. F., 3, 36 hours; laboratory, T. Th., 1, 2 or 3, 4, 48 hours.

(To be supplied)

152. **Pharmacognosy** *(Spring)*

The study of vegetable drugs is continued. The student learns the official names, habitat, and constituents of the crude vegetable drugs listed in the National Formulary. Attention is given to preservation, adulteration, and identification of powdered drugs. A liberal use of the compound microscope is required in this course. Lectures and recitations, M. W. F., 4, 36 hours; laboratory, T. Th., 1, 2 or 3, 4, 48 hours.

(To be supplied)

*153. **Pharmacognosy** *(Spring)*

This course completes the study of crude vegetable drugs. The more important non-official drugs receive attention. Lectures and recitations, M. W. F., 4, 36 hours; laboratory, T. Th., 1, 2 or 3, 4, 48 hours.

*Not given in 1933-34.*

(To be supplied)
PHARMACOLOGY

Dr. Hanna and Assistants

101. Pharmacology (Spring) 5 Hrs.
A brief course in human physiology preparatory to the study of the action of drugs. The digestive, circulatory, respiratory, and nervous systems are the chief subjects considered. Lectures and recitation, M. W. F., 5, 36 hours; laboratory, T. Th., 5 and 6, 48 hours.

Dr. Hanna.

102. Pharmacology (Fall) 3 Hrs.
A continuation of Pharmacology 101. Lectures and recitations, M. W. F., 5, 36 hours.

Dr. Hanna.

201. Pharmacology (Fall) 5 Hrs.

202. Pharmacology (Winter) 3 or 5 Hrs.
A course in the physiological action, therapeutics, and dosage of the official and other common organic and inorganic drugs. The study is based upon a therapeutic classification. Lectures and recitations, M. W. F., 1, 36 hours; laboratory, T. Th., 7 and 8, 48 hours.

Dr. Hanna

203. Pharmacology 3 Hrs.
In this course the U. S. P. and N. F. drugs of animal origin are studied. Attention is given to official names, definitions, source, action, and dosage. This course does not include the serums, antitoxins, and other substances commonly known as biological products. Lectures and recitations, T. Th., 1, 24 hours.

Dr. Hanna

204. Pharmacology (Spring) 3 or 5 Hrs.
A study of the principles of poisoning, classification of poisons, and effects of each class. Lectures and recitations, M. W. F., 1, 36 hours.

Dr. Hanna

207. Bacteriology (Winter) 3 Hrs.

208. Bacteriology (Spring) 3 Hrs.
A course in the fundamentals of applied bacteriology. Lectures and recitations, T. Th., 1, 24 hours; laboratory, section 1. T., 2, 3, 4, section 2, Th., 2, 3, 4, 36 hours.

209. Bacteriology (Spring) 3 or 5 Hrs.
A course in the fundamentals of bacteriology as applied to the pharmacist. Toxins, antitoxins, bacterins, vaccines, and other recognized products of bacterial origin which are used for curative and prophylactic purposes are the chief topics of this course. Prerequisites: Bacteriology 207, 208, or a course in general bacteriology. Lectures, recitations and demonstrations, M. W. F., or daily, 4, 36 to 60 hours.

Mr. Close

251. Pharmacology 5 Hrs.
Attention is given to biological assay methods and standardization of the U. S. P. drugs that are most satisfactorily valued by this method. Lectures and recitations, 12 hours; laboratory, 96 hours. Time schedule to be arranged.

Dr. Hanna
PHARMACY
DEAN RAABE, MR. CLOSE, MISS SMITH
AND ASSISTANTS

101. PHARMACEUTICAL TECHNIQUE \textit{(Fall)} \hspace{1cm} 5 Hrs.
An introductory course in the principles upon which pharmaceutical operations are based. Lectures, demonstrated lectures and recitations, M. W. F., 1, 36 hours; laboratory, T. Th., 1, 2, and 3, 72 hours.
Miss Smith

102. PHARMACY \textit{(Winter)} \hspace{1cm} 5 Hrs.
The chief topics of this course are waters, infusions, decoctions, mucilages, syrups, liniments, mixtures, and other classes of preparations of quite similar nature. Lectures and recitations, M. W. F., 1, 36 hours. Laboratory, T. Th., 1, 2, and 3, 72 hours.
Miss Smith

103. PHARMACEUTICAL LATIN \textit{(Spring)} \hspace{1cm} 3 Hrs.
A course covering such essentials of inflection and syntax as to familiarize the student with the etymology and construction of the nomenclature used in the United States Pharmacopeia and National Formulary and to enable him to interpret intelligently prescriptions. Lectures and recitations, T. Th., 1, F., 4, 36 hours.
Miss Smith

104. PHARMACEUTICAL ARITHMETIC \textit{(Spring)} \hspace{1cm} 3 Hrs.
A course in calculations pertaining to pharmacy. The student is taught current weights and measures, applications of proportion, alligation, specific gravity, specific volume, thermometer scales, percentage solutions, and elementary chemical problems common to pharmacy. Lectures and recitations, M. W. F., 1, 36 hours.
Dean Raabe

105. HISTORY OF PHARMACY \hspace{1cm} 3 Hrs.
A survey of the ancient, medieval, and modern practices and ideals of the profession of pharmacy. This course is mainly cultural. Lectures and discussions: 36 hours. To be given during the first two years and administered by various members of the faculty.
Dean Raabe

* Not given in 1933-34.

151. PHARMACY \textit{(Fall)} \hspace{1cm} 5 Hrs.
This course includes pharmaceutical preparations made by extraction, tinctures, fluid extracts, resins, oleoresins, fluid glycerates, emulsions, elixirs and spirits. Prerequisite: Pharmacy 101. Lectures and recitations, M. W. F., 2, 36 hours; laboratory, T. Th., 6, 7 and 8, 72 hours.
Mr. Close

152. PHARMACY \textit{(Winter)} \hspace{1cm} 5 Hrs.
This course includes the ointment and powder type of pharmaceuticals official in the United States Pharmacopeia and National Formulary. Prerequisite: Pharmacy 101. Lectures and recitations, M. W. F., 2, 36 hours; laboratory T. Th., 6, 7 and 8, 72 hours.
Mr. Close

153. PHARMACY \textit{(Spring)} \hspace{1cm} 5 Hrs.
This course includes the official chemical type of pharmaceuticals and other official preparations not included in Pharmacy 101, 151, and 152. Prerequisite: Pharmacy 101 and Chemistry 103. Lectures and recitations, M. W. F., 2, 26 hours; laboratory T. Th., 6, 7 and 8, 72 hours.
Mr. Close
201. **Pharmacy (Spring)**

Attention is given to the inorganic substances of the United States Pharmacopeia and National Formulary from the standpoint of the pharmacist. Prerequisite: Chemistry 103. Lectures and recitations, M., W., 5, 24 hours; laboratory T., 2, 3 and 4, 36 hours.

Mr. Close

202. **Pharmacy (Spring)**

A study in the organic synthetic substances of the United States Pharmacopeia and the National Formulary. Prerequisite: Organic Chemistry 207. Lecture and recitation, F., 5, 12 hours; laboratory Th., 2, 3 and 4, 36 hours.

Mr. Close

203. **Pharmacy (Fall)**

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. Lectures and recitations, M. W. F., 2, 36 hours.

Dean Raabe

*204. **Pharmacy (Fall)**

3 Hrs.

*205. **Pharmacy (Winter)**

3 Hrs.

Manufacture of pharmaceuticals on a commercial basis. Lectures 12 hours, and laboratory 72 hours.

* Not given in 1933-34.

*206. **Pharmacy (Spring)**

3 Hrs.

This course is a continuation of Pharmacy 204 and 205. The student is required to visit the laboratory of at least one reputable pharmaceutical manufacturer and to write a thesis. The subject of the thesis and the manufacturer to be visited must be approved by the student's faculty adviser and the Dean.

207. **Pharmacy (Fall)**

3 Hrs.

208. **Pharmacy (Winter)**

3 Hrs.

Standardization of pharmaceutical preparations. Lectures and recitations, T. Th., 4, 24 hours; laboratory T. or Th., 1, 2, 3, 36 hours. Prerequisite: Chemistry 105 and Pharmacy 153.

Mr. Close

251. **Dispensing Pharmacy (Fall)**

4 Hrs.

252. **Dispensing Pharmacy (Winter)**

4 Hrs.

253. **Dispensing Pharmacy (Spring)**

4 Hrs.

Prescriptions, compounding of prescriptions and recipes, incompatibilities, and dispensing are the subjects of this course. These courses are Pharmacy III (former catalogues) divided, slightly broadened and manipulated under new laboratory conditions. Five credit hours in Pharmacy III will be accepted as equivalent to Pharmacy 251, 252. Lectures, T. Th., 6, 24 hours; laboratory, T. Th., 7 and 8, 48 hours. Prerequisites: Pharmacognosy 151, 152, Chemistry 103 or 103a. Pharmacy 151, 152, 153.

Miss Smith
PHARMACY (Winter)  
A course in the federal, state and local acts, laws and regulations governing the practice of Pharmacy and the sale of potent and habit forming drugs. Lectures and recitations, M. W. F., 3, 36 hours.  
Dean Raabe

PHARMACY (Spring)  
A technical survey of the latest U. S. P. and N. F. Prerequisites: The constants in General Chemistry, Quantitative Analysis, Organic Chemistry, Pharmacognosy, Pharmacology, and Pharmacy. Lectures and discussions, 60 hours. Time to be arranged.  
Dean Raabe

* Not given in 1933-34.

PHYSICS

It is impossible to comprehend many of the changes which occur in the manufacture of pharmaceutical preparations and to understand the influences of heat and light in their preservation and stabilization without having a knowledge of the fundamentals of the science of physics. Many of the fundamentals of this science are presented in the courses in chemistry, pharmacognosy, and pharmacy. However, the student who expects to do more comprehensive work in the sciences should arrange his schedule so as to include one year of college physics. Physics 109, 110, and 111 are recommended as a pre-medical science.

Electives in physics are subject to the recommendation of the student adviser and approval of the Dean.

109. General Physics (Fall)  
110. General Physics (Winter)  
111. General Physics (Spring)  
A year of work in college physics. Open to freshmen in Liberal Arts. Prerequisite: One year of high school algebra and plane geometry. Recitation, M. W. F., 8; laboratory, afternoons, two two-hour periods.  
Professor Berger

214. Mathematics of Physics (Spring)  
A course dealing with the application of mathematics to physics and related sciences. Prerequisites: Physics 111 and calculus. Daily, 7.  
Professor Berger

219. Electrical Measurements (Winter)  
Exact measurement of currents, resistances, electromotive forces, magnetic permeabilities, capacity, inductance, transient phenomena, fundamental alternating current measurements. The laboratory work is supplemented by class discussions of the theory underlying the various measurements made. Three two-hour laboratory periods, and one class period per week.  
Professor Berger

220. Modern Physics (Winter)  
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. Prerequisites: General Chemistry and General Physics. T. Th. F., 6.  
Professor Berger
The School that Makes Successful Men
What is Your Ambition?

If it is political preferment we want to tell you about our one Supreme Court Judge, three U. S. Senators, Five U. S. Congressmen, and scores of State Representatives and County Prosecutors.

If it is in the religious realm we call your attention to the many men we have in the high councils of the Church.

If it is in the field of nature allow us to tell you about some of our successful scientists.

If it is technical in nature we can refer you to our engineers and pharmacists the world round, many of whom have gained prominence.

If it is in the business world we invite your investigation of our successful business men who are found everywhere.

If it is in the educational world we want to call your attention to the scores of City and County Superintendents, Principals of High Schools and members of various college faculties who have gone from here.

Among our Musical Alumni can be found men and women in the foreground of America's musical artists.

We have graduates holding prominent places in the fields of Agriculture, Fine Arts, Dramatics and Physical Education.
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