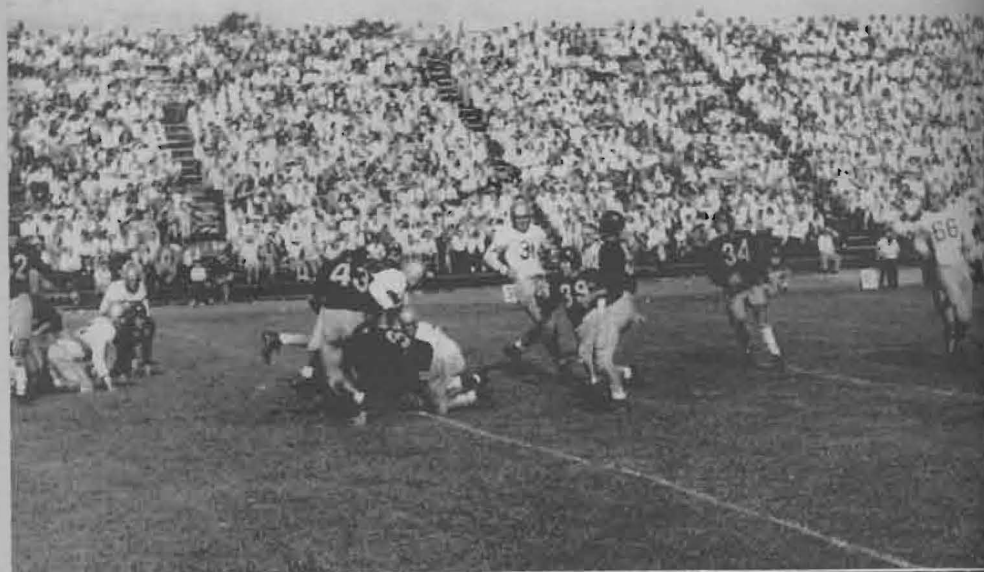


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College
1949 - 1950**

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The Main Building



The William Rayen School of Engineering



The School of Business



The Dana School of Music



The Home of the President



Buechner Hall for Women



Bulletin of
Youngstown College

Catalog Number

1949-1950



Youngstown, Ohio

Youngstown College is accredited by the State Department of Education, the League of Ohio Law Schools, the Ohio College Association, and the North Central Association of Colleges and Secondary Schools. The college is a member of the Association of American Colleges and the American Council on Education and an associate member of the National Association of Schools of Music. It is approved by the American Medical Association.

Youngstown College grants the degrees of Bachelor of Arts, Bachelor of Engineering, Bachelor of Laws, Bachelor of Music, Bachelor of Science, Bachelor of Science in Business Administration, and Bachelor of Science in Education.

COLLEGE CALENDAR

1949-1950

1949

September 19, Monday, 8:00 a. m. Classes begin
November 23, Wednesday, 10:00 p. m. Thanksgiving vacation begins
November 28, Monday, 8:00 a. m. Thanksgiving vacation ends
December 17, Saturday, 12 noon Christmas vacation begins

1950

January 3, Tuesday, 8:00 a. m. Christmas vacation ends
January 26, Thursday, 8:00 a. m. Final examinations begin
February 4, Saturday, 12 noon First semester ends
February 6, Monday, 8:00 a. m. Second semester begins
April 6, Thursday, 10:00 p. m. Easter vacation begins
April 10, Monday, 8:00 a. m. Easter vacation ends
May 18, 19, 20 Senior examinations
May 30, Sunday Memorial Day—a holiday
June 1, Thursday, 8:00 a. m. Final examinations begin
June 4, Sunday Baccalaureate Service
June 8, Thursday, 10:00 p. m. Second semester ends
June 9, Friday Commencement
June 12, Monday, 8:00 a. m. Summer session begins

School of Law

1949

September 22-23, Thursday-Friday Registration
September 26, Monday Fall quarter begins
December 15, Thursday Fall quarter ends

1950

January 5, Thursday Winter quarter begins
March 23, Thursday Winter quarter ends
March 27, Monday Spring quarter begins
June 15, Thursday Spring quarter ends
July 6, Thursday Summer quarter begins
September 21, Thursday Summer quarter ends

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 A. M., University of Hamburg
- CORINNE LEDGER, B. S. in Ed.* *Art Education*
 B. S. in Ed., Youngstown College
- DAVID E. LEHMAN, A. M.* *Education*
 A. B., Goshen College
 A. M., University of Pittsburgh
- J. COLLINS LINGO, A. M.* *Music*
 B. S., New York University
 A. M., New York University
- HARLEY M. LITTLER, A. M.* *Physical Education*
 A. B., Ohio University
 A. M., New York University
 Graduate Study, New York University
- JOSEPH B. LITTMAN, Ph. D.* *Chemistry*
 B. S., University of Akron
 M. S., Ohio State University
 Ph. D., Ohio State University
- FAY TREFFERT LITVIN, A. M. *English*
 A. B., Youngstown College
 B. S. in L. S., Western Reserve University
 A. M., Western Reserve University

* Instructors not carrying full teaching load

FACULTY

- FREDERICK W. LOOK, Ph. B. *Engineering*
 B. S. in C. E., Virginia Military Institute
 Ph. B., Yale Sheffield Scientific School
 Graduate Studies, Massachusetts Institute of Technology
- CLARENCE LOREE, A. B.* *General Science*
 A. B., Thiel College
 Graduate Study, Kent State University, Purdue University
- ANNE LOWERY, B. S.* *Education*
 B. S., Kent State University
 Graduate Study, Ohio State University, Miami University, Michigan State College
- JOSEPH R. LUCAS, S. T. L.* *Philosophy and Religion*
 A. B., University of Scranton
 A. M., University of Ottawa
 S. T. B., University of Ottawa
 S. T. L., University of Ottawa
 Graduate Study, Kent State University
- PAUL H. LUCE, A. M.* *Physical Education*
 B. S., College of Wooster
 A. M., Ohio State University
- ELTON W. LUCKHART, A. M., LL. B.* *English*
 B. S. in Ed., University of Alabama
 A. M., University of Colorado
 LL. B., Youngstown College
- PAUL C. LUGINBILL, B. S. in C. E. *Chemistry*
 B. S. in C. E., Purdue University
- JOHN N. McCANN, M. D.* *Lecturer in Biological Sciences*
 B. S., Georgetown University
 M. D., Georgetown University
- THOMAS HILL McDONALD, B. S.* *Mathematics*
 B. S., The College of Wooster
 Graduate Study, Kent State University
- LEAH MACDONALD McILROY, A. M. *Music*
 A. B., Youngstown College
 A. M., Carnegie Institute of Technology
- THEODORE T. MACEJKO, LL. B.* . . . *Business Administration*
 A. B., Youngstown College
 LL. B., Ohio Northern University
- JAMES R. MACQUEEN, A. B., LL. B.* *Social Science*
 A. B., Miami University
 LL. B., Western Reserve University

* Instructors not carrying full teaching load

YOUNGSTOWN COLLEGE

- JOHN P. MAHARRY, M. L.* *Geography*
 A. B., Muskingum College
 M. L., University of Pittsburgh
 Graduate Study, Ohio State University
- ERSKINE MAIDEN, JR., A. B.* *Law*
 A. B., Harvard University
 Harvard Law School
 Western Reserve Law School
- NICHOLAS W. MAINE, A. B.* *Chemistry*
 A. B., Youngstown College
- FRANK J. MALAK, B. S. in Ed. *Mathematics*
 B. S. in Ed., Ohio State University
 Graduate Study, University of Pittsburgh
- DONALD E. MARCY, A. M. *Biological Sciences*
 B. S., Oregon State College
 A. M., Columbia University
 Graduate Study, University of Pittsburgh
- LUTHER ROBERT MASSMAN, B. S. in M. E. *Engineering*
 B. S. in M. E., Case School of Applied Science
- WALTER E. MAYER, Ph. D. *Psychology*
 A. B., Ohio Northern University
 M. Ed., University of Pittsburgh
 Ph. D., University of Pittsburgh
- RAYMOND E. MEINERS, A. M.* *Business Administration*
 B. S. in C. and F., James Millikin University
 A. M., Ohio State University
- A. ELIZABETH MILLER, A. M.* *English*
 A. B., Thiel College
 A. M., Columbia University
 Graduate Study, University of Denver
- ROBERT L. MILLER, B. S. in B. A. *Dean, School of
 Business Administration*
 B. S. in B. A., Ohio State University
 Graduate Study, Ohio State University
- WILLIAM HUGH MILLER, M. Mus. . . . *Dean, The Dana School
 of Music*
 B. Mus., Wittenberg College
 M. Mus., University of Michigan
 Graduate Study, Eastman School of Music of the University of
 Rochester
- WILLIAM G. MITTLER* *Business Administration*
 Youngstown College

* Instructors not carrying full teaching load

FACULTY

- CASPER J. MOORE, JR., LL. B.* *Business Administration*
 LL. B., University of Alabama
- J. A. MOORE, D. Ed.* *Education*
 B. S., University of Pittsburgh
 A. M., University of Pittsburgh
 D. Ed., University of Pittsburgh
- ELIZABETH BROWN MORGAN, A. M. *Foreign Language*
 A. B., Randolph-Macon Woman's College
 A. M., Columbia University
 Graduate Study, American Academy, Rome, Italy
- HERMAN E. MULLER, JR., B. S. in M. E.* *Engineering*
 B. S. in M. E., Carnegie Institute of Technology
 Graduate Study, Carnegie Institute of Technology, University of
 Pennsylvania, Temple University
- ALVIN MYEROVICH, B. S. in Ed. *Music*
 Pupil of Sascha Jakobinoﬀ and Albert Meioﬀ of the Curtis
 Institute of Music, Philadelphia; Andre de Ribeaupierre,
 Louis Persinger, and Joseph Fuchs, Cleveland Institute of
 Music
 B. Mus., Cleveland Institute of Music
 B. S. in Ed., Youngstown College
- PAUL NARBUTOVSKIH, Ph. D.* *Engineering*
 A. B., Stanford University
 E. E., Stanford University
 Ph. D., Stanford University
- WILLIAM G. NELSON, A. B. *Business Administration*
 A. B., Youngstown College
- BERTRAM S. PARKER* *Engineering*
 Cornell University
- VIOLA M. PAROZ, A. M.* *Home Economics*
 B. S., Columbia University
 A. M., Columbia University
- MARY PFINGSGRAFF, M. Litt.* *Foreign Language*
 B. S. in Ed., Kent State University
 M. Litt., University of Pittsburgh
- JAMES E. PHILLIPS, A. B.* *Engineering*
 A. B., Youngstown College
- P. C. PICKARD, A. B. *Business Administration*
 A. B., Ohio University
 Graduate Study, Fenn College
- MARJORIE B. PILZ, B. S. in Ed. *Secretarial Studies*
 B. S. in Ed., Youngstown College

* Instructors not carrying full teaching load

YOUNGSTOWN COLLEGE

- VALENTINA POTOR, A. M. *Mathematics*
 A. B., Youngstown College
 A. M., Indiana University
 Graduate Study, University of Chicago
- JOHN J. PRESSLY, B. S. in Ed.* *Art*
 B. S. in Ed., Youngstown College
- WILLIAM L. REALI, B. S.* *Business Administration*
 B. S., St. Vincent College
- O. L. REID, A. M. *Director, Division of Social Sciences*
 A. B., Indiana University
 A. M., New York University
 LL. B., University of Louisville
- EDWARD T. REILLY, B. S. in B. A. . . . *Business Administration*
 B. S. in B. A., Youngstown College
- JOHN W. REMICK, B. S. in Ed.* *Music*
 B. S. in Ed., Kent State University
- HOWARD C. REMPES, A. B.* *Photography*
 A. B., Youngstown College
- ALBERT G. RESCH, JR., A. M.* *Social Science*
 A. B., Ohio University
 A. M., Ohio University
 Graduate Study, Western Reserve University
- ROBERT J. RESCH, LL. B.* *Business Administration*
 LL. B., Youngstown College
- HAROLD REUBEN, M. S. in E.* *Engineering*
 B. C. E., Ohio State University
 M. S. in E., Cornell University
- LEONARD T. RICHARDSON, Doctor de l'Université *Head,*
Department of Foreign Languages
 A. B., Aurora College
 A. M., University of Chicago
 Docteur de l'Université de Grenoble, France
- C. W. RICKSECKER, Ed. D.* *Mathematics*
 Ph. B., Wooster College
 A. M., Wooster College
 Ed. D., University of Pittsburgh
- SIDNEY RIGELHAUPT, LL. B.* *Law*
 LL. B., Youngstown College
- BRUCE T. RILEY, Ph. D. *Philosophy and Religion*
 A. B., Cornell College
 S. T. B., Boston University
 Ph. D., Boston University

* Instructors not carrying full teaching load

FACULTY

- FRANCES JEAN RITZ, B. S. in Ed. *Secretarial Studies*
 B. S. in Ed., Youngstown College
 Graduate Study, University of Pittsburgh
- EDWARD ROBERTS, A. B., LL. B.* *Law*
 A. B., Marietta College
 LL. B., Columbia University
- HELEN ROBERTSON, M. Ed.* *English*
 B. S. in Ed., Ohio University
 M. Ed., University of Pittsburgh
- THOMAS J. ROCHE, A. B. *Business Administration*
 A. B., Ashland College
 B. S. in Ed., Ashland College
- JAY RODKEY, A. B. A.* *Business Administration*
 A. B. A., Youngstown College
- SAM ROSENTHAL* *Business Administration*
- NICHOLAS V. ROSS, JR., B. E. *Physics*
 B. E., Youngstown College
- DOMINIC ROSSELLI, B. S. in Ed. *Physical Education*
 B. S. in Ed., Geneva College
 Graduate Study, University of Pittsburgh
- ELVERA B. ROSSI, B. S. in Ed. *Secretarial Studies*
 B. S. in Ed., Youngstown College
- MINNIE ROTH, A. M. *Social Science*
 B. S., Mount Union College
 A. M., Columbia University
- MOLLIE F. RUSSELL, A. M.* *English*
 B. S., New York University
 A. M., New York University
 Graduate Study, Columbia University, Western Reserve University,
 Pennsylvania State College, Harvard University, University
 of Colorado
- ANNE BERNARD SCHAFER, A. M. *English*
 B. S. in Ed., Kent State University
 A. M., Ohio State University
- WILLIAM H. SCHAFER, A. B.* *Business Administration*
 A. B., Westminster College
 Babson Institute
- R. L. SCHANCK, Ph. D.* *Social Science*
 A. B., Northwestern University
 A. M., Northwestern University
 Ph. D., Syracuse University
 Advanced Study, London School of Economics

* Instructors not carrying full teaching load

YOUNGSTOWN COLLEGE

- JACOB SCHMITT, D. Mus. *Music*
 B. Mus., Dana's Musical Institute
 M. Mus., Dana's Musical Institute
 D. Mus., Dana's Musical Institute
 Pupil of Emil Liebling and W. H. Sherwood
- GEORGE H. SCHOENHARD, Litt. M. *Education*
 A. B., Youngstown College
 Litt. M., University of Pittsburgh
 Graduate Study, Kent State University, Western Reserve University
- WERNER W. SCHULTZ, A. B. *English*
 A. B., Hiram College
 Graduate Study, Oberlin College, Kenyon College
- EUGENE DODD SCUDDER, Ph. D. *Head,*
Department of Chemistry
 A. B., Indiana University
 A. M., Indiana University
 Ph. D., Indiana University
- JOSEPH B. SCULLEN, LL. B.* *Business Administration*
 LL.B., Youngstown College
- DAVID P. SKEGGS, A. M. *Art*
 A. B., Denison University
 A. M., State University of Iowa
- MORRIS SLAVEN, B. S. in Ed.* *History*
 B. S. in Ed., Ohio State University
 Graduate Study, Ohio State University, University of Pittsburgh
- ELBERT B. SMITH, JR., A. M. *History*
 A. B., Maryville College
 A. M., University of Chicago
 Graduate Study, University of Chicago
- JOSEPH EARL SMITH, Ph. D. *Head,*
Department of Economics
 A. B., Oxford University, England
 A. M., University of Nebraska
 Ph. D., Wallas College, London, England
- MARY BOYER SMITH, A. M. . . . *Coordinator of Health Service*
and Director of Physical Education
 A. B., Hiram College
 A. M., Ohio State University
- PAUL C. SMITH* *Business Administration*
- PAUL E. SMITH, A. M.* *Education*
 A. B., College of Wooster
 A. M., Columbia University
 Graduate Study, Columbia University

* Instructors not carrying full teaching load

FACULTY

- WALTER L. SMITH, B. S. in B. A.* . . . *Business Administration*
 B. S. in B. A., Ohio State University
- WESLEY A. SOWLE, Ph. D.* *Psychology*
 A. B., Boston University
 A. M., University of Pittsburgh
 Ph. D., University of Pittsburgh
- MARGARET E. STAGE, M. Ed.* *Physical Education*
 B. S. in Ed., Youngstown College
 M. Ed., University of Pittsburgh
- HENRY V. STEARNS, D. Ped. *Music*
 B. Mus., American Conservatory of Music
 Private Study, Berlin, Germany
 F. A. G. O.
 M. Mus., American Conservatory of Music
 D. Ped., Cincinnati Conservatory of Music
- PAUL E. STEVENS, LL. B.* *Law*
 LL. B., Ohio State University
- GERTRUDE GEIGER STRUBLE, R. N.* *Physical Education*
 R. N., Battle Creek College School of Nursing
- LUCY SUTTON, B. S. in Ed.* *Art Education*
 B. S. in Ed., Ohio State University
 Graduate Study, Pennsylvania Academy of Fine Arts, Taos Art
 Colony, Taos, N. M.
- JOSEPH F. SWARTZ, JR., M. Ed. *Education*
 A. B., Bridgewater College
 M. Ed., University of Pittsburgh
 Graduate Study, University of Pittsburgh
- ETHELEDA E. SZALMA, B. S. in Ed.* *Music*
 B. S. in Ed., Youngstown College
- YU MIN SZE, A. M. *Social Science*
 A. B., Lingnan University, China
 A. M., Harvard University
- ROBERT L. TATMAN, B. S., LL. B.* . . . *Business Administration*
 B. S., Ohio State University
 LL. B., Youngstown College
- JAMES A. TAVOLARIO, M. Mus. *Music*
 A. B., Youngstown College
 M. Mus., Cincinnati Conservatory of Music
- CHARLOTTE THOMAS, A. M.* *General Science*
 B. S. in Ed., Kent State University
 A. M., Kent State University

* Instructors not carrying full teaching load

YOUNGSTOWN COLLEGE

- CORA B. TURNER, A. M.* *Mathematics*
 B. S., Hiram College
 A. M., University of Pittsburgh
 Graduate Study, University of Wisconsin and Columbia University
- GEORGE HARRY TUTTER* *Business Administration*
 Youngstown College
- I. A. VARRAUX, B. S.* *Engineering*
 B. S., Carnegie Institute of Technology
- R. A. WALDRON, Ph. D.* *Biological Sciences*
 B. S., Massachusetts State College
 M. S., Pennsylvania State College
 Ph. D., University of Pennsylvania
- RALPH WALLIS, B. S. in B. A.* *Photography*
 B. S. in B. A., Youngstown College
- JOHN F. WALTER, M. Ed.* *Education*
 B. S., Kent State University
 M. Ed., University of Pittsburgh
- JOHN WAMPLER, B. Ed.* *Business Administration*
 B. C. S., Youngstown College
 B. Ed., Shippensburg State Normal College
- JAMES L. WARING, B. S.* *Physical Education*
 B. S., George Williams College
- JEAN WEBB, B. S.* *Art*
 B. S., Teachers College, Columbia University
- WILLARD L. WEBSTER, B. S. *Biological Sciences*
 B. S., Geneva College
 Graduate Study, University of Pittsburgh
- MARCIA A. WELSH, A. B. *Mathematics*
 A. B., Youngstown College
 Graduate Study, University of Pittsburgh
- EMILIE WELTMAN, Ph. D.* *Foreign Language*
 University of Berlin
 University of Jena
 Ph. D., University of Frankfort
- R. CLARE WESTENFIELD, A. M., LL. B. *Assistant to the
 Dean, School of Law*
 A. B., Hiram College
 A. M., University of Chicago
 LL. B., Salmon P. Chase College of Law
 Graduate Study, Harvard University, University of Cincinnati,
 New York University

* Instructors not carrying full teaching load

FACULTY

- CLARK C. WHITE, M. Ed.* *Biological Sciences*
 B. S. in Ed., Ohio University
 M. Ed., University of Pittsburgh
- GEORGE M. WILCOX, Ph. D. *Head,*
Department of Education
 A. B., Cornell College
 A. M., State University of Iowa
 Ph. D., Columbia University
- BERNARD T. WILKENS* *Engineering*
 Youngstown College
- EVAN J. WILLIAMS, A. M.* *History*
 A. B., Marietta College
 A. M., Vanderbilt University
- J. B. WILLIAMS *Director of the School of Business*
 Arcada College
 Southern Normal School
 Bowling Green Business School
- JAMES B. WILLIAMS, JR., A. B.* . . . *Business Administration*
 A. B., Youngstown College
- JAMES J. WILLIAMS, A. B.* *Social Sciences*
 A. B., Mount Union College
 Graduate Study, University of Pittsburgh, Carnegie Institute of
 Technology
- NATHANIEL WILLIAMS, A. B.* *Business*
Administration
 A. B., Youngstown College
- MYRON J. WISLER* *Music*
 Pupil of William Keifer of the U. S. Marine Band; Byron Galbraith of the Pittsburgh Symphony Orchestra, and Roy Knapp, Chicago
- RALPH WOLF, B. Met. Engr.* *Physical Education*
 B. Met. Engr., Ohio State University
- CARL M. WOLTER* *Business Administration*
 Moravian College, University of Pennsylvania, Carnegie Institute
 of Technology
- GEORGE B. WOODMAN, A. B., LL. B.* *Business Administration*
 A. B., College of Wooster
 LL. B., University of Michigan
- CLAIR L. WORLEY, Ph. D. *Head,*
Department of Biological Sciences
 A. B., Hiram College
 M. S., University of Idaho
 Ph. D., University of Wisconsin

* Instructors not carrying full teaching load

YOUNGSTOWN COLLEGE

- INGA S. WORLEY, Ph. D. *Biological Sciences*
B. S. in Ed., University of Wisconsin
A. M., University of Wisconsin
Ph. D., University of Wisconsin
- LEON WORMS, A. B.* *Business Administration*
A. B., Washington and Lee University
Graduate Study, University of Pennsylvania
- KNOWLES WYATT, B. S., LL. B.* *Law*
B. S., Muskingum College
LL. B., Youngstown College
- EARL H. YOUNG, M. D.* *Physical Education*
B. S., University of Pittsburgh
M. D., University of Pittsburgh
- BERNARD J. YOZWIAK, A. B. *Mathematics*
A. B., Marietta College
Graduate Study, Case School of Applied Science
- CHARLES N. ZELLERS, M. B. A. . . . *Business Administration*
A. B., Youngstown College
M. B. A., University of Pennsylvania
Graduate Study, Harvard University

* Instructors not carrying full teaching load

FACULTY COMMITTEES

- Academic Standards*—Mr. Dykema, chairman; Mrs. Bridgham, Mr. J. E. Smith, Mr. Wilcox, Mr. Worley, Mr. Zellers, Mr. W. H. Miller, Mr. Ellis, Mr. Westenfield, Mr. Skeggs, Mr. Beckman.
- Assemblies*—Mr. Stearns, chairman; Mr. Kitchen, Mr. Elser, Mr. Foley, Mr. Ross, Mr. Rosselli, three student representatives.
- Athletic Board*—Mr. Gould, chairman; Mr. Webster, Mr. Pickard, Mr. Beard, Mr. J. E. Smith, Mr. Scudder.
- Catalog*—Miss Flint, chairman; Mr. Gould, Mr. Reid, Mr. Dykema, Mr. Scudder, Mr. Ellis, Miss Jenkins, Mr. Marcy, Mr. Riley, Mr. Kitchen, Mr. Crane.
- College Health*—Mrs. M. B. Smith, chairman; Mrs. Dehnbostel, Mr. Yozwiak, Mrs. Browne, Mr. Webster, Mr. Ashmus, Dr. McCann, Dr. Altdoerffer, college nurse, two student representatives.
- Coordination and Calendar*—Miss Buehrle, chairman; Miss Flint, Mr. W. H. Miller, Mr. Foley, one student representative.
- Credits and Admission*—Mr. Buchanan, chairman; Mr. Gould, Mr. Dykema.
- Curriculum*—Mr. Wilcox, chairman; Mr. Scudder, Mr. Reid, Mr. J. E. Smith, Mr. Deesz, Mr. Howard, Mr. R. L. Miller, Mr. W. H. Miller, Mr. C. Evans, Mr. Grimshaw, Mr. E. B. Smith.
- Discipline*—Mr. J. E. Smith, chairman; Mr. Foley, Mrs. Botty, Mr. Beard, three student representatives.
- Executive*—President Jones, chairman; Mr. Wilcox, Mr. J. E. Smith, Mr. Scudder, Mr. Gould, Mr. Deesz, Mr. R. L. Miller, Mr. W. H. Miller.
- Faculty-Student Relations*—Mr. J. E. Smith, chairman; Mr. Pickard, Mrs. Dykema, three student representatives.
- Library*—Mr. Gould, chairman; Mr. Reid, Mr. J. E. Smith, Mr. Richardson, Mr. Worley, Mr. Westenfield, Mr. Mayer, Mrs. Dehnbostel, Mr. D'Isa, Mr. Ives, Miss Jenkins.
- Personnel*—Mr. J. E. Smith, Mr. Gould, department head.
- Social*—Mr. and Mrs. W. H. Miller, chairmen; Miss Potor, Mr. Beard, Mr. Ellis, Mrs. Botty, Mrs. Browne, Mr. Benkner, Mr. Kitchen.
- Visual Education*—Miss Chapman, chairman; Miss Evans, Mr. Elser, Mrs. Litvin, Mr. Grabski, Mr. Grimshaw, Mr. Worley, Miss Jenkins, Mrs. Ebeling, Mrs. Hanna.

OBJECTIVES

The Shenango and Mahoning valleys constitute a highly industrialized community of more than half a million people, including a large number of foreign birth or parentage. This community has need of educational opportunities for young men and women of college age, and also for other men and women who desire a college education. Youngstown College attempts to meet their needs by offering them something for their personal development, something to enable them to fulfill their obligations of citizenship, and something for their practical work in life.

The program of the college focuses upon the development of the individual student along the three-fold lines of moral and social integrity, intellectual and cultural interests, and occupational competency.

To achieve these ends, the college seeks to provide a broad, liberal, and cultural education characterized by habits of free inquiry, powers of exact observation, a love of truth, a taste for good reading, familiarity with the general content of the various fields of knowledge, rigorous discipline in some chosen field, and ability to express thoughts clearly and forcefully.

This program aims to develop a sound philosophy of life including an appreciation of those moral, religious, intellectual, and aesthetic values which make life satisfying; standards of rational conduct and discipline derived from an intelligent understanding of one's self in relation to others and coming from within rather than from external authority; and stability and integrity of character, arising from sound principles and a sustained religious faith, irrespective of church affiliation.

HISTORICAL SKETCH

Youngstown College traces its origin back to 1888 when the Y.M.C.A. established The Youngstown Association School to provide certain educational opportunities for employed men and boys unable to attend the public schools. The establishment of an institution on the college level came in 1908 when the School of Law was organized with an entering class of nine. By 1920 a full course in law was being offered, and the law school was empowered by the State to grant the degree of Bachelor of Laws. In the same year the curriculum in other fields was expanded, and a four-year course in business administration was offered. In 1921 The Youngstown Association School became The Youngstown Institute of Technology, liberal arts courses were offered in evening classes, and the institution became coeducational. In 1927 a College of Liberal Arts was established and for the first time a program of day classes was offered to meet the demands of the increasing number of younger students. In 1928 the name of the school was changed to Youngstown College, and in June, 1930, the first graduating class was granted the degree of Bachelor of Arts.

During the years of its development the school has had a number of homes. The Youngstown Association School was housed on the third floor of the old Central Y. M. C. A. building and in the new Central Y. M. C. A. until 1923 when the Bonnell property at 315 Wick Avenue was leased and all college classes were moved to that building. The preparatory schools remained at the Central Y. M. C. A. building. In 1925 the John C. Wick property at 410 Wick Avenue was purchased by the Y. M. C. A., and both college classes and the preparatory classes were moved to this location. Within two years more space was needed and the adjoining Henry Wick property on the north was leased and occupied by the college classes. This was the home of the college until October 1, 1931, when the

YOUNGSTOWN COLLEGE

present Main Building was dedicated and opened for classes. In 1938 the Henry Wick property was purchased for the School of Business.

In 1946 the Rayen Trustees leased to Youngstown College the old Rayen School one block south of the Main Building. It has been remodeled at a cost of \$120,000 into the modern and well-equipped William Rayen School of Engineering.

The Dana School of Music of Youngstown College began as Dana's Musical Institute in 1869 in Warren, Ohio. It was merged with Youngstown College during the summer of 1941, and the Charles S. Thomas mansion at 616 Wick Avenue, a block from the main college building, was purchased to house the new school of music.

In 1933 Youngstown College was fully accredited by the State Department of Education to train high school teachers, and in 1939 the right to train elementary teachers was granted. In 1940 it was admitted to the Ohio College Association, in 1941 to the Association of American Colleges, in 1945 to the North Central Association of Colleges and Secondary Schools, and in 1946 to the American Council on Education. Youngstown College became an associate member of the National Association of Schools of Music in 1947.

In January, 1944, control and properties of Youngstown College and financial responsibility for the institution were transferred from the Trustees of the Y. M. C. A. to the Board of Trustees of the college.





THE GENERAL PROGRAM OF THE COLLEGE

Youngstown College is a coeducational, non-sectarian, and non-profit organization and its facilities are open to all properly qualified persons. Currently, special efforts are being made to give all necessary guidance and assistance to veterans of World War II. The faculty has been enlarged and classroom and laboratory facilities have been increased to meet the exceptional demands of this group.

The College of Arts and Sciences

The College of Arts and Sciences offers courses in the humanities, philosophy, art, education, natural sciences, business administration, and social sciences. It aims to provide a liberal education, to train teachers for the elementary and secondary schools and to prepare students for further work in the various graduate and professional schools.

The regular program in arts and sciences is offered in day and evening classes. Evening classes give the same credit toward degrees as those offered during the day. Classes are held six days and five evenings a week.

For the academic classes, the main college year extends from September to June and is divided into two semesters of eighteen weeks each. There is also a summer session extending from June to August and consisting of two five-week terms. A special bulletin is issued giving full information about the summer program. The courses are so arranged that students graduating from high school either in January or June, and wishing to enter college at once may arrange satisfactory schedules for the ensuing term.

YOUNGSTOWN COLLEGE

William Rayen School of Engineering

The William Rayen School of Engineering offers complete courses in chemical, civil, electrical, industrial, mechanical, and metallurgical engineering leading to the degree of Bachelor of Engineering. Its sessions are the same as those of the College of Arts and Sciences.

The School of Law

The School of Law offers a complete course leading to the degree of Bachelor of Laws. Classes in law are held throughout the year and meet in the evenings. The school operates on the quarter plan. Five years or a total of nineteen quarters constitute a complete law course. The college offers a combined course by which a student who has completed three years of work in liberal arts courses may receive the degree of Bachelor of Arts after finishing two years of work in the law school. Three additional years in the law school will entitle him also to the degree of Bachelor of Laws.

The Dana School of Music

The Dana School of Music of Youngstown College offers complete courses preparing for the teaching of music in the public schools, private teaching, and concert work. Private instruction is available in vocal and instrumental work. Courses offered in the school of music lead to the degrees of Bachelor of Arts and Bachelor of Music. Its sessions are the same as those of the College of Arts and Sciences.

BUILDINGS AND OTHER FACILITIES

The Main Building is a beautiful limestone structure of conventional Tudor style built in 1931 at the corner of Wick and Lincoln avenues. This building houses the College of Arts and Sciences and the School of Law. In it are the library, the classrooms, the laboratories for biology and chemistry, an auditorium, and administrative offices. One block north of the Main Building on Wick avenue are the buildings of The Dana School of Music of Youngstown College, adjoining it on the north is the building of the School of Business, and one block south is the building of the William Rayen School of Engineering. At the rear of the main college campus are the Athletic Building, the Accounting Building, four annex buildings, and the cafeteria.

For gymnasium and other athletic work the college uses the equipment of the Y. M. C. A. and the Y. W. C. A., the former about four blocks away and the latter but one block. Field facilities for athletic team practice and games are secured through arrangements by which Rayen Stadium and South Field House are made available to the college.

Although the college has no dormitories, arrangements have been made for women students to occupy a section of the magnificently equipped new Buechner Hall on the corner of Bryson and Spring streets. Here the usual dormitory accommodations and activities are provided.

Biology classes not only use Mill Creek Park for field trips but also have the privilege of occupying well-equipped classrooms in the Mill Creek Park Museum. The two local radio broadcasting stations permit the college to use their facilities for various purposes, and the social agencies of the city make it possible for students in sociology to do practical social work.

The College Libraries

The Main Library occupies all of the fourth floor of the Main Building. During the Fall and Spring terms the main library is open from 9 a. m. to 9 p. m., Monday through Friday, and from 9 a. m. to 12 noon on Saturday. There is a modification of these hours during the summer session and

YOUNGSTOWN COLLEGE

during the inter-session periods. For the schedule during these times and for the schedules of the several departmental libraries one should consult the Library Manual which may be obtained at the Circulation Desk at the Main Library.

The libraries contain approximately 55,000 well-selected volumes, secured through the years both by purchase and gift. Approximately 3500 volumes are added each year, and subscriptions maintained to more than 450 periodicals.

In addition to books and periodicals, the Main Library has not only globe and wall maps, dramatic and language recordings, but also was the first library in Ohio to install a microcard reader. Provision is also made for the production of photostats and the use of microfilms. The library maintains a steadily growing collection of microcards and microfilms for student and faculty use.

The privilege of borrowing books is granted to students of the college upon application and presentation of evidence of enrollment.

The Reserve Room and a general reading-study room, seating 140 persons, is located in the C. J. Strouss Memorial Auditorium on the first floor of the Main Building.

The Law Library at present occupies two large rooms in one of the annex buildings. Here are housed more than 8000 volumes pertaining to law, with the pertinent indices and periodicals. By an arrangement with the Mahoning County Bar Association this collection is continually augmented by books purchased with special funds which the association provides.

The William Rayen School of Engineering Library provides books treating with mathematics, physics, and engineering. Periodicals pertinent to engineering, both bound and unbound, are also lodged there.

The Music Library is maintained at the Dana School of Music and consists of a well-rounded collection of band and orchestra music, and a library of recordings of standard compositions, with equipment for student listening. Also available

BUILDINGS AND OTHER FACILITIES

are the complete works of Bach, Beethoven, and Brahms in the Edward's edition of "Complete Works and Monumenta."

The Friends of Youngstown College Library, organized in 1938 by the Youngstown Chapter of the American Association of University Women, has contributed a fund of more than \$88,000 for book purchases, equipment, and toward the proposed new library building. This group conducts an annual drive for the collection of funds for book purchases and general library improvement.

A friendly and cooperative inter-library loan relationship is maintained with the Youngstown Public Library, the main building of which is just across the street from the college, and a collection of valuable titles from that institution are on long term loan in the Youngstown College Libraries. In addition, the facilities of the Youngstown Public Library—with a book collection of more than 250,000 volumes and which receives more than 500 periodicals—are available to the students of Youngstown College. Avoiding duplication so far as practicable, the Youngstown Public Library supplements the college libraries in the general fields of study and in local history.

Laboratory Facilities

The biology laboratories are equipped with the necessary materials to supply each student. Thus, individual performances of standard exercises in all basic courses and in more advanced phases of embryology, histology, and anatomy can be pursued. The facilities of Mill Creek Park are available also for the study of the local fauna and flora.

Chemistry laboratories contain sufficient apparatus to supply individual equipment for the present enrollment in general, quantitative, qualitative, and elementary organic chemistry. The physical chemistry laboratory is well equipped for performing the standard experiments in that field.

Engineering School Facilities

The William Rayen School of Engineering was made available to Youngstown College in January, 1946. This building now accommodates the classes in mathematics, physics, and engineering.

YOUNGSTOWN COLLEGE

The basement in the rear of the building consists of two large rooms, 68 x 32 feet. One of these is used for housing some of the power generating equipment and the auxiliary equipment required for the mechanical engineering laboratory located on the floor above. The former consists of a 25 kw Cummings diesel driven generator, two vertical engine driven generators, 10 kw and 20 kw, and several smaller gasoline engine driven units. The other room is used for the metallurgical laboratory. It contains electric heat treating and melting furnaces, precision pyrometers, a 250,000 volt lead shielded X-Ray machine, and a well-equipped machine shop for general metal working. Two large classrooms, adequately lighted, are in the basement at the front of the building. One of these is used for a mechanical drawing room.

The main floor consists of four well-lighted classrooms, a study room, a library of technical books, the mechanical engineering laboratory, and the materials testing laboratory. The mechanical engineering laboratory contains a 60 kw turbo-generator, a 35 kw horizontal engine driven generator, a large pumping section for studying the characteristics of centrifugal pumps, a commercial installation of refrigeration and air-conditioning units set up for experimentation, together with a motor driven blower set up for determining the flow of air in ducts. Adjacent to the laboratory is a boiler room for the supply of steam in the study of thermo-dynamics and power engineering. The strength of materials laboratory houses a 400,000 pound Olsen tensile testing machine, a 60,000 pound Riehle testing machine, a 10,000 pound Baldwin Southwark tester, and Fairbanks-Morse concrete briquet testing equipment. The laboratory also has Rockwell, Brinell, and Scleroscope hardness testing equipment, and a wide variety of high precision measuring instruments.

On the second floor are located the engineering drawing rooms, the physics laboratory and classroom, and the electrical laboratories. The two drawing rooms, 40 x 40 feet, are lighted with fluorescent streamers the full width of the rooms and are furnished with modern drafting room equipment. The physics laboratory, 68 x 38 feet, has ample floor space and head room for the use of the wide variety of experimental apparatus with which it is equipped. The laboratory has been furnished with

BUILDINGS AND OTHER FACILITIES

apparatus which will permit the performance of the college grade experiments as published by the Central Scientific Company. Due to the large size of the laboratory the major equipment is completely assembled and available at all times for experimentation. The laboratory is wired for direct current, single- and three-phase alternating current. The physics classroom connects directly with the laboratory, a feature appreciated by student and teacher alike. In this room the demonstration-lecture table is provided with the usual gas, current, and water together with a variety of large-scale demonstration equipment. Visual aids, motion pictures, and slide films, are used to supplement the demonstrations.

The electronic laboratory is located on the second floor for the experimental work in electron dynamics and electronic applications. Various oscillators, high frequency generators, tubes, transformers, condensers, wave meters, and other apparatus are available for student use. The main electrical engineering laboratory is located next to the electronic laboratory and it consists of a room 68 x 38 feet. In the electrical engineering laboratory next to the electronic laboratory is located a double-generator, motor-driven set. This generator is capable of supplying 4,500 volts of direct current for electronic tube plate application in the electronic laboratory. A five kw motor generator with two interchangeable armatures for extending the range of electrical principles is available for student use. It may also be driven by a separate slip-ring induction motor rather than by its own synchronous motor. This motor generator set is designed especially by the Westinghouse Electric Corporation for educational institutions and a variety of experiments on rotating machines can be performed with this equipment. Transformers including those designed for phase transformation are available. Many types of single-, two-, and three-phase motors up to 20 hp. motors, controllers, reactors, etc., are included to make possible a large variety of theoretical and practical experiments. A cathode ray oscilloscope is available for the study of wave forms. The laboratory is well equipped with loading and adjustable resistors, condensers, and inductors. A full line of meters is available for precision measurements. A 20 kw motor generator set is also available for use with the previously mentioned machine for demonstrating the

parallel operation of generators, and frequency converter M. G. set for supplying 240. A double current generator is installed and can be used to obtain direct current and various alternating current frequencies simultaneously.

Music School Facilities

For information concerning music school facilities, refer to the section on The Dana School of Music, pages 157-198.

Cultural Opportunities

Students at Youngstown College have unusual opportunities for hearing a wide range of the best in music. There are recitals by the faculty and students of The Dana School of Music of Youngstown College, organ recitals at Stambaugh Auditorium under the auspices of the American Guild of Organists, concerts by the Youngstown Symphony Orchestra, and various activities of the Monday Musical Club. These series of concerts bring to Youngstown each season a number of the world's greatest musical artists.

Immediately adjacent to the college is the Butler Art Institute, a building of great architectural beauty, which contains valuable permanent collections of paintings and other art treasures and presents frequent temporary exhibits of the highest importance.

In the field of drama students have opportunities of enjoying the college plays and also some of the best professional productions brought here by the local theaters. In addition, there is the Playhouse located not far from the city's center. This project is carried on by a group of Youngstown people, and members of the college community frequently participate in the plays. Play production classes of the college meet at the Playhouse.

Another civic building of rare beauty is the Stambaugh Auditorium, which houses one of the great organs of the

BUILDINGS AND OTHER FACILITIES

country and serves as a center for lectures, dances, musical programs, and other functions. Besides the ample facilities for various civic and college activities, the main auditorium, noted for its acoustic excellence, seats 2,600 people. Many of the great visiting artists have expressed their appreciation of this beautiful auditorium.

The Young Men's Christian Association, the Young Women's Christian Association, and many churches of various denominations are within easy walking distance of the college. At the college there are two full-time student religious counselors, one supported by the Roman Catholic Diocese, and the other by the Federation of Protestant Churches.

FEES AND EXPENSES

All tuition and fees are due and payable at the opening of each school term. Students will not be permitted to attend classes until tuition has been paid or payments have been satisfactorily arranged for with the business manager. A penalty of \$2.00 will be charged all students whose enrollment is not completed by the last day of the registration period. In certain laboratory courses where materials are consumed, and in certain courses in music, education, and engineering, additional fees are charged as indicated after the course descriptions.

A fee of \$7.00 is charged for each semester hour of instruction in excess of the normal schedule of fifteen semester hours, exclusive of physical education and extracurricular courses.

A carrying charge of ten per cent will be charged on the unpaid balance on all contracts not paid in full at the opening of the school term.

No student will be permitted to enroll for a new term until all previous tuition has been paid in full. Graduation will not be permitted nor will certificates of credits earned be given in the case of any student who has not fully met all college obligations by May 1 of the year of graduation.

Full-Time Students

(Students carrying eleven or more semester hours of work)

Tuition and Regular Fees—Payable each semester:

Tuition:

11 semester hours	\$110.00
12 to 15 semester hours	120.00
Each additional semester hour	7.00
Student Activities Fee	5.00
Health Fee	3.00
Athletic Fee	5.00
Library Fee	2.00
Guidance Fee	1.00
Records and Report Fee	10.00
Laboratory Fees (See Courses)	

NOTE—It is understood that any or all exceptions to the payment of fees shall be determined by the business manager.

FEES AND EXPENSES

Special Fee—Payable each semester:

Gymnasium \$ 6.00

Full-Time Music Students

(11 to 15 semester hours)

Tuition \$ 94.00

Applied Music 100.00

Student Fees 16.00

Lecture—recital fee 2.00

\$212.00

This charge of \$212.00 covers tuition and the following regular fees: student activities, health, athletic, library, and guidance. The charge also includes two private lessons per week in the major music subject, one private lesson per week in the minor music subject, and the use of practice rooms.

Each additional semester hour \$7.00

Voice and Instrumental majors for the B. M. degree may enroll for four semester hours of applied music. *Music education majors* for the B. M. degree may enroll for three semester hours of applied music. Each semester hour of applied music in excess of above carries a charge of \$30.00.

For special music fees, see music section of the catalog, pages 169-171.

In the event of withdrawal from any course or withdrawal from the college, the refund policy shown on pages 46-47 will apply, with the following additional requirements: whenever the value of a particular credit hour of applied music must be figured, the first two credit hours of applied music work will be \$35.00 each, and the third hour \$30.00. Also the applied course dropped will be charged at private lesson rate times the number of lessons taken.

Part-Time Students

(Students carrying less than eleven semester hours of work)

Tuition—Payable each semester:

Per credit hour \$ 10.00

Student Fees

Student Fee—For students carrying 6 to 10

semester hours inclusive \$3.00

This fee covers library, activity, and athletic fees. Students carrying less than six semester hours are not required to pay this fee but may secure the privileges by its payment. The payment

YOUNGSTOWN COLLEGE

of this fee admits the student to all social functions of the college sponsored by the student council and to intercollegiate athletic events; it also entitles him to a library card, to receive the college paper, the Jambar, and gives him a reduced rate on the college year book, the Neon, and college plays.

Records and Report Fee \$2.50-\$7.50
(This fee varies in proportion to the load carried.)

NOTE—It is understood that any or all exceptions to the payment of fees shall be determined by the business manager.

School of Law

The tuition for each quarter is \$25.00 per subject. A student fee of \$3.00 is charged each fall and winter quarter.

Students who elect to pay their tuition in installments shall make a down payment of at least one-third of the total at the time of enrolling and shall arrange a satisfactory schedule of payments on the balance with the business manager. A ten per cent carrying charge will be assessed on the balance after the initial payment has been made. Failure to comply with the above will necessitate the suspension of the student from classes.

No student will be permitted to enroll for a new quarter until all previous tuition has been paid in full.

Special Fees

Matriculation Fee—A fee of \$5.00 is charged all new students (once only) to cover the cost of registration and must accompany application for admission.

Late Registration Fee—A fee of \$5.00 is charged all persons registering after the last day of the registration period.

Change of Registration Fee—A fee of \$5.00 is charged all persons changing their registration after the first seven days of a normal term except when done at the request of the administration.

Reinstatement Fee—A student suspended from classes for any reason will be charged a \$2.00 fee upon readmission to classes.

FEEES AND EXPENSES

Fees for Credit by Equivalency or Examination—A tuition fee of \$7.00 is charged for each credit hour honored for graduation when given for examination or equivalency evaluation wherein a student does not attend the regular classes for the course of instruction.

This type of credit will be accepted only through division and department heads on the approval of the dean of the college.

Fees for Irregular Examinations—When a student requests an examination at other than the regularly scheduled period, a fee of \$5.00 for final examinations and \$3.00 for all other examinations is charged at the discretion of the instructor, except in case of illness when the student must present a letter from his family physician.

Graduation Fee—A fee of \$7.00 is charged all persons receiving a baccalaureate degree or a diploma if the application for graduation form is filed with the dean of the college before the beginning of the fall semester preceding graduation; the fee is \$10.00 if the application is submitted during the fall semester preceding graduation, \$15.00 if the application is submitted by the end of February preceding graduation, and \$20.00 if submitted by March 31 preceding graduation. No application for graduation will be accepted after March 31. The amount of the fee is determined by the date when this application is received by the dean. The fee includes cap and gown rental and must be paid by May 1 of the year in which the candidate receives his diploma. These fees apply to both the August and June graduates.

Transcript of Credits—One transcript will be furnished free of charge. A fee of \$1.00 is charged for each additional transcript.

Student Lockers—The college provides lockers to all full-time students without charge. The student, however, is expected to make a deposit of fifty cents, which fee is refunded less a small handling charge. All personal effects must be removed from lockers if the student withdraws from school or at the end of each semester. Two students are assigned to each locker. The college does not assume any responsibility for personal property.

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Installment Tuition

Students who elect to pay their tuition in installments shall make a down payment of at least twenty-five per cent of their total tuition at the time of enrolling and shall make satisfactory arrangements with the business manager for the payment of the balance of their tuition before they will be permitted to attend classes. All installment contracts must be paid in full on or before the expiration of two-thirds of a school term.

Students electing the installment plan will be assessed a carrying charge of ten per cent on the unpaid balance after the initial payment. The minimum carrying charge is \$1.00.

Any student who fails to meet his installment payments as arranged will be suspended from classes until payment has been made. A fee of \$2.00 will be charged for reinstatement.

No student will be permitted to enroll for a new semester until all previous tuition has been paid in full.

Withdrawals and Refunds

No student will be enrolled for less than a full school term. If a student must withdraw from a course or from the college on account of illness or other compelling cause, he must fill out an official change of registration form and present it to the registrar and business manager. Failure to attend class or merely giving notice to the instructor will not be regarded as an official notice of withdrawal.

In case a student is permitted by the registrar to withdraw from a course or from the college, the tuition charge for the session, based upon the date of the official acceptance of the change of registration or withdrawal, will be as follows:

<i>Length of Term</i>	16-19 Weeks Inc.	12-15 Weeks Inc.	9-11 Weeks Inc.	8-5 Weeks Inc.
One week or less	20%	20%	25%	50%
Between one and two weeks . .	20%	40%	50%	100%
Between two and three weeks .	40%	60%	75%	100%
Between three and four weeks	60%	80%	100%	100%
Between four and five weeks .	80%	100%	100%	100%
Over five weeks	100%	100%	100%	—

FEEES AND EXPENSES

A student who registers and then withdraws within 30 days of the beginning of classes will be assessed the minimum charge above.

In case a course is cancelled by the college, the tuition will be refunded in full.

Room and Board

The attractive facilities of Buechner Hall are available for women at the following rates: Single rooms, \$7.25 per week; double rooms, \$4.00 to \$5.50 per person per week. Each guest is required to purchase a non-transferable meal ticket good for seven days at a price of \$6.00 plus Ohio State sales tax. These rates are a matter of contract with Buechner Hall authorities and not with the college.

The college assists both men and women students who must find living quarters in private homes to find desirable rooms.

The college cafeteria is open daily except Saturday, from 7 a. m. to 7 p. m.

Self Help

The central location of the college campus makes it possible for many students to earn part or all of their expenses by working in nearby stores and industries. Part-time employment service to students is maintained by the placement office of the college.

SCHOLARSHIPS AND AWARDS

Scholarships

The Sharon Steel Corporation Scholarships—Every year the Sharon Steel Corporation awards four college scholarships to sons and daughters of its employees who are interested in studying in the fields of engineering, metallurgy, or business administration. Such scholarships entitle those chosen to a four-year course at Youngstown College with all tuition, fees, text books, and supplies, not exceeding \$300 per year, paid for by Sharon Steel Corporation. Scholarships are awarded on the basis of academic achievement, character, personality, and participation in extracurricular activities in high school.

Two scholarships are awarded students who graduate from high school in Pennsylvania and whose parents are employed at the Sharon-Farrell plant; one scholarship is given a student who graduates from high school in Ohio and whose parent is employed at the Sharon-Farrell plant, The Niles Rolling Mill Company or Brainard Steel Division; and one is given a student whose parent is employed at the Lowellville Plant.

In addition to the scholarship awards, Sharon Steel offers the four winners part-time and vacation employment during their four years at Youngstown College.

The Youngstown College Student Scholarship Fund—This fund is sponsored and financed by a group of prominent business and professional men of Youngstown for the purpose of aiding worthy students without regard to race, color, creed, or national origin. Assistance may be in the form of a scholarship or loan, and recipients are selected on the basis of need and scholarship.

The William F. Maag Scholarship—This scholarship was established in 1947 by the Chamber of Commerce of Youngstown in honor of Mr. William F. Maag, Jr. The revenue from invested capital is used to pay the annual tuition and fees of a student chosen by Mr. Maag.

The President and Mrs. Howard W. Jones Scholarship—This scholarship was established by the faculty in honor of

SCHOLARSHIPS AND AWARDS

President and Mrs. Jones. The funds for it are contributed annually and it pays the tuition of a student chosen by Dr. and Mrs. Jones.

Honors and Awards

The Youngstown College Scholarship Awards—These scholarships consist of seven cash awards yearly totaling \$1000.

A cash award of \$250 is given annually to the best all-around student, based on four years of academic achievement and extracurricular activity.

Cash awards of \$150 to the student ranking first, and \$100 to the student ranking second, in the respective fields of English and the humanities are given yearly. These awards are based on four years of study.

Cash awards of \$150 to the student ranking first, and \$100 to the student ranking second in the social science sequence courses are given annually. These awards are based on the results of comprehensive examinations given at the end of the second year in college.

The Chi Omega Alumnae Award—The Youngstown Chapter of the Chi Omega Alumnae gives an annual cash award to the woman student in Youngstown College who ranks highest in the field of social science.

The Omicron Lambda Honorary Biology Fraternity Award for Scholarship—The Omicron Lambda Fraternity gives an annual cash award to the outstanding sophomore biology student.

The Engineers Award—This is an annual award given to the outstanding engineering student of Youngstown College by the Mahoning Valley Chapter of the Ohio Society of Professional and Registered Engineers, Tri-County Section. The award is based on personality and outstanding academic achievement over a period of four years.

The Sigma Kappa Phi Fraternity Scholastic Award—A certificate and an emblem are awarded annually by the fraternity to the member of the graduating class with the highest point average in all business administration subjects, who has fulfilled the requirements for the title of Associate in Business Administration or any degree in business administration, and who has accounting as a major. The student must have completed at least 60 semester hours of his work at Youngstown College.

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The Sigma Tau Delta Honorary English Fraternity Award
—The English medal is awarded annually by the Sigma Tau Delta Fraternity to the outstanding freshman student in English composition.

The Roberts Deliberating Club Award in Social Sciences
—The Roberts Deliberating Club annually awards fifty dollars to the highest ranking student in social sciences without regard to race, color, or creed.

The American Society of Mechanical Engineers, Youngstown Section, Award in Mechanical Engineering—This award is granted annually to the outstanding graduate in mechanical engineering.

The Scudder Award—Phi Epsilon Fraternity annually makes a cash award to the outstanding student in chemistry. The recipient must have a general average of B and have thirty hours in chemistry. The award is named for Dr. Eugene Dodd Scudder, head of the department of chemistry.

The Ivan M. Rosenthal Memorial Scholarship—A scholarship of three hundred dollars is given annually by Mr. and Mrs. Sam Rosenthal as a memorial to their son. It is granted to a needy student regardless of race, color, or creed. It is rotated yearly.

The Benjamin T. Davis Scholarship—Judge John W. Davis has established this scholarship of about three hundred dollars as a memorial to his brother. It is awarded annually to a boy graduate of Austintown Fitch High School.

The Rachel Davis Scholarship—This scholarship is similar to the Benjamin T. Davis Scholarship except that it is a memorial to Judge Davis' sister and is granted to a girl graduate. The recipients of these scholarships are selected by the superintendent and the principal of Austintown Fitch High School and the president of the Austintown Township Board of Education.

The Charles Leedy Memorial Award—This is a scholarship granted each year by the American Newspaper Guild, Local 11. It covers the tuition and fees during the freshman year of a graduate of a senior high school in Youngstown. Recipients are chosen by a committee of newspaper men from a list handed in by the high schools.

The College of Arts and Sciences

ADMISSION AND REGISTRATION

General Requirements for Admission

Graduates of a first grade high school or an accredited secondary school may be admitted to Youngstown College upon presentation of a satisfactory official transcript of their high school credits and evidence of good character.

The filing of a formal application on blanks furnished by the college is required. This application accompanied by an official statement of high school credits should be made as soon as possible after graduation from high school.

All prospective freshmen are required to take general examinations for guidance purposes shortly before the beginning of each semester. Those showing low results in these examinations and those who are in the lowest third of their high school class may be refused admittance; if admitted they will be placed on probation until they have demonstrated their ability to do college work of a satisfactory quality.

High school graduates who are deficient in any of the following specific requirements must arrange to make up the deficiency before the beginning of the sophomore year. Deficiencies in foreign language, mathematics, and laboratory science may be made up by taking appropriate courses in college without credit toward a degree. One semester of work in college is equivalent to one year in high school.

Requirements for Admission to Courses Leading to the Degrees of Bachelor of Arts and Bachelor of Science

Students working for the degrees of Bachelor of Arts or Bachelor of Science are required to present the following high school credits:

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English	3 units
Algebra	1 unit
Geometry	1 unit
United States History and Civics	1 unit
Laboratory Science	1 unit
Foreign Language (in one language)	2 units
Acceptable Electives	7 units

Requirements for Admission to Courses Leading to the Degree of Bachelor of Engineering

Students working for the degree of Bachelor of Engineering are required to present the following high school credits:

English	3 units
Algebra	2 units
Plain Geometry	1 unit
Solid Geometry	1/2 unit
United States History and Civics	1 unit
Physics	1 unit
Acceptable Electives	7 1/2 units

One unit of mechanical drawing is highly recommended.

All students enrolling in the School of Engineering will be required to pass a comprehensive examination in the field of high school mathematics.

Requirements for Admission to Courses Leading to the Degree of Bachelor of Music

For specific course requirements, see the section pertaining to The Dana School of Music, pages 157-198.

Requirements for Admission to Courses Leading to the Degrees of Bachelor of Science in Business Administration and Bachelor of Science in Education

English	3 units
Mathematics	1 unit
United States History and Civics	1 unit
Science	1 unit
Acceptable Electives	10 units

ADMISSION AND REGISTRATION

Requirements for Admission to the Pre-Law Course

Entrance requirements for the pre-law course are identical with those for courses leading to the degree of Bachelor of Arts.

Admission from Other Colleges

Students applying for permission to transfer from other colleges are required to present a complete transcript of all high school and college work previously taken. The applicant must also present a letter of honorable dismissal from the college last attended, and in no case will he be accepted if he is not eligible to return to his former institution.

Special Students

In a few cases students who are not high school graduates, but who because of maturity seem able to pursue college work, may be admitted as special students. The credits of such students will not be accepted toward a degree.

Registration

Students are expected to register in person for the work of each session on or before the date fixed for registration. Only under exceptional circumstances will students be permitted to register after the close of the registration period. A fee of \$5.00 will be charged all students who register after the final registration date. No reduction in tuition or fees will be granted when late entrance is permitted by the registrar.

The office of the registrar is located on the first floor of the main college building and is open from 8:30 a. m. to 5:00 p. m. and from 6:30 p. m. to 8:30 p. m. every week day except Saturday when it is closed at noon.

REQUIREMENTS FOR DEGREES

General Requirements for All Degrees

Application

Application for a degree must be filed with the dean of the college not later than the first day of the fall semester two semesters preceding graduation. For further information concerning graduation, see page 45.

Residence Requirement

A candidate for any degree or title must have a minimum of 30 semester hours* in residence in the course leading to the degree or title for which he is a candidate. A student must have a point average of not less than 1.00 to be eligible for a degree. See pages 63-64.

Major and Minor Requirements

A major consists of a minimum of thirty semester hours of work of 200 level and above in one department. A combined major such as social science, requires a total of forty-five semester hours including one hundred level courses.

A minor consists of fifteen semester hours of work of 200 level and above in one department.

Each student is required to include in the semester hours needed for graduation, a major and at least one minor.

It is the duty of the head of the major department to determine the minimum requirements for the major and minor and to see that they are met. He may require the student to do more than the minimum if in his opinion the extra work is needed.

The major and minor work must in all cases meet the approval of the head of the department in which the major work is taken; and a point average of 1.5 or better must be secured in all major courses numbered 200 or above.

A student planning his work should as early as possible consult the head of the department in which he expects to major.

*A semester hour of credit represents three hours of work each week throughout the semester. This work may be recitation, lecture, laboratory, preparation, or a combination of these.

REQUIREMENTS FOR DEGREES

It is desirable that the major work be planned beginning with the freshman year, and it is essential in some departments that this planning occur not later than the beginning of the sophomore year.

Upper Division Requirements

Courses are numbered with reference to their advancement. At least 40 semester hours must be taken in courses numbered 300 and above, plus 20 semester hours of courses numbered 200 and above.

Religion

Candidates for all degrees must complete a three semester hour course in the field of philosophy and religion. This requirement may be met by any course in Philosophy and Religion or Humanities 401 or 402.

Additional Requirements for Each Degree

The Degree of Bachelor of Arts

The degree of Bachelor of Arts will be granted to students who have met the general requirements for all degrees, have received credit for 125 semester hours of work, and have met the course requirements which follow:

English Satisfactory proficiency (11 hours)

The head of the department of English is the judge of this proficiency. Ordinarily, he will grant a certificate to those who have completed with grades of C or higher, 6 hours of English composition, 3 hours of literature, and 2 hours of speech.

Foreign Language A reading knowledge (12 hours)

A reading knowledge is defined as the equivalent of what a student should know after two years of successful college study. A certificate indicating that the student has fulfilled this requirement must be obtained from the head of the department of foreign languages.

Laboratory Science 8 hours

The eight hours must all be in the same laboratory science.

Mathematics or Science (Laboratory or
Non-Laboratory) 3 hours

Psychology 3 hours

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Social Science 101, 102, 201, and 202	12 hours
Orientation	1 hour
Physical Education and Hygiene	4 hours

The Degree of Bachelor of Engineering

The degree of Bachelor of Engineering will be granted to students who have satisfactorily completed any of the engineering curriculums outlined in the Curriculums section of this catalog.

These courses require a minimum of 149 semester hours. They are to be completed in 48 months. However, if a student is willing to carry a heavy load, he may finish the work in less time.

Candidates for the degree of Bachelor of Engineering must satisfy the following requirements in addition to the general requirements for all degrees:

English Satisfactory proficiency (9-10 hours)

The head of the Department of English is the judge of this proficiency. Ordinarily, he will grant a certificate to those who have completed with grades of C or higher English 103-104 or English 101-102 and 115-116.

Social Science 101 and 102	6 hours
Business Organization 201 and 303	6 hours
Economics 309	3 hours
Physical Education and Hygiene	4 hours
Orientation	1 hour

The Combined Course Leading to the Degrees of Bachelor of Arts and Bachelor of Laws

Those who have completed in the College of Arts and Sciences work totaling at least 95 credit hours including all other requirements for the degree of Bachelor of Arts will be granted the degree of Bachelor of Arts on the further satisfactory completion of two years of regular work in the law school. The student may satisfy his major requirement by utilizing the 32 semester hours of credit acquired in the law school toward a combined major in social science, or by completing a major

REQUIREMENTS FOR DEGREES

of 30 semester hours in some department of the College of Arts and Sciences. By this arrangement students are enabled to secure the arts degree after three years of work in the college followed by two years of work in the law school. The degree of Bachelor of Laws will be granted after the completion of three additional years of work in the law school. For the required course of study for the degree of Bachelor of Laws, see the curriculum under the section School of Law, page 204.

The Degree of Bachelor of Music

For requirements for the degree of Bachelor of Music, refer to the section on The Dana School of Music, pages 157-198.

The Degree of Bachelor of Science

To meet special needs of this community and to provide students with a scientific background for various occupations, curriculums leading to the degree of Bachelor of Science have been set up with majors in the field of physical and biological sciences. These courses also offer preparation for outstanding students who expect to do advanced work in science.

In order that sufficient specialization may be obtained without too great a reduction in the amount of cultural work, these courses require a minimum of 136 semester hours. They require, therefore, more than the usual four years (eight semesters) for completion. By attending summer sessions all the courses, except that in nursing, can be completed in four years.

Candidates for the degree of Bachelor of Science with a major in the fields of physical, mathematical, and biological sciences must satisfy the following requirements in addition to the general requirements for all degrees.

English Satisfactory Proficiency (8 hours)

The head of the department of English is the judge of this proficiency. Ordinarily, he will grant a certificate to those who have completed with grades of C or higher, 6 hours of English composition and 2 hours of speech.

*Foreign Language A reading knowledge of scientific
French or German

A reading knowledge is defined as the equivalent of what a student should know after two years of successful college study. A certificate in writing that the student has fulfilled this requirement should be obtained from the head of the department of modern languages.

*Cooperative nursing students are not required to take language.

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Social Science 101, 102, 201, and 202	12 hours
Physical Education and Hygiene	4 hours
Orientation	1 hour

The Degree of Bachelor of Science in Business Administration

The degree of Bachelor of Science in Business Administration will be granted to students who have met the general requirements for all degrees, have received credit for 125 semester hours of work, who have majors in accounting, advertising, business art, general business, merchandising, or secretarial studies, who have minors in related fields, and have met the course requirements which follow:

English Satisfactory proficiency (11 hours)

The head of the department of English is the judge of this proficiency. Ordinarily, he will grant a certificate to those who have completed with grades of C or higher, 6 hours of English composition, 3 hours of literature, or English 251 and 2 hours of speech.

Laboratory or Non-Laboratory Science	8 or 9 hours
Social Science 101, 102, 201, and 202	12 hours
Psychology	6 hours
Accounting 201-202	6 hours
Orientation	1 hour
Physical Education and Hygiene	4 hours

The Degree of Bachelor of Science in Education

Students will not be accepted for the degree of Bachelor of Science in Education until their application for such candidacy has been approved by the Department of Education.

The degree of Bachelor of Science in Education will be granted to students who have met the general requirements for all degrees, have received credit for 125 semester hours of work, have completed one of the curriculums leading to a provisional certificate, and have met the course requirements which follow:

English Satisfactory proficiency (11 hours)

The head of the department of English is the judge of this proficiency. Ordinarily, he will grant a certificate to those who have completed with grades of C or higher, 6 hours of English composition, 3 hours of literature, and 2 hours of speech.

REQUIREMENTS FOR DEGREES

Science	9 hours
Social Science 101, 102, 201, and 202	12 hours
Psychology	6 hours
Orientation	1 hour
Physical Education and Hygiene	4 hours

Requirements for the Title of Associate in Business Administration

The title of Associate in Business Administration will be granted to students having a total of 60 semester hours of academic work with a point average of not less than 1.00 and including Business Organization 201 and 303, English Composition 101-102, or its equivalent, Social Science 101, and in addition, at least 30 hours work acceptable as a major with a point average of 1.5 in accounting, advertising, or merchandising, and at least 45 hours work acceptable as a major with a point average of 1.5 in business art or general business.

The title of Associate in Business Administration will be granted to students who complete the two-year secretarial training course which consists of the first two years of the four-year curriculum in secretarial training outlined under the Curriculums section of this catalog.

Requirements for Awards Offered by The National Institute of Credit

Youngstown College cooperates with the Youngstown Association of Credit and the National Institute of Credit in preparing members for the awards of Associate and Fellow of the National Institute of Credit. Those who complete the program and fulfill all requirements will qualify for a diploma awarded by the Institute. It is a requirement of the Institute that the student must be registered as a member of the National Institute of Credit in order to qualify for either of the certificates. Transfer of credits may be arranged.

Associate Award Program—A basic program on credit and financial fundamentals. The following required courses are all given at Youngstown College: General or business economics (two semesters), introductory accounting (two semesters), credits and collections principles (one semester), and advanced credits (one semester).

YOUNGSTOWN COLLEGE

After completing the above courses, the candidate for the Associate Award is required to pass an examination given by the National Institute of Credit and must present evidence of three years' work experience in credit, sales, accounting, financial, or general office functions.

Fellow Award Program—An advanced program preparing for supervisory and managerial responsibilities. The Associate Award is a prerequisite to receive the Fellow Award, but the courses may be taken concurrently. The required courses and many of the elective courses are given at Youngstown College.

Required Courses for All Students—One semester in law of contracts and agency, law of business transactions, public speaking, salesmanship, credit management problems, financial statement analysis, applied psychology, and technique of supervision.

Elective Courses—The student must choose at least two additional semester courses from the following: Money and credit, business correspondence, marketing methods, business or corporation finance, financial management, office management, business conditions, purchasing, intermediate accounting, advanced accounting, cost accounting, and international trade.

After completing the required courses and two elective courses, the candidate is required to pass a comprehensive examination given by the National Institute of Credit and must present evidence of six years' work experience in credit, sales, accounting, financial or general office functions of which three years may have been offered in fulfillment of the Associate Award.

Courses to Meet Special Requirements

All states have issued detailed programs of courses that must be pursued in order to secure licenses to teach; medical colleges have laid down specific requirements for pre-medical work; and many law schools, graduate schools, and other technical institutions have issued more or less mandatory recommendations for those who seek admission. Prospective teachers, pre-medical students, pre-law students, and all others wishing

REQUIREMENTS FOR DEGREES

to enter professional schools or to pursue technological work of any kind should, therefore, consult the dean at the earliest possible time for advice. Such special needs can usually be met within the degree requirements of Youngstown College, but in many cases the proper selection of courses must begin in the freshman year.

Requirements to Earn a Second Baccalaureate Degree

A student who has a degree from Youngstown College and who desires a second baccalaureate degree must complete the following requirements: 18 semester hours in addition to the total that he had when he secured the first degree; meet all the group requirements for the second degree; complete the requirements for a different major from the major utilized for the first degree. Two degrees will not be granted to the same persons during any commencement convocation except to students who complete the combined curriculums leading to the degrees of Bachelor of Science in Education and Bachelor of Music.

A student who has a degree from a college other than Youngstown and who desires a second baccalaureate degree must complete a total of 30 semester hours, meet all the group requirements for the second degree, and complete the requirements for a different major than the major utilized for the first degree.

GENERAL REGULATIONS

Schedule of Courses

Before the beginning of each semester students make out their schedules of courses under the supervision of their faculty advisers. Fifteen or sixteen academic* hours is considered the normal load. Students who wish to carry loads in excess of this limit or whose curriculum requires more than sixteen hours a semester must submit a request approved by the appropriate dean at the time of registration. After registration a reduction may be made by the deans in the schedules of students whose previous records are low.

Any student who wishes to make a change in his schedule of classes after registration must fill out a change-of-registration form and have it signed by the instructors concerned and his adviser, after which it must be approved by the registrar. A mark of failure will be recorded for a course dropped without this procedure. Ordinarily, a student who drops a course after the first six weeks of the semester will receive a failing grade of WF.

A student will not be permitted to enter a course after the end of the second week of a semester.

Upper and Lower Division

For better regulation of the choice of courses the college is divided into the Upper Division, consisting of the senior and junior courses, and the Lower Division, consisting of the sophomore and freshman courses. Courses in the Lower Division are numbered below 300, and those in the Upper Division are numbered 300 and above.

Freshman students are not permitted to take a course in the Upper Division except by approval of the dean. Senior students taking courses numbered lower than 200 will have their credit for those courses reduced by one-third.

The class rank of a student is determined as follows: A student who has completed from 29 to 60 semester hours of credit is classified as a sophomore; a student who has 61 to 93 semester hours of credit is classified as a junior, and a student

*The non-academic courses are orientation and required courses in hygiene and physical education.

GENERAL REGULATIONS

who has from 94 to 125 semester hours of credit is classified as a senior. A student must also have met the grade requirements of his class. See page 64.

Every sophomore is required to take comprehensive examinations. The fee for these examinations is \$1.00 if paid in advance.

Chapel and Assembly

Chapel meetings are held each semester, Catholic students attending St. Joseph's Church and Protestant students attending St. John's Episcopal Church, both of which are located near the College. College assemblies are held in the College auditorium.

Attendance

By action of the faculty there may be a reduction of the number of academic credits earned toward graduation during any semester in the cases of students who are irregular in attendance at chapel, assembly, or classes.

Any student who is absent from a regular or final examination will be required, at the discretion of the instructor, to obtain from the dean written permission to take the examination, and to pay a fee of \$3.00 for a regular examination and \$5.00 for a final examination.

Grading System

Grades for work done are recorded as follows: A, excellent; B, good; C, average; D, poor but passing; F, failure.

E, incomplete work for the semester, automatically becomes a failure if not removed within 60 days.

AUD., auditor who has taken a course without credit.

The distribution of grades follows in general the "Normal Curve."

Scholastic points given for each semester hour of work completed are as follows: A, 3 points; B, 2 points; C, 1 point; D, no point; F, minus 1 point. The student's scholastic standing is indicated by what is known as the point index which is found by dividing the total number of points earned by the

YOUNGSTOWN COLLEGE

number of credit hours completed with a passing grade. Thus a student who had completed 16 semester hours with passing grades and had earned 24 points would have a point index of 1.50. If a course is repeated, the higher grade received in the course is used in calculating the point average.

Repetition of Courses

A student may repeat a course only once, and the repetition of the course must be completed before the student takes the next more advanced course.

Grade Requirements

A student must have a point index of not less than 1.00 to be eligible for any degree.

Any student who while a freshman has a cumulative scholastic point index of less than .50, or while a sophomore has a cumulative scholastic point index of less than .75, or while a junior has a cumulative point index of less than 1.00 will be placed on probation and will not be readmitted the following semester unless his point index is raised to those minimums by the end of the probationary semester. However, any candidate for the degree of Bachelor of Engineering, Bachelor of Science with a major in mathematics, or a Bachelor of Science with a major in physics who has a cumulative scholastic point index of less than 1.00 at the end of any semester will be placed on probation during the next semester. The student will not be readmitted to candidacy for these degrees if he fails to raise the point index to the necessary minimum during the probation semester.

Any student who at the end of a semester has received a grade of F in half or more than half of the total semester hours for which he is registered will not be readmitted for the following semester.

COLLEGE ACTIVITIES

The college aims to foster student participation in various extracurricular activities, such as athletics, debating, dramatics, and music. However, since the scholastic standing of the student must always take precedence over the extracurricular activities, the administration deems it wise to limit the participation in other activities to students whose point index for scholastic standing is as high as that required for their class as stated on page 64.

Student Council

The student body of Youngstown College is represented in all affairs pertaining to it by the Student Council, organized under a constitution and recognized by the administration. The council is composed of representatives of each social fraternity and of non-fraternity students. A faculty representative is chosen by the administration to act as an adviser to the group.

Honor Point System

The Honor Point System of Youngstown College was initiated by the Student Council and after some changes was unanimously adopted by the faculty with the end in view of recognizing not only scholastic attainments but extracurricular activities as well. Honor points are granted for both scholastic and extracurricular activities. A list of the activities for which points are allowed with the number of points allowed for each activity may be found in the student handbook. Students attaining 30 honor points are eligible to be placed on the honor roll. Each year the three graduating students who have earned the largest number of points receive a pearl-studded pin with the letters "Y.C.," the official emblem of the college. No student is considered eligible for a pin who has not achieved the majority of his points in scholarship.

Health Service, Physical Education, and Athletics

To promote and maintain good health, all students are required to have medical examinations by the college physician upon entrance to Youngstown College and once a year thereafter as scheduled by the Director of Student Health. A chest x-ray is required annually.

YOUNGSTOWN COLLEGE

Students with suspected health defects are referred to their family physicians for further examination or to specialists where there is need. Emergency care is provided at the college health center. While the college may assume the expense of emergency treatment, continued treatment must be paid for by the student himself.

Psychiatric help may be provided where the need is evident.

The physical development of the student is promoted by means of intramural activities, intercollegiate competition, and courses in physical education.

The purpose of physical education and intramural activities is to enlist and hold the interest of the entire student body in active participation in games of skill and pleasure. Stress is placed upon those games that can be played after the student leaves college, such as volleyball, handball, table tennis, basketball, tennis, swimming, and golf. For those students who excel in athletics, intercollegiate competition in basketball, football, baseball, tennis, and golf is provided.

The college is a member of the American Student Health Association and the National Collegiate Association.

Dramatics and Debate

Dramatics and speech organizations cooperate with the department of English to produce several student plays during the college year and to promote and participate in intercollegiate debate and speech projects. One of the organizations, Alpha Psi Omega, is a national fraternity; the Speech Society and the Drama Guild are local in nature.

Each year the dramatic and musical societies combine their efforts to produce one or more operas.

Musical Organizations

Various musical activities are encouraged and supported by the college. They include the following: a concert and marching band, laboratory band, symphony orchestra, a cappella choir, mixed chorus, opera ensemble, and madrigal singers. For a detailed description of these organizations see pages 197-198.

COLLEGE ACTIVITIES

Student Publications

The Neon is the College Annual published by students elected to the Neon staff. The editors are usually seniors, but the other offices are filled by lower classmen. This publication gives students training in copy, layout, and similar work. Experience is gained in advertising, financing, and other phases of practical management.

The Jambar is a biweekly college newspaper, published by a staff chosen from the student body. Students interested in journalism can secure opportunities to serve on the staff to gain experience in this field. The paper is supported partly by the student activities fund and partly by advertising.

The Youngstown College Jambar was voted the best bi-weekly college newspaper in Ohio and took first place in advertising layout for all college newspapers in the state at the annual convention of the Ohio College Newspaper Association. The Jambar also conducts a weekly radio program of sports and other college news over Radio Station WKBN.

Student Radio Programs

In addition to the Jambar radio program mentioned previously, students of the college conduct a weekly half-hour variety program of music, news, and other entertainment, over Radio Station WFMJ.

A Student Handbook is published at the beginning of each college year to inform new students about college activities and traditions.

Professional and Honorary Fraternities

Delta Epsilon is a local scholastic honorary fraternity founded for the purpose of raising the academic standards of the college, and of recognizing the efforts of upper division students whose grades average B or better. The Dean's List gives similar recognition to lower division students.

Sigma Tau Delta is a national English professional society. The Youngstown Psi Gamma chapter was authorized in 1933. Only English majors and minors with at least a B average can become members.

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Alpha Psi Omega is a national honorary dramatic fraternity, the local chapter of which was established in 1939. It gives recognition to those who have excelled on the college stage.

Alpha Nu Chapter of Sigma Alpha Iota is a national honorary professional women's music fraternity.

Phi Epsilon is a local honorary chemistry fraternity. When founded it was for the better students from all the sciences, but has since restricted its membership to chemistry majors.

Omicron Lambda is a local professional society for biology majors. Several field trips a year are a part of its instructional program.

Alpha Tau Gamma is a local honorary accounting fraternity.

Sigma Pi is an honorary botany fraternity.

Delta Eta chapter of Phi Mu Alpha Sinfonia is a national honorary music fraternity.

Alpha Gamma Sigma is a local honorary business administration sorority.

Alpha Mu is a local honorary advertising and merchandising fraternity.

Alpha Tau Gamma is a local honorary accounting fraternity.

Mu Pi Epsilon is a local honorary engineering fraternity.

The Youngstown College Chapter of the American Chemical Society, Student Affiliates, is composed of students who are interested in all phases of chemistry.

The Youngstown College Chapter of the American Society for Metals, Student Affiliates, is open to students who are interested in the manufacture and treatment of metals.

Social and Service Fraternities and Sororities

All of the following fraternities and sororities at Youngstown College are local with the exception of Alpha Iota, Alpha Phi Omega, Kappa Sigma Kappa, and Sigma Kappa Phi. The

COLLEGE ACTIVITIES

Panhellenic Council supervises the relations of fraternities among themselves and with outside groups. A list of the fraternities and sororities of the college follows:

Alpha Iota	Omega Kappa Upsilon
Alpha Phi Omega	Phi Gamma
Alpha Sigma Chi	Phi Lambda Delta
Alpha Theta Delta	Phi Sigma Epsilon
Delta Chi Epsilon	Pi Beta Chi
Eta Delta Sigma	Sigma Delta Beta
Gamma Sigma	Sigma Kappa Phi
Kappa Alpha Psi	Sigma Sigma
Kappa Sigma Kappa	Tau Kappa Nu
Nu Sigma Rho	

Other College Organizations

Art Club	International Relations Club
Dana Music Forum	Newman Club
Drama Guild	Religion in Life Club
Elementary Teachers Professional Club	Shenango Valley Youngstown College Students Club
Gessner Law Club	Speech Society
Indepenguins	Student Y. W. C. A.
Intercollegiate Zionist Federation of America	Studio Club
	Varsity Club
	Women's Athletic Association

CURRICULUMS

Where specific courses are recommended for a major, they are often enumerated under the departmental heading in the section Courses of Instruction, beginning on page 93. Approval of all schedules, however, must be obtained by the student from his departmental adviser.

The following curriculums have been set up for certain fields where a definite sequence of courses is necessary and where there are a number of specific requirements outside of the major department.

ACCOUNTING

See Accounting curriculum, page 71.

ART

For Art Education curriculum, see page 77.

For Business Art curriculum, see page 72.

Suggested Curriculum for the Degree of Bachelor of Arts with a Major in Art

First Year	Hrs.		Hrs.
*Engl. 103-104 Composition	9	Philosophy and Religion	3
Social Science 101 and 102	6	Psychology	3
Art 113-114 History	6	Art 203, 204 Drawing and Painting .	6
Art 110, 111 Color and Design	6	Social Science 201 and 202	6
Orientation	1	Modern Language	6
Hygiene	2	Physical Education	1
Physical Education	1	Art Electives (200 or above)	6
	31	History Elective	3
			34
Third Year		Fourth Year	
Modern Language	6	Art 305 History and Appreciation—	
Art 301, 302 Theory of Color and		Italian Renaissance	3
Design	6	Art 306 History and Appreciation	
Art 303, 304 Figure Drawing		—Modern	3
and Painting	8-6	Engl. 219, 220 Play Production	4
Literature Electives	6	Science (200 or higher)	3
Laboratory Science	8	Elective (Upper division)	17
	34-32		30

*English 101-102 and English 115-116 may be substituted for English 103-104.

BIOLOGY

See Biology, pages 99-101.

CURRICULUMS

BUSINESS ADMINISTRATION

Accounting

Required Curriculum Leading to the Degree of Bachelor of Science in Business Administration with a Major in Accounting

First Year	Hrs.	Second Year	Hrs.
Acctg. 201-202 Elementary	6	Acctg. 301-302 Intermediate	6
Bus. Org. 121 Mathematics of Accounting	3	Bus. Org. 201 and 303 Business Law ..	6
Econ. 104 Geography	3	Bus. Org. 224 Marketing	3
*Engl. 103-104 Oral and Written Composition	9	Engl. (200 or above) Elective	3
**Science	3	Hist. 201 and 202 United States	6
Social Science 101 and 102	6	**Science	6
Hygiene	2	Physical Education	1
Orientation	1		
Physical Education	1		
	34		31

Third Year	Hrs.	Fourth Year	Hrs.
Acctg. 303-304 Cost	6	Acctg. 401-402 Advanced	6
Acctg. 310 Statement Analysis	2	Acctg. 403-404 Federal Taxes	6
Bus. Org. 315 Corporation Finance ..	3	Acctg. 407 and 408 Auditing	4
Bus. Org. 322 Credits and Collections	3	Econ. 305 Statistics	3
Econ. 303 Financial Organization ..	3	Econ. 401 Labor Problems	3
Econ. 304 Public Finance	3	Phil. 220 Logic	3
Psych. 201 General	3	***Electives	5
Psych. 301 Applied	3		
***Electives	4		30
	30		

*English 101-102 and 115, 116 may be substituted for English 103-104.

**Eight hours of Laboratory Science may be substituted for the above nine hours of science.

***The following courses are suggested as electives: Business Organization 105, 210, 215, 225, 227-228, 311-312, 422; Economics 402, 404; Engineering 360; Psychology 401, 405; Secretarial Studies 207; or any other course with the approval of the adviser and head of the department.

Note: A "B" average in accounting is necessary to carry two accounting courses the following year.

Advertising

Required Curriculum Leading to the Degree of Bachelor of Science in Business Administration with a Major in Advertising

First Year	Hrs.	Second Year	Hrs.
Art 110 Color and Design	3	Art 223, 224 Advertising	6
Econ. 104 Geography	3	Bus. Org. 210 Public Relations	3
*Engl. 103-104 Oral and Written Composition	9	Bus. Org. 224 Marketing	3
**Science	3	Bus. Org. 225 Salesmanship	3
Social Science 101 and 102	6	Bus. Org. 227-228 Advertising	6
Hygiene	2	Engl. (200 or above) Elective	3
Orientation	1	Hist. 201 and 202 United States	6
Physical Education	1	Physical Education	1
	34		31

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Third Year	Hrs.	Fourth Year	Hrs.
Acctg. 201-202 Elementary	6	Bus. Org. 401 Advertising Problems	3
Bus. Org. 201 and 303 Business Law	6	Bus. Org. 411-412 Direct Advertising	6
Bus. Org. 322 Credits and Collections	3	Bus. Org. 415 Radio Advertising ...	3
Bus. Org. 329 Advertising Copy ...	3	Econ. 305 Statistics	3
Bus. Org. 330 Advertising Layout ..	3	Econ. 404 Personnel Management ..	3
Econ. 303 Financial Organization ..	3	Psych. 401 Business	3
Psych. 201 General	3	Philosophy, Religion, or Humanities	
Psych. 301 Applied	3	401 or 402	3
	30	***Electives (Three hours of which must be upper division)	6
			30

*English 101-102 and 115, 116 may be substituted for English 103-104.

**Eight hours of Laboratory Science may be substituted for the above nine hours of science.

***The following courses are suggested as electives: Art 327, 328; Business Organization 215, 311-312, 315, 326; Economics 304, 401, 402; Psychology 300, 405; or any other course with the approval of the adviser and head of the department.

Note: It is suggested that a student majoring in advertising complete a minor in art, economics, merchandising, or psychology.

Business Art

Required Curriculum Leading to the Degree of Bachelor of Science in Business Administration with a Major in Business Art

First Year	Hrs.	Second Year	Hrs.
Art 110, 111 Color and Design	6	Acctg. 201-202 Elementary	6
*Engl. 103-104 Oral and Written		Art 223, 224 Advertising	6
Composition	9	Bus. Org. 210 Public Relations	3
Social Science 101 and 102	6	Bus. Org. 224 Marketing	3
**Science	9	English (200 or above) Elective	3
Hygiene	2	History 201 and 202 United States ..	6
Orientation	1	Psych. 201 General	3
Physical Education	1	Physical Education	1
	34		31

Third Year	Hrs.	Fourth Year	Hrs.
Art 203, 204 Drawing and Painting	6	Art 327, 328 Advertising	6
Bus. Org. 201 and 303 Business Law	6	Bus. Org. 322 Credits and Collections	3
Bus. Org. 225 Salesmanship	3	Bus. Org. 329 Advertising Copy ...	3
Bus. Org. 227-228 Advertising	6	Bus. Org. 330 Advertising Layout ..	3
Psych. 300 Social	3	Econ. 305 Statistics	3
Psych. 301 Applied	3	Psych. 401 Business	3
***Elective (300 or above)	3	Psych. (300 or above) Elective	3
	30	Philosophy, Religion, or Humanities	
		401 or 402	3
		***Electives (300 or above)	3
			30

*English 101-102 and 115, 116 may be substituted for English 103-104.

**Eight hours of Laboratory Science may be substituted for the above nine hours of science.

***The following courses are suggested as electives: Art 301, 302, 316, 317; Business Organization 311-312, 315, 326, 401; Economics 303, 304, 401, 404; Psychology 405; or any other course with the approval of the adviser and the head of the department.

CURRICULUMS

General Business

Required Curriculum Leading to the Degree of Bachelor of Science in Business Administration with a Major in General Business

First Year	Hrs.	Second Year	Hrs.
Bus. Org. 103 and 104 Typewriting	2	Acctg. 201-202 Elementary	6
Bus. Org. 105 Office Machines	1	Bus. Org. 210 Public Relations	3
Econ. 104 Geography	3	Bus. Org. 215 Transportation	3
*Engl. 103-104 Oral and Written Composition	9	Bus. Org. 224 Marketing	3
**Science	9	Bus. Org. 225 Salesmanship	3
Social Science 101 and 102	6	English (200 or above) Elective	3
Hygiene	2	Hist. 201 and 202 United States	6
Orientation	1	Psych. 201 General	3
Physical Education	1	Physical Education	1
	34	Philosophy, Religion, or Humanities 401 or 402	3
			34
Third Year		Fourth Year	
Acctg. 303-304 Cost	6	Bus. Org. 311-312 Merchandising	6
Bus. Org. 201 and 303 Business Law	6	Bus. Org. 422 Advanced Credits and Collections	3
Bus. Org. 227-228 Advertising	6	Econ. 305 Statistics	3
Bus. Org. 315 Corporation Finance	3	Econ. 401 Labor Problems	3
Bus. Org. 322 Credits and Collections	3	Econ. 404 Personnel Management	3
Econ. 303 Financial Organization	3	Psych. 401 Business	3
Psych. 301 Applied	3	***Electives	9
	30		30

*English 101-102 and 115, 116 may be substituted for English 103-104.

**Eight hours of Laboratory Science may be substituted for the above nine hours of science.

***The following courses are suggested as electives: Accounting 403-404; Business Organization 121, 326, 329, 330, 425; Economics 304, 402; Engineering 360; English 315; Psychology 300, 405; Secretarial Studies 207; or any other course with the approval of the adviser and head of the department.

Merchandising

Required Curriculum Leading to the Degree of Bachelor of Science in Business Administration with a Major in Merchandising

First Year	Hrs.	Second Year	Hrs.
Bus. Org. 121 Mathematics of Ac- counting	3	Acctg. 201-202 Elementary	6
Econ. 104 Geography	3	Bus. Org. 210 Public Relations	3
*Engl. 103-104 Oral and Written Composition	9	Bus. Org. 215 Transportation	3
**Science	9	Bus. Org. 224 Marketing	3
Social Science 101 and 102	6	Bus. Org. 225 Salesmanship	3
Hygiene	2	Bus. Org. 227-228 Advertising	6
Orientation	1	Hist. 201 and 202 United States	6
Physical Education	1	Physical Education	1
	34		31

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Third Year	Hrs.	Fourth Year	Hrs.
Bus. Org. 201 and 303 Business Law	6	Bus. Org. 409 and 410 Marketing	6
Bus. Org. 311-312 Merchandising	6	Bus. Org. 451 Marketing Seminar	4-2
Bus. Org. 322 Credits and Collections	3	Econ. 305 Statistics	3
Bus. Org. 326 Applied Salesmanship	3	Econ. 404 Personnel Management	3
Econ. 303 Financial Organization	3	Phil. 220 Logic	3
English (200 or above) Elective	3	Psych. 401 Business	3
Psych. 201 General	3	***Electives	10-8
Psych. 301 Applied	3		<hr style="width: 100%;"/>
	<hr style="width: 100%;"/>		32-28
	30		

*English 101-102 and 115, 116 may be substituted for English 103-104.

**Eight hours of Laboratory Science may be substituted for the above nine hours of science.

***The following courses are suggested as electives: Accounting 303-304; Art 110, 223, 224; Business Organization 315, 329, 330, 331, 332, 422, 425; Economics 304, 401, 402; Psychology 300, 405; or any other course with the approval of the adviser and head of the department.

Note: It is suggested that a student majoring in Merchandising complete a minor in advertising, economics, or psychology.

Secretarial Training

Suggested Curriculum Leading to the Degree of Bachelor of Science in Business Administration with a Major in Secretarial Studies

First Year	Hrs.	Second Year	Hrs.
Sec. St. 200 Shorthand	4	Sec. St. 302 Shorthand	2
Sec. St. 300-301 Shorthand	4	Sec. St. 303 Secretarial Dictation	2
Sec. St. 100 and 101 Typewriting	4	Sec. St. 201 Transcription	2
*Engl. 103-104 Oral and Written Composition	9	Sec. St. 404 Filing and Indexing	1
Sec. St. 215 Office Machines	3	Sec. St. 304 Advanced Dictation and Transcription	2
Sec. St. 104-105 Bookkeeping	4	Sec. St. 403 Office Practice	3
Social Science 101 and 102	6	Sec. St. 202 Business Mathematics	2
Physical Education	1	Sec. St. 208 Commercial Law	3
	<hr style="width: 100%;"/>	Sec. St. 203 Bookkeeping	2
	35	Sec. St. 207 Business English and Correspondence	3
		Psych. 201 General	3
		Sec. St. 216 Office Machines or Elective	3
			<hr style="width: 100%;"/>
			26
Third Year		Fourth Year	
Econ. 104 Economic Geography	3	Bus. Org. 224 Marketing	3
Social Science 201 and 202	6	Bus. Org. 227-228 Advertising	6
Science	8	Bus. Org. 225 Salesmanship	3
Actg. 201-202 Elementary	6	Bus. Org. 322 Credits and Collections	3
Philosophy and Religion	3	Mathematics	3
Elective (Upper Division Business Organization)	3	Elective (Upper division)	18
Elective (Business Organization)	3		<hr style="width: 100%;"/>
	<hr style="width: 100%;"/>		36
	32		

*English 101-102 and 115-116 may be substituted for English 103-104.

A student may receive the Title of Associate in Business Administration by satisfactorily completing the first two years of the above curriculum.

CURRICULUMS

CHEMISTRY

Suggested Curriculum Leading to the Degree of Bachelor of Science with a Major in Chemistry

First Year	Hrs.	Second Year	Hrs.
*Engl. 103-104 Oral and Written Composition	9	Math. 209-210 Calculus I and II	10
Math. 101-102 College Algebra	6	Chem. 205 Qualitative Analysis	4
Social Science 101 and 102	6	Chem. 206, 207, and 203 Quanti- tative Analysis	8
Math. 103 Trigonometry	2	Social Science 201 and 202	6
Math. 114 Analytic Geometry	2	Ger. 101-102 Elementary	6
Chem. 109-110 or 111-112 General	10 or 8	Physical Education	1
Orientation	1	<hr/>	35
Hygiene	2		
Physical Education	1		
39-37			
Third Year		Fourth Year	
Chem. 301, 302 Organic	6	Chem. 307 Chemical Literature	2
Chem. 308, 304 Organic Laboratory	4	Chem. 311, 312 Physical Chemistry	6
Physics 201, 201L, 202, 202L General	8	Chem. 319, 320 Physical Chemistry Laboratory	4
Ger. 215-216 Chemical	6	Chem. 404 Organic Analysis	4
Chem. 401 Advanced Quantitative	3	Chem. 410 Advanced Inorganic	2
Biology or Elective	6	Chem. 421 Advanced Organic	2
<hr/>	33	Chem. 408 History of Chemistry	1
		Philosophy and Religion	3
		Elective (Upper division, if needed)	7
		<hr/>	31

*English 101-102 and 115-116 may be substituted for English 103-104.

If the above curriculum is to be completed in four years it is necessary that some work be taken during the summer terms to avoid overloading. It is suggested that Social Science 101 and 102 be taken the summer following the freshman work.

The degree of Bachelor of Arts may be taken, but the Bachelor of Science degree better prepares the student for graduate work and for more desirable industrial positions.

Metallurgy

Suggested Curriculum Leading to the Degree of Bachelor of Science with a Major in Metallurgy

This curriculum is designed not only for the student who is seeking a Bachelor of Science degree with a major in metallurgy, but also for the student who desires a less extensive technical course in metallurgy.

First Year	Hrs.	Second Year	Hrs.
Mathematics	10	Chem. 205 Qualitative Analysis	4
*Engl. 103-104 Oral and Written Composition	9	Chem. 206 and 207 Quantitative Analysis	5
Chem. 109-110 or 111-112 General	10 or 8	Engin. 251, 252 General Metallurgy	6
Social Science 101 and 102	6	Social Science 201 and 202	6
Engin. 101 and 102 Engineering Drawing	5	Physics 201 and 202 General	8
Orientation	1	Math. 209-210 Calculus I and II	10
Physical Education	1	Physical Education	1
<hr/>	42-40	Hygiene	2
		<hr/>	42

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First Year—Summer	Hrs.
Chem. 206 Qualitative Analysis	4
Engin. 255 Metallographic Technique 2	

Second Year—Summer	Hrs.
Chem. 256 Physical Testing	2

Third Year	
Chem. 311, 312 Physical	6
Engin. 220 Analytical Mechanics— Statics	3
Engin. 325 Analytical Mechanics— Dynamics	3
Engin. 351, 352 Physical Metallurgy. 6	
Engin. 350 Metallurgical Analysis . .	3
Engin. 301-302 Report Writing	4
Philosophy and Religion	3
Elective	3
	31

Fourth Year	
Engin. 451, 452 Metallography	6
Physics 317 Thermodynamics	4
Chem. 455 Physical Testing	2
Engin. 326 Strength of Materials . . .	3
Electives (Upper division, if needed)	16
	31

*English 101-102 and 115-116 may be substituted for English 103-104.

A student who does not wish to complete degree requirements with a major in metallurgy but who wishes to secure technical knowledge which will be of value to him on a metallurgy job, may take general chemistry the first year followed by qualitative analysis and metallographic technique in the summer. The second year he would take general metallurgy and the following summer physical testing. A year each of mathematics and physics would also be very desirable.

The metallurgy major will not take metallographic technique or physical testing as listed for summer work, as this work is covered elsewhere in his program. Many of the subjects needed to meet degree requirements may be taken during the summer. The metallurgy major should acquire a reading knowledge of a foreign language. This also may be taken during the summer months.

If the above curriculum is to be completed in four years, it is necessary that some work be taken during the summer terms to avoid overloading. It is suggested that Social Science 101 and 102 be taken the summer following the freshman work.

DRAMATICS

See English, pages 124-127.

ECONOMICS

See Economics, pages 109-110.

EDUCATION

Requirements for teachers' certificates are determined by the Ohio State Department of Education; if those requirements are changed, the new requirements become effective immediately as requirements of the department of education of Youngstown College. Courses are offered leading to the degree of Bachelor

CURRICULUMS

of Science in Education with majors in art education, business education, elementary education, kindergarten-primary education, music education, nursing education, physical education, and secondary education. Curriculums for these majors follow. To qualify for the Bachelor of Science in Education degree, the student must complete one of the curriculums leading to an Ohio State Provisional Certificate, unless he holds a provisional or higher certificate valid for teaching in the state of Ohio.

Art Education

Required Curriculum Leading to the Degree of Bachelor of Science in Education with a Major in Art Education

First Year	Hrs.	Second Year	Hrs.
Art 150 Mechanical Drawing	3	Art 224 Advertising	3
Art 223 Advertising	3	Art 203, 204 Drawing and Painting	6
Art 110, 111 Color and Design	6	Art 325, 326 Pottery	6
Educ. 101 Introduction	2	General Science 121 Physical	3
*Engl. 103-104 Oral and		General Science 122 Biological	3
Written Composition	9	Psych. 201 General	3
Social Science 101 and 102	6	Psych. 202 Educational	3
Orientation	1	Social Science 201 and 202	6
Physical Education	1	Physical Education	1
Hygiene	2		
	33		34
Third Year		Fourth Year	
Art 113-114 History and		Art 305 History and Apprecia-	
Appreciation—General	6	tion—Italian Renaissance	3
Art 211, 212 Color and Design	6	Art 306 History and Apprecia-	
Art 303, 304 Figure Drawing		tion—Modern	3
and Painting	6	Art 316 Interior Decorating	3
Art 321 Teaching of Art in the		Art 319 Jewelry and Metal Work	3
Elementary School	2	Art 322, 323 Crafts	6
Art 332 Teaching of Art in the		Educ. 404 Supervised Student	
Secondary School	2	Teaching and Apprentice-	
Educ. 301 Principles of Teaching	3	ship—High School	6
Educ. 304 Classroom Management	3	Engl. 203, 204, 205, or 206	3
General Science 223 or 224	3	Philosophy and Religion	3
	31		30

*English 101-102 and 115-116 may be substituted for English 103-104.

Business Education

Required Curriculum Leading to the Degree of Bachelor of Science in Education with a Major in Business Education

First Year	Hrs.	Second Year	Hrs.
Econ. 104 Economic Geography	3	Bus. Org. 201 Business Law	3
Educ. 101 Introduction	2	General Science 224 Advanced	
*Engl. 103-104 Oral and Written		Physical	3
Composition	9	Psych. 201 General	3
General Science 121 Physical	3	Psych. 202 Educational	3
General Science 122 Biological	3	Sec. St. 104-105 and 203 Bookkeeping	
Sec. St. 100 and 101 Typewriting	4	or Acctg. 201-202 Elementary	6
Social Science 101 and 102	6	Sec. St. 207 Business English	
Hygiene	2	and Correspondence	3
Physical Education	1	Sec. St. 215 Office Machines	3
Orientation	1	Social Science 201 and 202	6
	34	Physical Education	1
			31

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	Hrs.		Hrs.
Third Year		Fourth Year	
Acctg. 201-202 Elementary, or Acctg. 301-302 Intermediate, or Acctg. 303-304 Cost	6	Bus. Org. 311-312 Merchandising	6
Bus. Org. 224 Marketing	3	Educ. 400 Special Methods	2
Bus. Org. 225 Salesmanship	3	Educ. 404 Supervised Student Teaching and Apprenticeship—High School	6
Bus. Org. 227-228 Advertising	6	Engl. 203, 204, 205, or 206 Literature	3
Educ. 301 Principles of Teaching	3	Sec. St. 300-301 and 302 Shorthand	6
Educ. 304 Classroom Management	3	Sec. St. 403 Office Practice	3
Sec. St. 200 Shorthand	4	Philosophy and Religion (Upper division)	3
Elective in Education	3		
	31		29

*English 101-102 and 115-116 may be substituted for English 103-104.

Elementary Education

Required Curriculum Leading to the Degree of Bachelor of Science in Education with a Major in Elementary Education

	Hrs.		Hrs.
First Year		Second Year	
Art 121 Graphic Art	2	Art 221 Design for Elementary Teachers	2
Econ. 104 Economic Geography	3	Educ. 214 Children's Literature	3
Educ. 101 Introduction	2	Engl. 205, 206 American Literature ..	6
*Engl. 103-104 Oral and Written Composition	9	General Science 223 Teaching of General Science	3
General Science 121 Physical	3	Geography 102 Principles	3
General Science 122 Biological	3	Music 221 Music Literature and Appreciation	2
Music 121 Introduction	2	Psych. 201 General	3
Social Science 101 and 102	6	Psych. 202 Educational	3
Hygiene	2	Social Science 201 and 202	6
Physical Education	1	Physical Education	1
Orientation	1		
	34		32

	Hrs.
Third Year	
Art 321 Teaching of Art in the Elementary School	2
Art 322 Crafts	3
Educ. 304 Classroom Management	3
Educ. 305 Apprenticeship	3
Educ. 312 Teaching of Hand- writing	1
Educ. 313 Teaching of Skills	3
Educ. 314 Teaching of Content Subjects	3
Music 321 Music Education	2
Phys. Educ. 321 Hygiene for Elementary Grades	3
Phys. Educ. 322 Health Activities for the Elementary Grades	3
Psych. 305 Child Psychology	3
Philosophy and Religion	3
	32

	Hrs.
Fourth Year	
Educ. 401 Principles	3
Educ. 405 Supervised Student Teaching	9
Educ. 413 Teaching of Reading	3
Social Science (Upper division elective)	3
Elective (Upper division)	9
	27

*English 101-102 and 115-116 may be substituted for English 103-104.

In addition to the general examinations required of all freshman students and the comprehensive examinations required at the end of the sophomore year, all candidates must take comprehensive examinations covering the content and skills of the elementary school.

CURRICULUMS

Students who are found deficient in any of the elementary school subjects must take a review course without credit in all those subjects in which they are found deficient until they reach a satisfactory standard.

Kindergarten-Primary Education

A Kindergarten-Primary Certificate may be earned by taking also Education 431 and 432 and by earning three semester hours of credit in student teaching in the kindergarten and three semester hours in a primary grade, preferably the first grade.

Music Education

For music education curriculums, refer to the section on The Dana School of Music, pages 157-198.

Health and Physical Education

Suggested Curriculum Leading to the Degree of Bachelor of Science in Education for Teachers of Health and Physical Education

First Year	Hrs.	Second Year	Hrs.
*Engl. 103-104 Oral and Written Composition	9	Engl. 203, 204, 205, 206, or 251	3
Social Science 101-102	6	Hist. 201-202 United States	3
Biol. 103 General	3	Biol. 230 Anatomy and Physiology I ..	3
Biol. 175 General Zoology	3	Biol. 250 Anatomy and Physiology II ..	3
Educ. 101 Introduction	2	Phys. Educ. 321 Hygiene for Elementary Grades	3
Psych. 201 General	3	Phys. Educ. 322 Health Activities for Elementary Grades	3
Phys. Educ. 203 Principles	2	Psych. 305 Child	3
Hygiene	2	Psych. 306 Adolescent	3
Orientation	1	Psych. 202 Educational	3
Phys. Educ. 121-122	1	Phys. Educ. 221-222	1
	32		31

Third Year	Hrs.	Fourth Year	Hrs.
Educ. 301 Principles of Teaching ...	3	Phys. Educ. 400 Special Methods ...	3
Educ. 304 Classroom Management ..	3	Educ. 404 Student Teaching	6
Psych. 308 Personality and Mental Hygiene	3	Phys. Educ. 416 Individual Corrective Gymnastics and Normal Diagnosis	2
Phys. Educ. 201 First Aid and Care of Athletic Injuries	2	Phys. Educ. 403 Organization and Administration of Health and Physical Education	2
Phys. Educ. 306 Hygiene for Teachers	2	Phys. Educ. 311 Theory and Practice of Physical Education Other Than Athletics	3
Phys. Educ. 307 Hygiene of Community Living	2	Phys. Educ. 309 Organization and Administration of Intramural Activities	2
Phys. Educ. 409 Theory and Practice of Athletic Coaching (Men)	2	Philosophy and Religion	3
and Phys. Educ. 410 Football (Men) or Phys. Educ. 411-412 Theory and Practice in Physical Education (Women)	4	Non-Physical Education electives ...	30
Phys. Educ. 404 Organization and Administration of Playgrounds ...	3		
Phys. Educ. 405 Organization and Administration of Recreational Activities	2		
Phys. Educ. 415 Teaching of Health in Secondary Schools	3		
†Electives in Physical Education ...	5		
	32		

YOUNGSTOWN COLLEGE

*English 101-102 and 115-116 may be substituted for English 103-104.

†Courses from which electives may be chosen include: Economics 305; Education 306, 306X, 308, 317, 330, 332, 441, 442; Biology 233, 321, 412; Psychology 302, 405, 406, 425, 426; Sociology 204, 301, 302, 403; Library Science 402.

Required Curriculum for the Degree of Bachelor of Science in Education for Public School Nurses

First Year	Hrs.	Second Year	Hrs.
Biol. 103 General Biology	3	Biol. 230 Anatomy and Physiology I	3
Biol. 125 Zoology	2	Biol. 250 Anatomy and Physiology II	3
Biol. 225 Zoology	3	Educ. 101 Introduction	2
Chem. 109-110 or 111-112 General	10 or 8	Educ. 301 Principles of Teaching ...	3
*English 103-104 Oral and Written		Educ. 304 Classroom Administration,	
Composition	9	Organization, and Management ...	3
Social Science 101 and 102	6	Engl. 203, 204, 205, or 206 English	
Hygiene	2	or American Literature	6
Orientation	1	Psych. 201 General	3
Physical Education	1	Psych. 202 Educational	3
	37-35	Social Science 201 and 202	6
		Physical Education	1
			32

Third, Fourth, and Fifth Years

Hospital course in an accredited nursing school leading to the diploma in nursing and the Certificate of Registered Nurse 45

Sixth Year

Educ. 404 Student Teaching 3
 Phys. Educ. 415 Teaching of Health
 in the Secondary Schools 3
 Elective (Upper division) 4-6
 Philosophy and Religion 3
 13-15

The degree major is in nursing and there are degree minors in education and biological science. Upper division course requirements are met by counting certain of the courses in the hospital school of nursing as upper division courses.

*English 101-102 and 115-116 may be substituted for English 103-104.

Secondary Education

Required Curriculum Leading to the Degree of Bachelor of Arts and a Provisional High School Certificate

First Year	Hrs.	Second Year	Hrs.
Educ. 101 Introduction	2	Engl. 203, 204, 205, or 206	3
*Engl. 103-104 Oral and Written		Foreign Language	6
Composition	9	Psych. 201 General	3
Foreign Language	6	Psych. 202 Educational	3
Laboratory Science	2	Science or Mathematics	3
Social Science 101 and 102	6	Social Science 201 and 202	6
Hygiene	2	Physical Education	1
Physical Education	1	Electives	6
Orientation	1		31
	35		
		Fourth Year	
Third Year		Educ. 400 Special Methods	2
Educ. 301 Principles of Teaching .	3	Educ. 404 Supervised Student	
Educ. 304 Classroom Management ..	3	Teaching and Apprenticeship ...	6
Electives	21	Elective in Education	3
Philosophy and Religion	3	Electives (Upper division)	18
	30		29

*English 101-102 and 115-116 may be substituted for English 103-104.

CURRICULUMS

The degree major may be in Education or in a teaching field. Three teaching fields are required for the Provisional High School Certificate. Electives should be selected carefully to complete the requirements in the teaching fields.

Students wishing to secure the degree of Bachelor of Science in Education should follow this curriculum with the exception that foreign language is not required and general science may be substituted for laboratory science and mathematics.

Mathematics

Required Curriculum Leading to the Degree of Bachelor of Science in Education with a Major in Mathematics

First Year

First Semester	Hrs.	Second Semester	Hrs.
Math. 120 Freshman Mathematics ..	5	Math. 121 Freshman Mathematics ..	5
Educ. 101 Introduction to Education	2	Elective (Teaching Field)	3
Engr. 103 Oral and Written Com- position	4½	Engr. 104 Oral and Written Com- position	4½
Social Science 101	3	Social Science 102	3
Orientation	1	Hygiene	2
Physical Education	½	Physical Education	½
	16		18

Second Year

Math. 209 Calculus I	5	Math. 210 Calculus II	5
Psych. 201 General Psychology	3	Psych. 202 Educational Psychology ..	3
*Science	5-3	*Science	5-3
Social Science 201	3	Social Science 202	3
Physical Education	½	Physical Education	½
	16½-14½		16½-14½

Third Year

Math. 311 Theory of Equations	3	Math. 416 Partial Differential Equa- tions	3
Math. 315 Differential Equations ...	3	Educ. 304 Classroom Management ..	3
Educ. 301 Principles of Teaching ...	3	*Science or Elective	3
English (200 course)	3	Electives in Mathematics	3
Econ. 305 Statistics	3	Elective (Teaching Field)	3
	15		15

Fourth Year

Math. 432 History of Mathematics ..	3	Math. 330 College Geometry	3
Elective in Mathematics	3	Educ. 404 Student Teaching	6
Educ. 400 Special Methods	2	Electives	9-5
Elective in Education (Upper divi- sion)	3		18-14
Philosophy and Religion	3		
	14		

*Nine hours of science are required.

Electives in Mathematics may be chosen from the following courses: Mathematics 401-402, 420, Engineering 220 and 325.

The total for the degree must be not less than 125 hours. There should be at least one teaching field besides mathematics. Physical sciences, biological sciences, and general sciences are good teaching fields.

ENGINEERING

Outline for the First Year of All Engineering Curriculums and for the Curriculums Leading to the Degree of Bachelor of Science in Mathematics and in Physics

First Semester	Hrs.	Second Semester	Hrs.
*Engl. 103 Composition	4½	*Engl. 104 Composition	4½
Math. 120 Freshman Mathematics ..	5	Math. 121 Freshman Mathematics ..	5
Chem. 109 General	5	Chem. 110 General	5
Engin. 101 Engineering Drawing ...	2	Engin. 102 Engineering Drawing ...	3
Orientation	1	Hygiene	2
Physical Education	½	Physical Education	½
	18		20

*English 101-102 and 115-116 may be substituted for English 103-104.

Chemical Engineering

Required Curriculum Leading to the Degree of Bachelor of Engineering with a Major in Chemical Engineering

First Year—See above.

Second Year

First Semester	Hrs.	Second Semester	Hrs.
Chem. 205 Qualitative Analysis	4	Chem. 207 Quantitative Analysis	3
Chem. 206 Quantitative Analysis	2	Chem. 208 Quantitative Analysis	3
Physics 201 General Physics	4	Physics 202 General Physics	4
Physics 201L General Physics Laboratory	1	Physics 202L General Physics Laboratory	1
Math. 209 Calculus I	5	Engin. 220 Analytical Mechanics— Statics	3
Engin. 201 Advanced Engineering Drawing	2	Social Science 102	3
Social Science 101	3	Math. 210 Calculus II	5
Physical Education	½	Physical Education	½
	21½		22½

Third Year

Chem. 301 Organic Chemistry	3	Chem. 302 Organic Chemistry	3
Chem. 303 Organic Chemistry	2	Chem. 304 Organic Chemistry	2
Engin. 313 Elements of Electrical Engineering	4	Engin. 314 Elements of Electrical Engineering	4
Engin. 301 Report Writing	2	Physics 317 Thermodynamics	3
Engin. 325 Analytical Mechanics— Dynamics	3	Engin. 302 Report Writing	2
Engin. 340 Principles of Chemical Engineering	3	Engin. 328 Hydraulics	3
Bus. Org. 201 Business Law	3	Engin. 341 Principles of Chemical Engineering	3
	20	Bus. Org. 303 Business Law	3
			20

Fourth Year

Chem. 311 Physical Chemistry	3	Chem. 312 Physical Chemistry	3
Physics 317 Thermodynamics	3	Engin. 374 Heat Engineering	3
Physics 317L Thermodynamics Laboratory	1	Engin. 374L Heat Engineering Laboratory	1
Chem. 419 Advanced Inorganic Chemistry	2	Chem. 421 Advanced Organic Chemistry	2
Engin. 251 General Metallurgy	3	Engin. 252 General Metallurgy	3
Engin. 440 Chemical Plant Design ..	3	Econ. 309 Engineering Economics ..	3
Engin. 401 Thesis	2	Engin. 402 Thesis	2
	17	Philosophy and Religion	3
			20

CURRICULUMS

Civil Engineering

Required Curriculum Leading to the Degree of Bachelor of Engineering with a Major in Civil Engineering

First Year—See page 82.

Summer Session	Hrs.
Engin. 130 Surveying	3
(Surveying is given only during the summer term)	

Second Year

First Semester	Hrs.	Second Semester	Hrs.
Math. 209 Calculus I	5	Math. 210 Calculus II	5
Physics 201 General Physics	4	Physics 202 General Physics	4
Physics 201L General Physics Laboratory	1	Physics 202L General Physics Laboratory	1
Engin. 201 Engineering Drawing	2	Engin. 220 Analytical Mechanics—Statics	3
Engin. 230 Route Surveying	3	Social Science 102	3
Engin. 105 Engineering Geology	3	Econ. 309 Engineering Economics	3
Social Science 101	3	Physical Education	½
Physical Education	½		
	21½		19½

Third Year

Math. 315 Differential Equations ..	3	Engin. 328 Hydraulics	3
Engin. 326 Strength of Materials ..	3	Engin. 331 Design of Steel Structures	4
Engin. 326L Strength of Materials Laboratory	1	Engin. 332 Highway Construction ..	3
Engin. 325 Analytical Mechanics—Dynamics	3	Engin. 333 Sewage Disposal	3
Engin. 330 Theory of Structures	5	Engin. 251 General Metallurgy	3
Bus. Org. 201 Business Law	3	Bus. Org. 303 Business Law	3
	18		19

Fourth Year

Engin. 301 Report Writing	2	Engin. 302 Report Writing	2
Engin. 313 Elements of Electrical Engineering	4	Engin. 314 Elements of Electrical Engineering	4
Engin. 430 Concrete Construction ..	4	Engin. 432 Water Supply	3
Engin. 431 Construction of Buildings	3	Engin. 433 Indeterminate Structures	3
Engin. 401 Thesis	2	Physics 317 Thermodynamics	3
Philosophy and Religion	3	Physics 317L Thermodynamics Laboratory	1
	18	Engin. 402 Thesis	2
			18

Electrical Engineering

Required Curriculum Leading to the Degree of Bachelor of Engineering with a Major in Electrical Engineering

First Year—See page 82.

Second Year

First Semester	Hrs.	Second Semester	Hrs.
Math. 209 Calculus I	5	Math. 210 Calculus II	5
Physics 201 General Physics	4	Physics 202 General Physics	4
Physics 201L General Physics Laboratory	1	Physics 202L General Physics Laboratory	1
Engin. 201 Engineering Drawing	2	Engin. 212 Principles of Radio	3
Engin. 211 Principles of Radio	3	Social Science 102	3
Social Science 101	3	Engin. 220 Analytical Mechanics—Statics	3
Physical Education	½	Physical Education	½
	18½		19½

YOUNGSTOWN COLLEGE

Third Year

	Hrs.		Hrs.
Math. 315 Differential Equations ..	3	Math. 416 Partial Differential Equations ..	3
Physics 303 Electricity and Magnetism ..	3	Engin. 312 Electric Circuits ..	3
Physics 303L Electricity and Magnetism Laboratory ..	1	Engin. 312L Electric Circuits Laboratory ..	1
Physics 317 Thermodynamics ..	3	Engin. 374 Heat Engineering ..	3
Physics 317L Thermodynamics Laboratory ..	1	Engin. 374L Heat Engineering Laboratory ..	1
Engin. 311 Electric Circuits ..	3	Engin. 326 Strength of Materials ..	3
Engin. 311L Electric Circuits Laboratory ..	1	Engin. 326L Strength of Materials Laboratory ..	1
Engin. 325 Analytical Mechanics—Dynamics ..	3	Engin. 328 Hydraulics ..	3
Bus. Org. 201 Business Law ..	3	Bus. Org. 303 Business Law ..	3
	21		21

Fourth Year

Engin. 411 Direct Current Machines I ..	3	Engin. 412 Direct Current Machines II ..	3
Engin. 411L Direct Current Machines I Laboratory ..	1	Engin. 412L Direct Current Machines II Laboratory ..	1
Engin. 413 Alternating Current Apparatus I ..	3	Engin. 414 Alternating Current Apparatus II ..	3
Engin. 413L Alternating Current Apparatus I Laboratory ..	1	Engin. 414L Alternating Current Apparatus II Laboratory ..	1
Engin. 415 Electron Dynamics ..	3	Engin. 416 Electronic Applications ..	3
Engin. 415L Electron Dynamics Laboratory ..	1	Engin. 417 Electric Power Transmission ..	3
Engin. 301 Report Writing ..	2	Engin. 302 Report Writing ..	2
Econ. 309 Engineering Economics ..	3	Engin. 402 Thesis ..	2
Engin. 401 Thesis ..	2	Philosophy and Religion ..	3
	19		21

Industrial Engineering

Required Curriculum Leading to the Degree of Bachelor of Engineering with a Major in Industrial Engineering

First Year—See page 82.

Second Year

First Semester	Hrs.	Second Semester	Hrs.
Math. 209 Calculus I ..	5	Math. 210 Calculus II ..	5
Physics 201 General Physics ..	4	Physics 202 General Physics ..	4
Physics 201L General Physics Laboratory ..	1	Physics 202L General Physics Laboratory ..	1
Engin. 201 Engineering Drawing ..	2	Engin. 252 General Metallurgy ..	3
Engin. 251 General Metallurgy ..	3	Social Science 102 ..	3
Social Science 101 ..	3	Engin. 220 Analytical Mechanics—Statics ..	3
Physical Education ..	½	Physical Education ..	½
	18½		19½

Third Year

Bus. Org. 201 Business Law ..	3	Bus. Org. 303 Business Law ..	3
Chem. 205 Qualitative Analysis ..	4	Engin. 306 Industrial Organization ..	2
Acctg. 205 Elementary Industrial Accounting ..	3	Acctg. 305 Industrial Cost Accounting ..	3
Acctg. 205X Elementary Industrial Accounting Laboratory ..	1	Engin. 314 Elements of Electrical Engineering ..	4
Engin. 313 Elements of Electrical Engineering ..	4	Engin. 302 Report Writing ..	2
Engin. 301 Report Writing ..	2	Engin. 362 Time Study and Formula Making ..	2
Engin. 361 Motion and Time Analysis ..	2	Engin. 326 Strength of Materials ..	3
Engin. 325 Analytical Mechanics—Dynamics ..	3	Engin. 326L Strength of Materials Laboratory ..	1
	21		20

CURRICULUMS

Fourth Year

	Hrs.		Hrs.
Econ. 303 Financial Organization ..	3	Bus. Org. 315 Corporation Finance .	3
Econ. 309 Engineering Economics ..	3	Engin. 373 Steel Foundry—Theory and Practice	3
Engin. 372 Iron Foundry—Theory and Practice	3	Engin. 374 Heat Engineering	3
Econ. 401 Labor Problems	3	Engin. 374L Heat Engineering Lab- oratory	1
Physics 317 Thermodynamics	3	Engl. 215 Public Speaking	2
Physics 317L Thermodynamics Lab- oratory	1	Engin. 402 Thesis	2
Engin. 401 Thesis	2	Philosophy and Religion	3
	18		17

Mechanical Engineering

Required Curriculum Leading to the Degree of Bachelor of Engineering with a Major in Mechanical Engineering

First Year—See page 82.

Second Year

First Semester		Second Semester	
	Hrs.		Hrs.
Math. 209 Calculus I	5	Math. 210 Calculus II	5
Physics 201 General Physics	4	Physics 202 General Physics	4
Physics 201L General Physics Lab- oratory	1	Physics 202L General Physics Lab- oratory	1
Engin. 201 Engineering Drawing ..	2	Engin. 220 Analytical Mechanics— Statics	3
Social Science 101	3	Social Science 102	3
Bus. Org. 201 Business Law	3	Bus. Org. 303 Business Law	3
Physical Education	1½	Physical Education	1½
	18½		19½

Third Year

Engin. 313 Elements of Electrical Engineering	4	Engin. 314 Elements of Electrical Engineering	4
Engin. 301 Report Writing	2	Engin. 302 Report Writing	2
Engin. 325 Analytical Mechanics— Dynamics	3	Engin. 374 Heat Engineering	3
Physics 317 Thermodynamics	3	Engin. 374L Heat Engineering Lab- oratory	1
Physics 317L Thermodynamics Lab- oratory	1	Engin. 328 Hydraulics	3
Engin. 251 General Metallurgy	3	Engin. 326 Strength of Materials ..	3
Math. 315 Differential Equations ..	3	Engin. 326L Strength of Materials Laboratory	1
	19	Math. 416 Partial Differential Equa- tions	3
			20

Fourth Year

Engin. 474 Turbines and Jets	3	Engin. 475 Internal Combustion En- gines	3
Engin. 372 Iron Foundry—Theory and Practice	3	Engin. 475L Internal Combustion Engines Laboratory	1
Engin. 415 Electron Dynamics	3	Engin. 373 Steel Foundry—Theory and Practice	3
Engin. 415L Electron Dynamics Lab- oratory	1	Engin. 471 Heating, Ventilating, and Air Conditioning—Fundamentals .	3
Engin. 371 Elementary Machine De- sign	2	Engin. 470 Advanced Machine Design	2
Econ. 309 Engineering Economics ..	3	Engin. 402 Thesis	2
Engin. 401 Thesis	2	Philosophy and Religion	3
	17		17

YOUNGSTOWN COLLEGE

Metallurgical Engineering

Required Curriculum Leading to the Degree of Bachelor of Engineering with a Major in Metallurgical Engineering

First Year—See page 82.

Second Year

First Semester	Hrs.	Second Semester	Hrs.
Math. 209 Calculus I	5	Math. 210 Calculus II	5
Physics 201 General Physics	4	Physics 202 General Physics	4
Physics 201L General Physics Lab- oratory	1	Physics 202L General Physics	1
Engin. 201 Engineering Drawing ...	2	Chem. 207 Quantitative Analysis ...	3
Chem. 205 Qualitative Analysis ...	4	Chem. 208 Quantitative Analysis ...	3
Chem. 206 Quantitative Analysis ...	2	Social Science 102	3
Social Science 101	3	Physical Education	1½
Physical Education	1½		19½
	21½		

Third Year

Engin. 313 Elements of Electrical Engineering	4	Engin. 314 Elements of Electrical Engineering	4
Engin. 301 Report Writing	2	Engin. 302 Report Writing	2
Chem. 311 Physical Chemistry	3	Chem. 312 Physical Chemistry	3
Engin. 340 Principles of Chemical Engineering	3	Engin. 341 Principles of Chemical Engineering	3
Engin. 251 General Metallurgy	3	Engin. 252 General Metallurgy	3
Bus. Org. 201 Business Law	3	Engin. 220 Analytical Mechanics— Statics	3
	18	Bus. Org. 303 Business Law	3
			21

Fourth Year

Engin. 372 Iron Foundry—Theory and Practice	3	Engin. 373 Steel Foundry—Theory and Practice	3
Engin. 451 Metallography	3	Engin. 452 Metallography	3
Engin. 455 Iron and Steel Metallurgy	3	Engin. 456 Nonferrous Metallurgy ..	3
Engin. 355 Metallurgical Calculations	3	Engin. 326 Strength of Materials ..	3
Engin. 325 Analytical Mechanics— Dynamics	3	Engin. 326L Strength of Materials Laboratory	1
Engin. 401 Thesis	2	Econ. 309 Engineering Economics ..	3
Philosophy and Religion	3	Engin. 401 Thesis	2
	20		18

ENGLISH

See English, pages 124-127.

JOURNALISM

The student preparing for journalism should take a major in English, and should secure a broad education in the liberal arts courses with especial emphasis on the social sciences. For specific course suggestions, see your adviser.

CURRICULUMS

HISTORY

See History, pages 131-133.

LANGUAGES

See pages 131, 136, 127, 130, 135, 151, 155.

LAW

See School of Law, pages 199-208.

MATHEMATICS

Required Curriculum Leading to the Degree of Bachelor of Science
with a Major in Mathematics

First Year—See Engineering, page 82.

Second Year

First Semester	Hrs.	Second Semester	Hrs.
Math. 209 Calculus I	5	Math. 210 Calculus II	5
Physics 201 General Physics	4	Physics 202 General Physics	4
Physics 201L General Physics Lab- oratory	1	Physics 202L General Physics Lab- oratory	1
Engin. 201 Engineering Drawing ...	2	French or German 204	3
French or German 203	3	Social Science 102	3
Social Science 101	3	Physical Education	1½
Physical Education	½		
	18½		16½

Third Year

Math. 315 Differential Equations ...	3	Math. 416 Partial Differential Equa- tions	3
Math. 311 Theory of Equations ...	3	Engin. 220 Analytical Mechanics— Statics	3
Physics 303 Electricity and Magnet- ism	3	Physics 322 Physical Optics and Advanced Light	3
Physics 303L Electricity and Magnet- ism Laboratory	1	Social Science 202	3
Econ. 305 Elementary Statistics ...	3	Philosophy and Religion	3
Social Science 201	3		
Elective	3		
	19		15

Fourth Year

Math. 432 History of Mathematics .	3	Math. 330 College Geometry	3
Physics 317 Thermodynamics	3	Physics 425 Theory of Heat Trans- mission	3
Physics 317L Thermodynamics Lab- oratory	1	Math. 402 Thesis	2
Engin. 325 Analytical Mechanics— Dynamics	3	Math. 420 Vector Analysis	3
Math. 401 Thesis	2	Electives	4
Elective	3		
	15		15

YOUNGSTOWN COLLEGE

MATHEMATICS

Required Curriculum Leading to the Degree of Bachelor of Arts with a Major in Mathematics

First Year

First Semester	Hrs.	Second Semester	Hrs.
Math. 120 Freshman Mathematics .. 5		Math. 121 Freshman Mathematics .. 5	
Engl. 103 Oral and Written Com- position 4½		Engl. 104 Oral and Written Com- position 4½	
Foreign Language 203 3		Foreign Language 204 3	
Social Science 101 3		Social Science 102 3	
Orientation 1		Hygiene 2	
Physical Education ½		Physical Education ½	
	17		18

Second Year

Math. 209 Calculus I 5		Math. 210 Calculus II 5	
Chem. 109 General Chemistry 5		Chem. 110 General Chemistry 5	
Social Science 201 3		Social Science 202 3	
Elective 3		Elective (Upper division) 3	
Physical Education ½		Physical Education ½	
	16½		16½

Third Year

Math. 311 Theory of Equations 3		Electives in Mathematics 6	
Math. 315 Differential Equations ... 3		Physics 202 General Physics 4	
English (200 course) 3		Physics 202L General Physics Lab- oratory 1	
Physics 201 General Physics 4		Philosophy and Religion 3	
Physics 201L General Physics Lab- oratory 1			14
	14		

Fourth Year

Math. 432 History of Mathematics .. 3		Elective in Mathematics 3	
Elective in Mathematics 3		Electives (Upper division) 8	
Psychology 3		Econ. 305 Statistics 3	
Electives (Upper division) 6			14
	15		

Electives in Mathematics may be chosen from the following courses:
Mathematics 401-402, 416, 420, Engineering 220 and 325.

MUSIC

For music curriculums, refer to the section on The Dana School of Music, pages 157-198.

PHYSICS

Required Curriculum Leading to the Degree of Bachelor of Science with a Major in Physics

First Year—See Engineering, page 82.

Second Year

First Semester	Hrs.	Second Semester	Hrs.
Math. 209 Calculus I 5		Math. 210 Calculus II 5	
Physics 201 General Physics 4		Physics 202 General Physics 4	
Physics 201L General Physics Lab- oratory 1		Physics 202L General Physics Lab- oratory 1	
Engin. 201 Engineering Drawing ... 2		Chem. 206 Quantitative Analysis ... 2	
Chem. 205 Qualitative Analysis ... 4		Social Science 102 3	
Social Science 101 3		Physical Education ½	
Physical Education ½		Elective 3	
	19½		18½

CURRICULUMS

Third Year

Hrs.	Hrs.
Math. 315 Differential Equations . . . 3	Math. 416 Partial Differential Equations . . . 3
Physics 317 Thermodynamics 3	Physics 322 Physical Optics and Advanced Light 3
Physics 317L Thermodynamics Laboratory 1	Engin. 220 Analytical Mechanics—Statics 3
Physics 303 Electricity and Magnetism 3	Engin. 212 Principles of Radio 3
Physics 303L Electricity and Magnetism Laboratory 1	French or German 102 3
Engin. 211 Principles of Radio 3	Social Science 202 3
German or French 101 3	<hr style="width: 100%;"/>
Social Science 201 3	13
<hr style="width: 100%;"/>	
20	

Fourth Year

Engin. 415 Electron Dynamics 3	Physics 425 Theory of Heat Transmission 3
Engin. 415L Electron Dynamics Laboratory 1	Engin. 312 Electric Circuits 3
Engin. 311 Electric Circuits 3	Physics 424 History of Physics 3
Engin. 325 Analytical Mechanics—Dynamics 3	German or French 204 3
German or French 203 3	Math. 420 Vector Analysis 3
Engin. 401 Thesis 2	Engin. 402 Thesis 2
Philosophy and Religion 3	<hr style="width: 100%;"/>
<hr style="width: 100%;"/>	17
18	

PHILOSOPHY AND RELIGION

See Philosophy and Religion, pages 139-142.

PRE-MEDICAL AND ALLIED SCIENCES

Following are courses recommended for students who expect to enter schools of medicine, nursing, and allied sciences.

By arrangement with local schools of nursing, a combined course is offered in this field. Those who are already graduates of accredited schools of nursing may qualify for a bachelor's degree by completing the requirements for the degree sought.

For information concerning complete curriculums leading to the degree of Bachelor of Science in Education with a major in health education and preparing for public school nursing, see page 80.

All pre-medical and allied science students should consult with the departmental adviser.

Pre-Medical and Pre-Veterinary Medicine

Suggested Pre-Medical and Pre-Veterinary Curriculum for the Degree of Bachelor of Arts

The major in pre-medical science is a combination of at least forty-five hours in the fields of biology, chemistry, and physics and will vary with the requirements of individual medical schools.

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First Year	Hrs.
Biol. 103 General	3
Biol. 125 Zoology, Invertebrates	2
*Engl. 103-104 Oral and Written	
Composition	9
Social Science 101 and 102	6
Math. 101-102 Algebra	6
Math. 103 Trigonometry	3
Math. 114 Analytical Geometry	3
Hygiene	2
Orientation	1
Physical Education	1
	36

Second Year	Hrs.
Biol. 225 Zoology, Vertebrates	3
Biol. 233 Vertebrate Embryology	4
Hist. 201 and 202 United States	6
Physics 201, 201L, 202, 202L General.10	
Chem. 109-110 General	10
Physical Education	1
	34

Third Year	Hrs.
Biol. 309 Vertebrate Anatomy I	3
Biol. 310 Vertebrate Anatomy II	2
Chem. 205 Qualitative Analysis	4
**Chem. 206 Quantitative Analysis ..	2
Chem. 301 and 303 Organic	5
Modern Language	6
Psych. 201 General	3
English (Upper division)	3
Elective (Upper division)	3
	31

Fourth Year	Hrs.
**Chem. 302 Organic	3
**Chem. 304 Organic	2
Modern Language	6
**Biol. 321 Genetics	3
**Biol. 313 Vertebrate Histology ...	4
Electives (Upper division)	9
Philosophy and Religion (Upper	
division)	3
	30

*English 101-102 and 115-116 may be substituted for English 103-104.

**Recommended but not required. However, there must be a minimum of 40 semester hours in upper division courses.

Pre-Dentistry, Pre-Chiropraxy, and Pre-Osteopathy

Suggested Pre-Dentistry, Pre-Chiropraxy, and Pre-Osteopathy Curriculum

First Year	Hrs.
Chem. 109-110 General	10
Biol. 103 General	3
Biol. 125 Zoology, Invertebrates	2
*Engl. 103-104 Oral and Written	
Composition	9
Social Science 101 and 102	6
Hygiene	2
Orientation	1
Physical Education	1
	34

Second Year	Hrs.
Chem. 205 Qualitative	4
Biol. 225 Zoology, Vertebrates	3
Biol. 230 Anatomy and Physiology I ..	3
Hist. 201 and 202 United States	6
Physics 101, 101L, 102, 102L Funda-	
mentals	8
English Literature	3
Electives (Upper division)	6
Physical Education	1
	34

Pre-Pharmacy

Suggested Pre-Pharmacy Curriculum

First Year	Hrs.
Biol. 103 General	3
Biol. 124 Botany, Lower Forms	2
Biol. 125 Zoology, Invertebrates	2
Chem. 109-110 General	10
Social Science 101, 102	6
*Engl. 103-104 Oral and Written	
Composition	9
Orientation	1
Physical Education	1
	34

Second Year	Hrs.
Biol. 224 Botany, Seed Plants	3
Biol. 225 Zoology, Vertebrates	3
Biol. 231 Microbiology	2
Biol. 230 Anatomy and	
Physiology I	3
Chem. 205 Qualitative Analysis	4
Physics 101, 101L, 102, 102L Funda-	
mentals	8
Econ. 305 Statistics	3
English Literature	3
Physical Education	1
Hygiene	2
	32

*English 101-102 and 115-116 may be substituted for English 103-104.

CURRICULUMS

Cooperative Nursing

Courses leading to a bachelor's degree with a major in nursing are offered in cooperation with various nursing schools. The students take two and one-half years of work in Youngstown College and a two and one-half year course in an accredited school of nursing, followed by sufficient work in the college to satisfy the upper level and other requirements.

A total of 45 semester hours credit will be allowed for the hospital work. The hospital work may also be offered to meet the major requirements, all needed 200 level course requirements, and 15 hours of the 300 level course requirements.

Suggested Curriculum for the Degree of Bachelor of Science with a Major in Nursing

First Year	Hrs.	Second Year	Hrs.
Biol. 103 General	3	***Biol. 225 Zoology, Vertebrates ...	3
****Biol. 125 Zoology, Invertebrates .	2	Biol. 231 Microbiology	2
Chem. 109-110 General	10	Biol. 230 Anatomy and Physiology I .	3
Social Science 101 and 102	6	English Literature	3
*Engl. 103-104 Oral and Written		Hist. 201 and 202 United States ...	6
Composition	9	Educ. 301 or 304	3
Orientation	1	Psych. 201 General	3
Physical Education	1	**Psych. 202 Educational	3
Hygiene	2	Electives (Upper division)	6
	—	Physical Education	1
	34		—
			33
		Summer School	Hrs.
		Biol. 250 Anatomy and Physiology II	3
		Elective (Upper division)	6
			—
			9

During the following two and one-half years the student will take a nursing course in an accredited hospital leading to a diploma in nursing.

Upon presentation of a certificate of R. N., forty-five semester hours will be granted toward a bachelor's degree, of which fifteen will be credited as upper division hours.

Fifth Year	Hrs.
Nursing 403 Ward Management	3
**Psych. 300 Social	3
**Psych. 302 Abnormal	3
***Elective (Upper division)	3
Philosophy and Religion	3
	—
	15

*English 101-102 and 115-116 may be substituted for English 103-104.

**Not required but strongly urged as the minor.

***This elective should be Psychology if it is the minor.

****Biology 175 plus two hours of electives may be substituted for Biology 125 and 225.

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Medical Technology

The major and the minor in medical technology shall be a combined field including the courses in biology and chemistry listed in the curriculum given below plus the satisfactory completion of the technical training in a medical laboratory accredited by the Registry of Medical Technologists of the American Society of Clinical Pathologists.

Required Curriculum Leading to the Degree of Bachelor of Science with a Major in Medical Technology

First Year	Hrs.	Second Year	Hrs.
Biol. 103 General	3	Biol. 230 Anatomy and Physiology I	3
Biol. 175 General Zoology	3	Biol. 250 Anatomy and Physiology II	3
Chem. 109-110 General	10	Chem. 205 Qualitative	4
Engl. 103-104 Oral and Written Com- position	9	Chem. 206 Quantitative	2
Math. 101-102 Algebra	6	Chem. 207 Quantitative	3
Orientation	1	Engl. 203 or 205 Literature	3
Physical Education	1	Hist. 201 United States	3
	33	Psych. 201 General	3
		Social Science 101 and 102	6
		Hygiene	2
		Physical Education	1
			33

Third Year

The period of technological training. Of the total 136 hours required for the degree, 30 will be allowed for this training. The 30 semester hours given shall be divided in such a way that 15 semester hours will be considered of the 200-level and the other 15 semester hours will be considered of the 300-level.

Selection 1. Chemistry 301, 302; 19 hours of electives of the 300-level or above; and 4 hours electives at any level.

Selection 2. Biology 233 and 25 hours electives of the 300-level or above.

Note: Medical technologists are not required to take a foreign language.

Fourth Year Summer Session

Hist. 202	3
Physics 101, 101L, 102, 102L Funda- mentals	8
Philosophy and Religion	3
Selection 1 or 2 below	26
	40

PSYCHOLOGY

See Psychology, pages 149-151.

SECRETARIAL STUDIES

See Business Administration, page 74.

SOCIAL SCIENCE

See Social Science, page 153.

SPEECH

See English, pages 124-127.

COURSES OF INSTRUCTION

The use of a hyphen between numbers, as 101-102, indicates that credit is not given toward graduation for the work of one semester until the work of the other semester is completed except when special permission is granted by the head of the department involved. Ordinarily, the use of a comma between the semester numbers, as 105, 106, indicates that the course extends throughout the year, but that credit toward graduation is given for the work of either semester. In some cases, however, the first semester is prerequisite to the second semester, in which cases it is so designated.

Courses numbered from 101 to 199 are freshman courses; from 201 to 299, sophomore; 301 and above are upper division courses.

ACCOUNTING

Accounting courses offer a study along several correlated lines including: bookkeeping—presentation, analyzation, and interpretation of financial data; cost analyzing—consolidation, auditing, and taxes. They meet the general needs of the following students: those who wish to enter industry as private accountants; those who wish to prepare for certification by entering public C.P.A. firms for practical experience; those who wish to become cost analysts or general business executives; and those who wish to prepare themselves for teaching bookkeeping or accounting.

Students majoring in accounting are required to have a 36 hour major in accounting which includes the following numbered courses: Accounting 201-202, 301-302, 303-304, 310, 401-402, 403-404, 407 and 408 plus a 15 hour minor in a related field in courses numbered 200 or above. For major, minor, and other required courses please see the Accounting Curriculum on page 71.

For accounting curriculum, see page 71.

201-202. ELEMENTARY ACCOUNTING—Includes the theory of balance sheets, operating accounts, and working papers. Particular attention is given to the use of books of original entry and to the special ledger

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accounts. Setting up accounts and adjusting and closing books at the close of the fiscal period are developed through the use of a practice set and problems. Required of all who expect to take more advanced courses.

Three hours credit each semester.

201-202 X. ELEMENTARY ACCOUNTING LABORATORY—All day elementary accounting students are required to attend a laboratory course meeting two hours a week each semester while enrolled in Elementary Accounting 201-202. No college credit will be granted for this course. Work equivalent to one hour credit each semester.

205. ELEMENTARY INDUSTRIAL ACCOUNTING—A concentrated course in accounting designed for engineering majors. Basic indoctrination in the theory of journals, ledgers, and financial statements. Gives an appreciation and understanding of the processes and executive uses of accounting.

Three hours credit.

205 X. ELEMENTARY INDUSTRIAL ACCOUNTING LABORATORY—All day elementary industrial accounting students are required to attend a laboratory course meeting two hours a week while enrolled in Elementary Industrial Accounting 205. No college credit will be granted for this course. Work equivalent to one hour credit each semester.

Upper Division Courses

301-302. INTERMEDIATE ACCOUNTING—A study of financial statements, classification of real and nominal accounts, and special features pertaining to partnerships and corporations. Theoretical background of accounting principles and procedures with emphasis on profits, surplus, dividends, depreciation, funds, and reserves. Prerequisite, a grade of C or better in Accounting 201-202.

Three hours credit each semester.

303-304. COST ACCOUNTING—A study of the principles of cost finding for manufacturing accounts. The work covered includes appropriate problems and a set of cost accounting books. The topics developed include the threefold division of costing, with explanation of material accounting, payroll records, and the principles of recording and applying manufacturing expense. Specific types of costs covered: job order, process, standard, estimating, and comparative costs. Prerequisite, a grade of C or better in Accounting 201-202. (Formerly numbered 308-309)

Three hours credit each semester.

305. INDUSTRIAL COST ACCOUNTING—A concentrated course in the study of cost finding principles designed for engineering majors. The work covers appropriate problems and a practice set. The topics developed include the various cost systems, with explanation of material accounting, payroll records, and the distribution of overhead expenses. Special emphasis is placed on using cost data as a business control in administering the business enterprise. Prerequisite, a grade of C or better in Accounting 205.

Three hours credit.

310. STATEMENT ANALYSIS—The flow of funds as reflected in the financial statements. The use of ratios and other indices in interpreting the financial position, trends and other variations of the concern under review. Each student will be required to prepare an analysis of some prominent corporation and make comparisons with other principal competitors in the same field. Prerequisite, Accounting 301-302.

Two hours credit.

ACCOUNTING, ART

401-402. **ADVANCED ACCOUNTING**—This course covers partnerships and liquidations in installments; joint ventures; installment sales; insurance; receiverships; estates and trusts; branch accounting; consolidations and mergers; and an insight into the more specialized accounting fields. Prerequisite, a grade of C or better in Accounting 301-302.

Three hours credit each semester.

403-404. **FEDERAL TAXES**—This course covers the federal income, gift, estate, and capital stock taxes. Problems and actual tax returns are worked out as laboratory material for drill in the theory. Prerequisite, a grade of B or better in Accounting 201-202, and junior standing.

Three hours credit each semester.

405. **STATE TAXES**—A condensed study of all State taxes including sales, tangible and intangible, personal property, franchise, stamp, and other related taxes. Also a practical application in filling out the forms required of business by the various governmental agencies. Prerequisite, a major in Accounting and senior standing.

Three hours credit.

407. **AUDITING**—A study of the methods of auditing, stressing the verification of balance sheets and operating statements. Particular attention is given to the analysis and use of prepared statements. Prerequisite, a grade of C or better in Accounting 301-302 and 303-304. (Formerly 409)

Two hours credit.

408. **AUDITING PRACTICE**—A practical case in Auditing is worked through, pointing out the special recommendations for procedures used in actual practice. Prerequisite, Accounting 407. (Formerly 410)

Two hours credit.

411, 412. **C. P. A. QUIZ**—It is assumed that candidates for this course are familiar with principles of accounting and related subjects. All types of accounting and auditing problems will be solved and discussed from standpoints of theory and practice. Special emphasis is placed on accuracy and clearness of solutions of such problems as are encountered in C. P. A. examinations. Prerequisites, a grade of C or better in Accounting 401-402, 407. (Offered on demand.)

Three hours credit each semester.

415. **SYSTEMS**—Principles underlying the design and installation of accounting systems to meet the needs of all types of business concerns. Machine accounting methods and manuals of procedure are also studied. Prerequisite, Accounting 303-304.

Three hours credit.

417. **CONTROLLERSHIP**—The duties and responsibilities of the chief accounting officer in a private business concern. The use of accounting and statistical data in the planning, coordination, control and protection of business. Prerequisite, Accounting 303-304 and 401-402.

Three hours credit.

421. **ACCOUNTING SEMINAR**—Individual research studies of accounting problems. Topics are chosen by the student on some phase of research in which he is interested. Papers and speeches are prepared for the benefit of the class by the individual students. Prerequisites, Accounting 301-302, 303-304, 401, and senior standing.

Three hours credit.

ART

For art curriculums, see pages 70, 72, 77.

110, 111. **COLOR AND DESIGN**—Experimentation with all kinds of material. Realizing the effects of color with color, color into color, light on color. Creating collages and mobiles to realize space, experiments with light on these. Shadow forms. Use of various textures in collages and in

YOUNGSTOWN COLLEGE

two-dimensional design. Light and dark related. Getting forceful expressive shapes. Using different media on all kinds of materials. Art 110 is prerequisite to 111. Fee, \$1.00 each semester. *Three hours credit each semester.*

113-114. HISTORY AND APPRECIATION OF ART—GENERAL—Lectures. Arousing interest in what constitutes art. Interest in the plastic means rather than in subject matter. Relationship of parts in a work of art. Developments and influences. Experiments. Study of reproductions of collections in museums and of the surveys made.

Three hours credit each semester.

121. GRAPHIC ART FOR ELEMENTARY TEACHERS—Drawing and painting with different media such as crayons, chalk, water color, show card paints, and oils, to insure a broad knowledge of materials and ease in handling. Friezes, wall panels, stage scenery, illustrations made to fill some need. Work by children shown and analyzed. A portfolio of fine works of art is collected by the student as an enrichment to his background. Fee, \$1.00.

Two hours credit.

150. MECHANICAL DRAWING—Instruction in the proper use of instruments, correct drafting room practice, and conventional representation. Exercises in lettering, free-hand sketching, geometric construction, orthographic and oblique projection, sectioning, and isometric drawing. The objective of this course is to give the prospective art teacher the necessary preparation in mechanical drawing. This course will not be accepted for credit toward the engineering degree. Fee, \$1.00.

Three hours credit.

203, 204. DRAWING AND PAINTING—Principles of space division, understanding of the plastic means, line, plane, volume—light and dark, color and texture, and their relation to form and pattern. Experience with different media—pencil, charcoal, water color, opaque water color, pastel, oil, and collage. Dealing with arrangements of still life, figure composition, life, landscape, and abstract forms to develop a sense of plastic organization. Prerequisite, Art 110, 111. Art 203 is prerequisite to 204. Fee, \$1.00 each semester.

Three hours credit each semester.

211, 212. COLOR AND DESIGN—Further experimentation with color, light, space, and texture. Appreciation of design of higher order. Emphasis on fine relationships of tone, line, and color. Psychological theory of color. Color systems. New tendencies in pattern construction. Prerequisite, Art 110, 111. Art 211 is prerequisite to 212. Fee, \$1.00 each semester.

Three hours credit each semester.

221. DESIGN FOR ELEMENTARY TEACHERS—Study of structural and decorative design. Making simple motifs and repeat patterns. Color study. Lettering as design. Application of design principles to textiles, pottery, metal, weaving, and the decoration of tin and glass objects. Children's design and craft work shown. Fee, \$1.00 each semester.

Two hours credit.

223, 224. ADVERTISING ART—Practice with different styles of lettering. Attention to layouts, emphasizing design and good color. Practical problems. Process in reproducing work, silk screen, linoleum block, monoprint, and drypoint. Current tendencies studied. Prerequisite, Art 110, 111, except where the student is working toward the degree of Bachelor of Science in Business Administration, in which case 111 is not required as a prerequisite. Art 223 is prerequisite to 224. Fee, \$1.00 each semester.

Three hours credit each semester.

Upper Division Courses

301, 302. THEORY OF COLOR AND DESIGN—Study of the function of the several plastic means, line, plane, form, color, notan, and texture. Basic rules for the use of each to affect harmony. Experiencing the

ART

different properties of color by producing hue scales, value scales, chroma scales. Selection and use of hue chords, value chords, and chroma chords in major and minor keys. Study and use of proportionate measures in line and area. Dynamic symmetry. Analysis of masterpieces built on proportionate measures. Prerequisite, Art 211, 212. Art 301 is prerequisite to 302.

Three hours credit each semester.

303, 304. FIGURE DRAWING AND PAINTING—Experimentation with different styles of painting. Making collages to get good form, color, and texture arrangements. Analysis of modern methods. Originality stressed. Study of the figure is emphasized. The student is encouraged to develop the power to see significantly rather than imitatively. Explorative methods encouraged. Figures in composition, landscape, and still life. Students may specialize. Prerequisites, Art 203, 204. Art 303 is prerequisite to 304. Fee, \$1.00 each semester.

Three or four hours credit each semester.

305. HISTORY AND APPRECIATION OF ART—ITALIAN RENAISSANCE—Review of formalism, mysticism, and classicism. The humanists. A detailed study is made of the work of the great figures in the major arts during the fourteenth, fifteenth, and sixteenth centuries of Italy, and their connection with the history and philosophy of the times. Study of reproductions and of original collections in museums in this section. Prerequisite, Art 113, 114.

Three hours credit.

306. HISTORY AND APPRECIATION OF ART—MODERN—A brief study of primitive art expressions influencing modern artists. A survey of the Renaissance in Europe, analyzing art works to clarify ideas as to the nature of creative art. Comparing Impressionistic, Expressionistic, Cubistic, Abstract, Surrealistic, and other modern art expressions. Prerequisites, Art 203, 204 or equivalent.

Three hours credit.

316, 317. INTERIOR DECORATING—Attention is given to the work of new designers. Experiment with design. A study of period furniture, textiles, and accessories; learning textiles; making room plans. Visits to art galleries and to stores will be made to keep abreast with changing styles in furniture and fabrics. Prerequisites, Art 110, 111. Art 316 is prerequisite to 317. Fee, \$1.00 each semester.

Three hours credit each semester.

319, 320. JEWELRY AND METAL WORK—Students will be given experience in shaping copper bowls, plates, and trays, and in designing these objects by punching, etching, and engraving processes. Designing and studying jewelry design will accompany lessons in jewelry making. Lessons are planned to give experience in sawing, filing, piercing, soldering, stone-setting, repousse, modeling, engraving, and in applying the pin and catch. Students will study the properties of metals and through experience with these learn to respect the limitations of metals. Originality encouraged. Students will have choice of objects they wish to produce provided they work from simple processes to more complex. Prerequisite, Art 110, 111. Art 319 is prerequisite to 320. Fee, \$1.00 each semester.

Three hours credit each semester.

321. TEACHING OF ART IN THE ELEMENTARY SCHOOL—Materials and methods. A study of the art needs of children at different age levels and the means of providing desirable art experiences. The contribution of art to the elementary course of study. Objectives and procedures evaluated from the standpoint of the growth of the child. Contact with children's work and working situations in the classroom. Fee, \$2.50. *Two hours credit.*

322, 323. CRAFTS—This course includes experience in many kinds of material used in elementary and high schools, starting with the simplest crafts. Many methods of using paper, cloth, wood, clay, metal, and plastics

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to contribute valuable channels for art experiences will be carried on. Art 322 is prerequisite to 323. Fee, \$2.50 each semester.

Three hours credit each semester.

325, 326. POTTERY AND MODELING—Making of pottery shapes, coiling, hand-building, pinching, decoration, glazing. Consideration of sculptural form. Fashioning figures and heads. Mold-making and casting in clay and in plaster. Experience in bas-relief. Prerequisite, Art 110, 111. Art 325 is prerequisite to 326. Fee, \$2.00 each semester.

Three hours credit each semester.

327, 328. ADVERTISING ART—Study of modern layout practice and technique of rendering different media. Special work in silk screen, air brush, etching. Special assignments, book plates, trade marks, packaging, illustration, booklets. Rapid and fine execution of lettering. Prerequisites, Art 223, 224. Art 327 is prerequisite to 328. Fee, \$1.00 each semester.

Three hours credit each semester.

332. TEACHING OF ART IN THE SECONDARY SCHOOL—Students will investigate the values of art expression for secondary school boys and girls, and the courses best adapted to specific age levels. Art services for the school and community taking form in stage sets, murals, posters, and countless other forms will be considered. Familiarity with the best literature on the subject will be an important part of the course. *Two hours credit.*

403, 404. FIGURE DRAWING AND PAINTING—Continuation of Art 303, 304. Art 403 is prerequisite to 404. Fee, \$1.00 each semester.

Three hours credit each semester.

405. THE HISTORY OF ORIENTAL ART—A study of the art of India, China, and Japan from the earliest times to the present as influenced by the philosophies and religions of the Far East—Hindu religions, Confucianism, Taoism, and Buddhism and of the way it in turn interprets these. The contrast between the esthetic viewpoints is stressed and the characteristics of the great periods are compared. Prerequisites, Art 113, 114, 305, and 306.

Three hours credit.

410, 411. ADVANCED MODELING—Study of abstract volumes, creative design, and abstract design. Modern tendencies in pottery forms and figure work. Prerequisites, Art 325, 326. Art 410 is prerequisite to 411. Fee, \$2.00 each semester.

Three hours credit each semester.

419. JEWELRY AND METAL WORK—Advanced work in processes described in Art 319, 320. New problems in brass, silver, copper, and gold. Prerequisite, Art 319, 320. Fee, \$1.00.

Three hours credit.

ASTRONOMY

103. DESCRIPTIVE ASTRONOMY—A descriptive and non-mathematical study of the stars and the solar system. An analysis of the present theories of the universe and some observational sessions with telescope or field glass.

Three hours credit.

BIBLE

See Philosophy and Religion, pages 139-142.

BIOLOGY

BIOLOGY

Biology courses offer a survey along several correlated lines. They meet the needs of the following students: those who wish to obtain a general knowledge of the biological point of view; those who wish to prepare for graduate and research work in any of the special branches of biology; those who desire to prepare for teaching the biological sciences; and those who plan to enter professional fields such as medicine, nursing, pharmacy, forestry, horticulture, etc.

General biology majors are required to take Biology 103, 124, 125, 224, 225, 321, 411, 412, and electives from upper division courses. Biological Chemistry 321-322 may be counted toward a biology major.

Pre-medical science students and cooperative nursing students should consult the special curriculums, pages 89-92, for requirements.

103. GENERAL BIOLOGY—A general survey of biological principles covering morphology and physiology of chromosomes, cells, and tissues as manifested in animals, bacteria, and green plants. Three two-hour laboratory-discussion periods per week. Fee, \$6.00. *Three hours credit.*

120. PLANT TAXONOMY—A study and classification of the local flora of Northeastern Ohio; winter conditions. Two three-hour field trips or laboratory periods per week. *Three hours credit.*

121. PLANT TAXONOMY—A study and classification of the local flora of Northeastern Ohio; summer conditions. Two three-hour field trips or laboratory periods per week. *Three hours credit.*

124. BOTANY, LOWER FORMS—The Thallophyta, Bryophyta, and Pteridophyta. Two two-hour laboratory-discussion periods per week. Prerequisite, C or better in Biology 103. Fee, \$6.00. *Two hours credit.*

125. ZOOLOGY, INVERTEBRATES—The completion of the comprehensive study of the invertebrates. Two two-hour laboratory-discussion periods per week. Prerequisite, C or better in Biology 103. Fee, \$6.00. *Two hours credit.*

175. GENERAL ZOOLOGY—A survey of the invertebrates and a comprehensive study of the vertebrates. Three two-hour laboratory-discussion periods per week. Prerequisite, C or better in Biology 103. Fee, \$6.00. (Open only to students in nursing, physical education, and medical technology.) *Three hours credit.*

224. BOTANY, SEED PLANTS—The morphology and physiology of the Spermatophyta. Three two-hour laboratory-discussion periods per week. Prerequisite, C or better in Biology 124. Fee, \$6.00. *Three hours credit.*

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225. ZOOLOGY, VERTEBRATES—A comprehensive study of the morphology and taxonomy of the Chordata. Three two-hour laboratory-discussion periods per week. Prerequisite, C or better in Biology 125. Fee, \$6.00. *Three hours credit.*

230. ANATOMY AND PHYSIOLOGY I—The dissection of the cat, with interpretations and correlations to the structures of the human body. Three two-hour laboratory-discussion periods per week. Prerequisite, C or better in Biology 175 or 225. Fee, \$6.00. *Three hours credit.*

231. MICROBIOLOGY—Fundamental principles and technique in the culturing and classification of bacteria, yeast, and fungi. Two two-hour laboratory-discussion periods per week. Prerequisite, C or better in Biology 125. Fee, \$6.00. *Two hours credit.*

233. VERTEBRATE EMBRYOLOGY—A study of germ cells, maturation, types of cleavage and gastrulation, and the development of the frog, chick, and mammal. Living material is used in demonstration. Two one-hour lectures and two two-hour laboratory periods per week. Prerequisite, C or better in Biology 225. Fee, \$6.00. *Four hours credit.*

250. ANATOMY AND PHYSIOLOGY II—Functions of the human body. Three one-hour lectures per week. Prerequisite, C or better in Biology 230. *Three hours credit.*

260. LIMNOLOGY—The taxonomy and ecology of microscopic organisms in local waters. Four two-hour laboratory-discussion periods per week. Prerequisite, C or better in both Biology 124 and 125. Fee, \$6.00. *Four hours credit.*

Upper Division Courses

301. BACTERIOLOGY—A general study of the fundamentals of bacteria and methods of handling and growing micro-organisms. Two one-hour lectures and two three-hour laboratory periods per week. Prerequisites, twelve semester hours credit in biology, a knowledge of the principles of organic chemistry, and the consent of the instructor. Fee, \$10.00. *Five hours credit.*

309. VERTEBRATE ANATOMY I—A comparative study of the anatomical structures of a series of vertebrate animals exclusive of the mammals. Two one-hour lectures and one three-hour laboratory period per week. Prerequisite, C or better in Biology 233. Fee, \$10.00. *Three hours credit.*

310. VERTEBRATE ANATOMY II—The anatomy of mammals based on the cat, with reference to Biology 309. Two two-hour laboratory-discussion periods per week. Prerequisite, C or better in Biology 309. Fee, \$8.50. *Two hours credit.*

313. VERTEBRATE HISTOLOGY—The microscopic anatomy of mammalian tissue, including the preparation of tissues for study. Two one-hour lectures and two two-hour laboratory periods per week. Prerequisite, C or better in Biology 233. Fee, \$8.50. *Four hours credit.*

321. GENETICS—Principles of inheritance, organic evolution, and eugenics. Three one-hour lectures per week. (Students may enroll for special problems in genetics for two additional credit hours. Fee, \$6.00.) Prerequisite, C or better in Biology 224 or 225. *Three or five hours credit.*

331. PHYTOMORPHOLOGY—Comparative anatomy and histology of the vascular plants. Two one-hour lectures and two two-hour laboratory periods per week. Prerequisite, C or better in Biology 224. Fee, \$6.00. *Four hours credit.*

BUSINESS ADMINISTRATION, BUSINESS ORGANIZATION

401, 402, 403, 404. SEMINAR—Talks and round-table discussions conducted by practicing members of the biological professions. One two-hour lecture-discussion period per week. Prerequisite, C or better in 12 semester hours of biology. *One hour credit.*

405. GENERAL PHYSIOLOGY—An introduction to the basic processes common to all organisms. Five one-hour lecture-demonstration periods per week. Prerequisites, two years of biology and one year of chemistry. (Replaces Biology 410.) *Four hours credit.*

411. HISTORY OF BIOLOGY—By permission of the instructor. Available at all times. *Two hours credit.*

412. PROBLEMS IN BIOLOGY—Special biological problems which are possible with the materials and equipment available and for which the student is qualified. Examples: Stain technology, bioecology, experimental embryology, physiology, and plant taxonomy. Available at all times. Prerequisites, twelve semester hours of biology and consent of the instructor. Fee, \$3.00 per credit hour. *One to three hours credit.*

BUSINESS ADMINISTRATION

A major in business administration consists of 45 semester hours in the combined fields of accounting, business organization, and economics.

BUSINESS ORGANIZATION

Business organization courses offer a study along several correlated lines including advertising, business art, marketing, merchandising, salesmanship, transportation, and commercial law. They meet the needs of the following students: those interested in commercial advertising; those entering the marketing field whether in wholesaling or retailing; those who want a general background for preparation as junior executives in private business; and those interested in teaching in the field of business administration.

Students majoring in advertising are required to have a 30 hour major in business organization specializing in advertising in courses numbered 200 or above plus a 15 hour minor in a related field in courses numbered 200 or above. For major, minor, and other required courses, see the advertising curriculum on page 71.

Students majoring in business art are required to have a combined major of 45 hours in business art and business organization in courses numbered 200 or above plus a minor of 15 hours in a related field in courses numbered 200 or above. For

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major, minor, and other required courses, see the business art curriculum on page 72.

Students majoring in general business are required to have a combined major of 45 hours in accounting, business organization, or economics in courses numbered 200 or above plus a 15 hour minor in a related field in courses numbered 200 or above. For major, minor, and other required courses, see the general business curriculum on page 73.

Students majoring in merchandising are required to have a 30 hour major in business organization specializing in merchandising in courses numbered 200 or above plus a 15 hour minor in a related field in courses numbered 200 or above. For major, minor, and other required courses, see the merchandising curriculum on page 73.

101. PRINCIPLES OF BUSINESS—An introductory course in business administration which is designed to give the student information concerning the development of forms of business enterprises, management, relationship between employer and employee, credit, banking, and elementary accounting. For Business Education students only. *Three hours credit.*

103. TYPEWRITING—This course is designed primarily for students who have had no previous instruction in typewriting. Rudiments of typewriting will be taught during the semester. Students must attain a speed of 20 words per minute during the semester. Class will meet two hours each week. Credit given on degrees in business administration only. Fee, \$5.00. *One hour credit.*

104. TYPEWRITING—This course is designed for efficiency in typewriting and students must attain a speed of 30 words per minute during the semester. Class will meet two hours each week. Credit given on degrees in business administration only. Fee, \$5.00. *One hour credit.*

105. OFFICE MACHINES—This course is designed to give students a working knowledge of the adding and the calculating machine. Class meets two hours each week during the semester. Credit given on degrees in business administration only. Fee, \$5.00. *One hour credit.*

121. MATHEMATICS OF ACCOUNTING—This course is designed to acquaint the student with mathematics necessary for accounting. The following subjects will be studied: interest, discount, payroll, inventory, analysis of statements, partnerships, taxation, annuities, insurance, etc. *Three hours credit.*

201. BUSINESS LAW—This course is designed to give the student a practical working knowledge of contracts, agency, negotiable instruments, bailments, carriers, and sales. A study of legally binding agreements between persons, and their enforcement, including the making of a contract, the effect of fraud, duress, undue influence, etc. Prerequisites, English 103-104, Social Science 101. *Three hours credit.*

210. PUBLIC RELATIONS—A study of the problems of public relations approached primarily from the management point of view. Brief

BUSINESS ORGANIZATION

history of public relations, discussion of the media to be used, and the organization of public relations departments in stores, manufacturing concerns, and other types of business establishments. Attention will also be directed to the proper methods of writing the news story, the material for the house organ, and special items for other publications. Prerequisites, Social Science 101, English 103-104. *Three hours credit.*

215. PRINCIPLES OF TRANSPORTATION—Historical background of the economic growth and development of the five modes of transportation. Consideration is given to the growing importance of carrier coordination. Controversial subjects touched upon include: promotional policy, subsidy, and railroad control of competing modes of transportation. *Three hours credit.*

216. TRANSPORTATION SERVICES AND CLASSIFICATION—This course deals with various special services, claim papers, transportation forms, routings, tracings, and other essentials of shipping. *Three hours credit.*

224. MARKETING—A general survey of the field of marketing. A study of marketing functions and policies and marketing institutions. Prerequisite, Social Science 101. *Three hours credit.*

225. SALESMANSHIP—This course covers a knowledge of goods, study of customers and their wants, buying motives, planning a sale, attitude of buyers, meeting objections, closing the sale, cultivation of personality, problems in sales management, sales organization, sales planning and research, and others. (Formerly numbered 325.) *Three hours credit.*

227-228. ADVERTISING PRINCIPLES AND PRACTICE—A survey study of advertising as an instrument of modern business, including economics of advertising, advertising research, media, trademarks, campaigns. A discussion of copy writing, type, layout, methods, and the psychology of advertising. The second semester covers the study of the product, selection of media, determination of appeals to be made, space desired, and similar problems. Prerequisite, sophomore standing or higher. (Formerly numbered 327-328.) *Three hours credit each semester.*

Upper Division Courses

301. AIR TRANSPORTATION—An orientation course in the field of air transportation with special emphasis on historical background and federal regulation, including a survey of current problems dealing with monopoly, expansion, and government subsidies. Prerequisites, Social Science 101, Accounting 201-202. *Three hours credit.*

303. BUSINESS LAW—A study of the law of partnerships, corporations, property, bankruptcy, and insurance. The course covers wills, estates, and the relationships of debtor and creditor. Prerequisite, Business Organization 201. *Three hours credit.*

305. NEGOTIABLE INSTRUMENTS—Detailed study of commercial paper stressing negotiable instruments, letters of credit, non-negotiable documents and quasi-negotiable documents. This course is designed for students interested in the fields of banking, commercial houses, and other financial business enterprises. Prerequisites, Business Organization 201, 303. *Three hours credit.*

306. RAILROAD TARIFFS—This course covers the construction and interpretation of railroad tariffs, and the application of and reason for rates and routes by rail, water, and express. Prerequisites, Business Organization 216. *Three hours credit.*

311-312. BUYING AND MERCHANDISING—This course deals with methods employed by retail organizations in buying methods from

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sources of supply; sales planning; salesmanship; sales promotion; merchandising arithmetic; inventory control methods; research and statistics; dollar and unit control, involving six-month merchandising plans, purchase planning, model stocks, calculation of customer demand and reorder quantities, and open to buy. Prerequisite, Business Organization 121, 224, 225, and Accounting 201-202. *Three hours credit each semester.*

315. CORPORATION FINANCE—A study of promotion of new industries, capital structure of corporations, evolution of a business, working capital, surplus, dividends, voting trusts, investment trusts, public utilities, cooperative plans, and reorganizations. Prerequisites, Business Organization 201, 303, Accounting 201-202. *Three hours credit.*

317. REAL ESTATE PRINCIPLES—Principles of real property ownership and real estate practices; types of deeds, leases, restriction; real estate brokerage, selling, advertising; property management; subdividing and developing; zoning and its effects. Prerequisite, Junior standing. *Three hours credit.*

318. REAL ESTATE FINANCE AND PROBLEMS—Methods available for financing the ownership or occupancy of real property. Real estate and real estate paper as a field of investment. Problems involved in appraisal and practical methods of appraisal. Individual research in the field of real estate. Prerequisite, Business Organization 317. *Three hours credit.*

322. CREDITS AND COLLECTIONS—This course deals with credit instruments and classes of credits; also credit agencies, collection agencies, collections, collection methods, and the place of the credit man in business. *Three hours credit.*

326. APPLIED SALESMANSHIP—Practical application of the principles of salesmanship. Students will prepare sales talks and demonstrations for class work, emphasizing house to house canvassing, over-the-counter selling, mail order selling, direct mail selling, and variations in selling techniques in the different types of industries. Prerequisite, Business Organization 225. *Three hours credit.*

329. ADVERTISING COPY—An advanced course stressing the practical application of the subjects covered in advertising principles. Writing of newspaper, magazine, direct-mail, and radio script copy is done in class. Prerequisite, Business Organization 227-228. *Three hours credit.*

330. ADVERTISING LAYOUT—A graphic presentation of an advertising idea. A study of design and balance technique. The arranging of the elements according to their importance, such as: illustration, headline, sub-headline, body copy, signature, and various other phases. Prerequisite, Business Organization 329. *Three hours credit.*

331. NONTEXTILES—APPAREL ACCESSORIES—This course is designed to meet the needs of buyers, copywriters, the training departments, comparison shoppers, and instructors in the consumer or distributive education fields. Sources of raw materials, manufacturing processes, care, uses and selling points of the following types of merchandise are studied: leather, shoes, handbags, luggage, furs, jewelry, metals, precious and semi-precious stones, cosmetics, soaps, and perfume. *Three hours credit.*

332. TEXTILE FABRICS—Textile fibers—cotton, silk, linen, nylon, wool, rayon, and other new materials; methods of dyeing and printing; weaves—twill, plain, satin, and jacquard; tests to distinguish the fibers; swatches of materials are used as illustrations; government rulings are studied; uses of materials and wearability investigated. Fee for materials used, \$3.50. *Three hours credit.*

BUSINESS ORGANIZATION

401. ADVERTISING PROBLEMS—This is a seminar course for advertising minors, stressing work in the field of their interest or anticipated work after graduation. The work will be conducted on the conference plan, with research paper required. In addition to library readings, the student will be expected to study his specialized field through first-hand contacts. Wherever possible he will be assigned to work in a local advertising concern of his special interest. Open to seniors only. Prerequisites, Business Organization 329, 330. *Three hours credit.*

406. INTERSTATE COMMERCE LAW AND PROCEDURE—This course outlines and analyzes the procedure of the Interstate Commerce Act. This course places special emphasis upon formal and informal complaints and claims. Prerequisites, Business Organization 216, 306. *Three hours credit.*

409. MARKETING AND DISTRIBUTION—CONSUMER AND RETAILER—The entire marketing system is considered from the viewpoint of the consumer; the retailer as purchasing agent for the consumer; consumer attitude toward marketing institutions and their policies; sales promotion, publicity and public relations as they effect consumer choice; government control as protection to the consumer. Prerequisites, Business Organization 311-312. *Three hours credit.*

410. MARKETING AND DISTRIBUTION—MANUFACTURER AND WHOLESALER—Channels of distribution; product development, packaging and labeling; dealer helps in advertising and selling; physical distribution, warehousing, credit, risk and hedging; government control and legal limitations. Prerequisites, Business Organization 311-312. *Three hours credit.*

411-412. DIRECT ADVERTISING—This course covers the planning and preparation of the major forms of direct advertising. It includes the discussion and writing of sales letters, folders, leaflets, booklets, house magazines, etc. Multigraphing, mimeographing, printing, and engraving are also studied. Prerequisite, Business Organization 329. *Three hours credit each semester.*

415. RADIO ADVERTISING—Radio advertising from the viewpoints of the advertiser and of stations and networks selling radio time; history; organization; radio advertising problems; choosing the station; time and method of broadcast; programs; writing commercials; selling the campaign; research; radio advertising to retailers; sales promotion by networks and stations; regulation of radio advertising; consumer viewpoints. Prerequisite, Business Organization 329. *Three hours credit.*

422. ADVANCED CREDITS AND COLLECTIONS—Credit policy determination in business and industry; planning an effective credit investigation program; analyzing financial statements for credit purposes emphasizing control of accounts receivables in relation to sales; inventory and working capital; collection of delinquent accounts; and a study of legal aids for credit department use. Prerequisite, Business Organization 322. *Three hours credit.*

425. SALES MANAGEMENT—This course deals with the functions of the sales manager. Principal topics considered are: sales organizations; identification of merchandise, including testing, branding, packaging, labeling, warranties, and service; free deals and allowances; planning quotas and territories; selecting, training, and compensating salesmen; promotional campaigns and supervision; and the use of cost data as a guide to the formulation of sales and price policies. Prerequisites, Business Organization 225, 326. *Three hours credit.*

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431. MEN'S FASHIONS IN APPAREL—A comprehensive study of materials used for men, their use and when to wear them. Day and night formal, summer formal, dinner wear, business and play attire with the correct accessories will be studied. This course will aid buyers of fashion merchandise and will give advice to sales people helping customers to select proper clothing for weddings, social affairs, business, and beach wear.

Three hours credit.

432. TEXTILE FABRICS—ADVANCED—An intensive study of materials used in wearing apparel for women, men, infants, and children. Also home furnishing and domestics. This course is designed to meet the needs of buyers and salespeople in both selection of the correct materials and also to give the merchandising information necessary. Prerequisites. Business Organization 332 or permission of the instructor. Fee for materials used. \$3.50.

Three hours credit.

451. MARKETING SEMINAR—A discussion group of limited size. Each member of the group must be able to do original research on some marketing problem of interest to himself and prepare a workmanlike thesis to be presented to the group. He must also be able to study and discuss intelligently the subjects chosen for discussion by the other members of the group. Prerequisite, Business Organization 409 or 410. Open only to senior merchandising majors with a 2.0 average or better.

Two to four hours credit each semester.

CHEMISTRY

Students who are studying for the degree of bachelor of science with a major in chemistry are required to take the following chemistry courses: 109 or 111, 110 or 112, 205, 206, 207, 208, 301, 302, 303, 304, 307, 311, 312, 319, 320, 401, 404, 408, 419, 421, and three to six hours each in two of the following fields: advanced inorganic, biochemistry, and metallurgy. Two years of mathematics including calculus*, one year of physics, and a reading knowledge of scientific German are required. Further work in physics and a reading knowledge of French are also recommended. Students may obtain a degree of bachelor of arts in chemistry, but the course leading to the degree of bachelor of science gives the student better preparation for graduate work and for the more desirable industrial positions.

For chemistry curriculums, see pages 75, 82, 86.

103. SLIDE RULE—Logarithms, significant numbers, and manipulation of the slide rule. Problems in chemistry are emphasized.

One hour credit.

109-110. GENERAL CHEMISTRY—A study of the fundamentals of general chemistry. Three lectures and recitations, four hours laboratory, including one discussion period each week. Prerequisite, two years of high school mathematics. For those who have not studied chemistry in high school. Fee, \$7.00 each semester.

Five hours credit each semester.

* Mathematics 210, Calculus, is accepted as upper division credit for chemistry majors.

CHEMISTRY

111-112. GENERAL CHEMISTRY—A more advanced course in general chemistry for those who have had a satisfactory year's work in high school chemistry. Two lectures and recitations, four hours laboratory, including one discussion period each week. Prerequisite, two years of high school mathematics. Fee, \$7.00 each semester. *Four hours credit each semester.*

115-116. EVERYDAY CHEMISTRY—This course is intended for students who wish to take chemistry for its cultural value. Emphasis is placed on the chemistry of the things with which we have daily contact, as chemistry in the home, the parks and fields, and everyday business and industrial life. Only the simpler mathematical phases are involved. Not accepted for credit toward a major in chemistry or engineering. A student who has taken this course may follow with additional courses in chemistry providing he takes Chemistry 110. Three lectures and recitations, and one three-hour laboratory period each week. Fee, \$5.00 each semester. *Four hours credit each semester.*

119. CHEMICAL PROBLEMS—A course in the mathematical aspects of first year chemistry. One hour lecture and recitation per week. Prerequisite or concurrent, first year chemistry. *One hour credit.*

205. QUALITATIVE ANALYSIS—An extension of the study of atomic structure, valence, periodic system, and chemical equilibrium and their applications to reactions, properties of elements and compounds, and analytical procedures. The laboratory work consists of the systematic analysis of cations, anions, and salts on a semi-micro basis. Spot testing where applicable, is used only for confirmatory work. Two hours lecture and recitation and two three-hour laboratory periods each week. Prerequisite, Chemistry 109-110 or 111-112. Fee, \$7.00. *Four hours credit.*

206. QUANTITATIVE ANALYSIS—An introduction to the fundamental techniques and principles of quantitative analysis, both volumetric and gravimetric; use of the analytical balance; use of volumetric apparatus; errors in quantitative works, means of minimizing errors; calculations of quantitative analysis. One hour lecture and one three-hour laboratory period each week. Prerequisite or concurrent, Chemistry 205. Fee, \$7.00. *Two hours credit.*

207. QUANTITATIVE ANALYSIS—Volumetric analysis. Acidimetry and alkalimetry; oxidation and reduction methods; water analysis (chemical) as a means of determination of very small concentrations of materials by colorimetric methods. One hour lecture and two three-hour laboratory periods each week. Prerequisite, Chemistry 206. *Three hours credit.*

208. QUANTITATIVE ANALYSIS—Gravimetric analysis. Principles and methods of gravimetric separations. Analysis of ores, rocks, minerals. One hour lecture and two three-hour laboratory periods each week. Prerequisite, Chemistry 206. *Three hours credit.*

216. CHEMICAL PROBLEMS—A course in the mathematical aspects of second year chemistry involving problems of qualitative and quantitative analysis. One hour lecture and recitation each week. Prerequisite, first year chemistry. *One hour credit.*

Upper Division Courses

301, 302. ORGANIC CHEMISTRY—A study is made of the nomenclature, properties, and departments of the aliphatic and aromatic carbon compounds. In the second part, emphasis is placed upon general organic reactions, their applications and the theories underlying them. Three lectures and recitations each week. Prerequisite, Chemistry 205. Chemistry 301 is prerequisite to 302. *Three hours credit each semester.*

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303, 304. ORGANIC CHEMISTRY—The work consists of the preparation and study of typical aliphatic and aromatic compounds, and introductory work in the separation, purification and identification of simple compounds. Two three-hour laboratory periods each week which include one discussion period. Prerequisite or concurrent, Chemistry 301. Chemistry 303 is prerequisite to 304. Fee, \$9.00. *Two hours credit each semester.*

307. CHEMICAL LITERATURE AND TECHNICAL WRITING—Examination of standard reference works, periodicals, pamphlets, etc., with written reports on each unit studied following various types of technical writing procedures; translation of a short German article. One hour class work, five hours reference and composition work a week. Required for sophomores majoring in chemistry. *Two hours credit.*

311, 312. PHYSICAL CHEMISTRY—A course in the principles of theoretical chemistry, including the study of: the structure of matter, equilibria, chemical kinetics, chemical thermodynamics, electro-chemistry, catalysis, and mechanism of reactions. Problem work is included. Three lectures and recitations each week. Prerequisite, Chemistry 208. Prerequisite or concurrent, Mathematics 209-210, Physics 201 and 202. Chemistry 311 is prerequisite to 312. *Three hours credit each semester.*

317. CHEMICAL PROBLEMS—A course in the mathematical aspects of chemistry above the second year. One hour lecture and recitation each week. Prerequisite, second year college chemistry. *One hour credit.*

319, 320. PHYSICAL CHEMISTRY—Quantitative investigation of gas laws, surface tension, speed of reaction, solutions, phase diagrams, electromotive force, hydrogen ion concentration, and absorption. Two three-hour laboratory periods each week, including one discussion period. Prerequisite or concurrent, Chemistry 311-312. Chemistry 319 is prerequisite to 320. Fee, \$9.00 each semester. *Two hours credit each semester.*

321-322. BIOLOGICAL CHEMISTRY—The analytical and physical chemistry of living organisms in general. Comparative study of the physical and chemical processes used by living organisms in relation to the nature of their environments. Preparation of products obtained from natural materials. Study of procedures of especial use in biological chemistry. Prerequisites, Chemistry 205, 206, 301, and a course in biology, preferably in college. Two lectures and three hours laboratory work each week. Fee, \$7.00 each semester. *Three hours credit each semester.*

340-341. PRINCIPLES OF CHEMICAL ENGINEERING—See Engineering 340-341.

343. GAS AND FUEL ANALYSIS—The work consists of the analysis of natural and artificial gases, gas calorimetry, analysis and calorimetry of coal, and the analysis and physical testing of oils. One lecture and two three-hour laboratory periods each week. Prerequisite, Chemistry 208. Fee, \$7.00. *Three hours credit.*

345. THE RARER ELEMENTS—A study of the rarer elements including preparation, properties, and qualitative separation. Two hours lecture and recitation per week. Prerequisites, Chemistry 207 and 208. *Two hours credit.*

347. INORGANIC SYNTHESIS—A course in the preparation and purification of inorganic compounds with a study of the principles involved. Six hours of laboratory per week including discussion. Prerequisites, Chemistry 207 and 208. *Two hours credit.*

401. ADVANCED QUANTITATIVE ANALYSIS—The work includes colorimetric, turbidimetric, and electrometric titrations. The use of

CHEMISTRY, CLASSICAL LANGUAGES, ECONOMICS

instruments is emphasized. Nine laboratory hours which include one discussion period. Prerequisite, Chemistry 208 or its equivalent. Fee, \$9.00.

Three hours credit.

404. ORGANIC ANALYSIS—The work is a study of systematic methods of separation, purification, and identification of organic compounds, and practice in the standard methods for the quantitative analysis of organic compounds. Twelve laboratory hours each week including one discussion period. Prerequisite, Chemistry 303. Fee, \$9.00.

Four hours credit.

408. HISTORY OF CHEMISTRY—Survey of the origin and development of chemical theory and practice from ancient times to the present. One hour class work a week of reports, recitations, and lectures. Open to juniors and seniors majoring in chemistry.

One hour credit.

411. CHEMICAL THERMODYNAMICS—The study of the laws of thermodynamics and their applications to entropy, free energy, and heat capacity.

Two hours credit.

412. CHEMICAL THERMODYNAMICS—The application of thermodynamics to phase equilibria, fugacity, and activity, free energy and chemical reactions, solution activities, Debye-Huckel theory, and electrical potential.

Two hours credit.

415. ELECTRO-CHEMISTRY—Two lectures and two three-hour laboratory periods each week. The fundamental principles and applications of electro-chemistry are considered and correlated laboratory experiments are carried out. Open to juniors and seniors who have had Chemistry 207. Fee, \$5.00.

Four hours credit.

419. ADVANCED INORGANIC CHEMISTRY—An advanced course in the theories of inorganic chemistry. Two lectures and recitations each week. Prerequisite, Chemistry 208.

Two hours credit.

421. ADVANCED ORGANIC CHEMISTRY—An advanced course in theories of organic chemistry. Two lectures and recitations each week. Prerequisite, Chemistry 302.

Two hours credit.

450. GROUP RESEARCH—A research course for seniors of outstanding ability who are candidates for the degree of bachelor of science. Each student works on a separate phase of a group problem. The professor in charge of each group coordinates and closely supervises the work. Prerequisite, the completion of at least thirty semester hours of chemistry with a B average or better. Fee, \$5.00 first credit hour, \$3.00 for each additional credit hour.

Hours and credits arranged.

CLASSICAL LANGUAGES

See Greek, page 131, and Latin, page 136.

ECONOMICS

A major in economics consists of 24 semester hours in addition to Social Science 101, 102, 201, and 202. Courses in other departments for which credit may be given toward the major in economics are: Engineering 360, Industrial Organization; Engineering 361, Motion and Time Analysis; History 301, Economic History of Europe; History 302, Economic History of the United States; Business Organization 224, Mar-

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keting, and Business Organization 315, Corporation Finance. The major is designed to prepare students for research and statistical work in business and government service and to give a foundation for graduate study in the field.

104 ECONOMIC GEOGRAPHY—An elementary survey of the raw materials of the earth, methods of livelihood, land utilization, and population problems. *Three hours credit.*

202. PRINCIPLES OF ECONOMICS—A course in economic theory to supplement the material in Social Science 101 and 102. For economics majors only. *Three hours credit.*

Upper Division Courses

303. FINANCIAL ORGANIZATION—The aim of the course is two-fold: first to furnish a foundation for the more technical studies in the field of finance; and second, to describe the financial institutions with which the average person comes in contact in life, such as the commercial bank, building and loan association, finance company. *Three hours credit.*

304. PUBLIC FINANCE—A survey of the development and present status of public finance; federal, state, and local taxation; public credit; the budget; financial administration. *Three hours credit.*

305. ELEMENTARY STATISTICS—The course presents techniques for measurement and interpretation of economic and social data. Topics covered are tabular and graphic presentations, averages, ratios and coefficients, dispersion, correlation, measurement of trends, and collection of statistical material. *Three hours credit.*

309. ENGINEERING ECONOMICS—Economics and statistical problems of engineering with emphasis upon the following topics: annuities, financing engineering enterprises, valuation and depreciation, replacement. *Three hours credit.*

311. LIFE INSURANCE (C. L. U.)—Survey of the economic functions of life insurance, company practices, government regulations, actuarial principles. Primarily for candidates for the Chartered Life Underwriters Examinations. *Three hours credit.*

312. LAW, TRUSTS, AND TAXES—A study of the law of contracts, wills, and taxes as applied to Life Insurance (C. L. U.). *Three hours credit.*

401. LABOR PROBLEMS—The history of the labor movement in England and in this country is outlined as a background for discussion of present issues. *Three hours credit.*

402. COMPARATIVE ECONOMIC SYSTEMS—A comparative study of American Capitalism, Russian Communism, and British Socialism. *Three hours credit.*

404. PERSONNEL MANAGEMENT—The background and field of labor management are reviewed: the functions of selection and training of employees and the maintenance of business relationships including wage policy, safety and health, benefits, and grievance adjustment in organized and unorganized companies. Prerequisites, Social Science 101, 102, 201, and 202. *Three hours credit.*

407, 408. ECONOMIC THEORY—Seminar for seniors majoring in economics. Readings in the history of economic thought. *Three hours credit each semester.*

EDUCATION

EDUCATION

To qualify for the Bachelor of Science in Education degree, the student must complete one of the curriculums leading to an Ohio State Provisional Certificate, unless he holds a provisional or higher certificate valid for teaching in the state of Ohio. The course in Student Teaching, Education 404, or Education 405, is required in each of the curriculums. The requirements for admission to Student Teaching are high. Every student who is planning to complete the requirements for a certificate at Youngstown College is urged to read the description of Education 404 in the college catalog.

Candidates for the Provisional High School Certificate must complete the requirements for at least three teaching fields. The degree major may be in Education or in a teaching field. Prospective high school teachers should get a copy of the Guidance Form for the Provisional High School Certificate and follow carefully the minimum requirements in the various teaching fields. They are urged to follow the Combined Curriculum leading to both the Provisional High School Certificate and the Provisional Elementary Certificate.

Students who expect to teach in high school or elementary school should consult with the head of the department of education to insure that their plans for professional preparation are satisfactory. They are urged to participate in extracurricular activities while in college in order that they may be qualified to direct such activities in the public schools.

A major in education consists of 30 semester hours in education courses, except Education 101, and in acceptable courses in other departments, as follows: Art 321, Teaching of Art in the Elementary School; Art 332, Teaching of Art in the Secondary School; English 251, Modern American English; Music 315-316, Music in the First Six Grades; Music 321, Music Education for Elementary Teachers; Music 411-412, Teaching of Music in the Junior and Senior High School; Physical Education 203, Principles of Health and Physical Education; Physical Education 311, Theory and Practice of Physical Education other than Athletics; Physical Education 321, Hygiene for Elementary Grades; Physical Education 322, Health Activities for Elementary Grades; Physical Education

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403, Organization and Administration of Health and Physical Education; Physical Education 404, Organization and Administration of Playgrounds and Recreation; Physical Education 409, Theory and Practice of Athletic Coaching; Physical Education 410, Football; Physical Education 411-412, Theory and Practice of Physical Education; Physical Education 415, Teaching of Health in Secondary Schools; Psychology 201, General; Psychology 202, Psychology of Education; Psychology 305, Child Psychology; Psychology 306, Psychology of Adolescence; Psychology 308, Personality and Mental Hygiene; Psychology 310, Psychological Aspects of Personnel Relations; Psychology 405, Interviewing and Counseling; Psychology 406, Vocational Guidance; Psychology 425, Guidance of High School Students; Psychology 426, Study of An Individual Child.

Students will not be accepted for the degree of Bachelor of Science in Education until their application for such candidacy has been approved by the Department of Education.

A minor in education consists of 15 semester hours in courses acceptable for the major in education.

A major in education can be utilized to satisfy the major requirements of the degrees Bachelor of Arts and Bachelor of Science in Education.

101. INTRODUCTION TO EDUCATION—Designed to be the first professional course for prospective teachers. It includes observation in pre-school, elementary, junior and senior high school, and special classes, thereby having definite guidance value and furnishing background for later professional courses. Class discussions will be devoted to an analysis of desirable personality traits, personal and social ends derived from teaching, placement opportunities, preparation requirements, and observations.

Two hours credit.

214. CHILDREN'S LITERATURE—Designed to acquaint the student with children's literature, and to consider methods of helping children to use and enjoy books. Emphasis will be placed upon the reading of recent books. Attention will be given to the principles of selection, historical development, methods, authors, and illustrators. Visits will be made to book departments, libraries, and classrooms.

Three hours credit.

Upper Division Courses

301. PRINCIPLES OF TEACHING—A study of general methods of high school teaching: typical classroom procedure, the methods utilized by superior teachers, attention to individual differences, measuring the results of teaching, planning the instruction. Observation of teaching in high schools. Open to juniors and seniors.

Three hours credit.

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302. ORGANIZATION AND ADMINISTRATION OF SCHOOL LIBRARIES—The fundamentals of school library organization and control, functions and duties of the librarian, use of reference materials, business management and accounts, and principles and records required in the circulation of books. *Three hours credit.*

303. CATALOGING AND CLASSIFICATION—A study of the structure of a catalog and its adaption to school libraries. Practice work in making a dictionary card catalog includes the use of Library of Congress printed cards. A study of the principles of classification. The Dewey Decimal classification, as the system in most general use, is used as the basis for the course. Prerequisite, ability to operate a typewriter. *Three hours credit.*

304. CLASSROOM ADMINISTRATION, ORGANIZATION, AND MANAGEMENT—A study of problems of classroom control, attendance, organization, curriculum, program, procedure, and of extracurricular activities in the light of a modern philosophy of education. Observation of teaching in public schools. Open to juniors and seniors. *Three hours credit.*

305. APPRENTICESHIP—Similar to Education 404A, but for elementary school teachers. *Three hours credit.*

306. EDUCATIONAL MEASUREMENT AND GUIDANCE—A study of the construction, administering, scoring, and interpreting of the new type objective examination; the selection, administering, scoring, and interpretation of results of standardized tests and scales, and their use in vocational and educational guidance. Open to juniors and seniors. Fee, \$1.00. (Summer) *Two hours credit.*

306X. EDUCATIONAL MEASUREMENT, GUIDANCE, AND STATISTICS—The same as Education 306, with the addition of a study of elementary statistics as applied to educational data. Fee, \$1.00. (Summer) *Three hours credit.*

307. HISTORY OF EDUCATION—A study of the historical development of educational organizations, objectives, curriculums, and methods with special reference to a better understanding of modern educational conditions and problems. The place of education in various civilizations, especially our modern Western civilization, is studied. This course may be counted also on a major or minor in history. Open to sophomores, juniors, and seniors. (Summer) *Two or three hours credit.*

308. EDUCATIONAL SOCIOLOGY—A study of sociological foundations of education: the relation of the individual and the social group; the school as a social institution; the relations of the home, the community, and the state and education; the relations of social control, social progress, democracy, efficiency, and culture and education; a study of the social aspects of specific school problems—the selection of educational objectives, the educative process, the curriculum, educational guidance, school control, moral education, and the selection and improvement of teachers. This course may be counted on a major or a minor in sociology. Open to sophomores, juniors, and seniors. (Summer) *Three hours credit.*

309. THE HIGH SCHOOL CURRICULUM—The course will include a definitive discussion of curriculum and the several concepts involved. Time will be given to a consideration of the relationship between curriculum revision and social or community problems, and the place of curricular revision in a world of change. The various approaches, objectives, and techniques will be examined. Students may be required to submit a curriculum plan in some chosen field of subject matter. *Three hours credit.*

312. THE TEACHING OF HANDWRITING—A course in penmanship to improve the writing ability of the student and to consider methods of teaching. *One hour credit.*

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313. THE TEACHING OF SKILLS—Principles effective in the learning of skills will be studied and applied to the teaching of materials drawn from the skill phases of spelling, arithmetic, writing, and language.

Three hours credit.

314. THE TEACHING OF CONTENT SUBJECTS—Principles effective in the learning of content subjects will be studied and applied to material drawn from history, geography, and other content phases.

Three hours credit.

317. EXTRACURRICULAR ACTIVITIES—This course is intended to familiarize the student with the different philosophies of extracurricular activities. By a process of reflective thinking the class will arrive at a personal philosophy that will work in the individual cases. The organization, supervision, and administration of extracurricular activities will be discussed in the light of best practice. These activities will include such school organizations as: Student Council, Dramatics, Booster Club, and Bird Club. Open to sophomores, juniors, and seniors.

Three hours credit.

330. AUDIO-VISUAL EDUCATION—The philosophies, aims, and theory of audio-visual aids will be studied, as well as the use of various kinds of materials and projectors. Teaching practices in relation to sensory aids and their correlation with other aspects of teaching are emphasized. Class reports, demonstration lessons and practice as operators shall be required.

Three hours credit.

332. THE EXCEPTIONAL CHILD IN THE REGULAR CLASSROOM—The fundamentals of special education for the classroom teacher. How to discover the exceptional child. The causes, prevention, and treatment of physical and mental handicaps in children. Handling the mentally gifted children and those who are behavior problems. Prerequisite, Psychology 201.

Three hours credit.

400. SPECIAL METHODS—A study of problems involved in the teaching of different high school subjects. Each student will specialize on the subject of his special interest. Observation of teaching in public secondary schools; reports; term paper. Each student will have a conference each week with the head of the department of his major teaching subject. At least one-fourth of the instruction in the course will be given by the department head or by some teacher appointed by him. Prerequisite, Education 301. Open to seniors.

Two hours credit.

401. PRINCIPLES OF EDUCATION—This course is required for elementary teachers and is elective for secondary teachers. It develops an analysis of current education, its aims, its sources, its strength and weaknesses. The current practices will be traced to the great contributors, from Pestalozzi and Froebel to the modern group. The course aims to make the contributors real personalities, the threads of their influence shown in the warp and woof of modern education. However, the personalities should not obscure the principles. The focus will be on the means by which modern education promotes the growth of the whole child in a democratic society.

Three hours credit.

404. SUPERVISED STUDENT TEACHING AND APPRENTICESHIP—HIGH SCHOOL—Observation and teaching of high school classes under the direction and guidance of supervisors. Students meet in class one period each week for announcements and to discuss problems. Conferences with the instructor or the regular classroom teacher will be scheduled or on call. To take this course students must make written application on the form provided for this purpose before the middle of the previous semester, and must have the unqualified approval of the heads of the departments in which he is specializing for the purpose of teaching, and of the head of the department of education. He should maintain a quality point

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average not lower than 2.00 in his teaching fields and not lower than 1.5 in all of his college work. His percentile rank should be not lower than thirty-four in the Ohio State University Psychological Test or lower than forty in the American Council on Education Cooperative English Test. It is understood, however, that the actual classroom teaching must be satisfactory at all times; otherwise, it may be discontinued at any time without warning. The apprenticeship part of the course is under the direction of the principal of the high school to which the student is assigned or some person designated by him. The apprentice teacher may be assigned to do substitute teaching, study hall supervision, office work, pupil personnel work, observation of teaching, library work, research work, or anything that a regular teacher might be expected to do. In planning his schedule for the semester, the student should leave a half day throughout the week unscheduled except for student teaching. Open to approved seniors during their last semester in college. Fee, \$10.00. *Six hours credit.*

405. SUPERVISED STUDENT TEACHING—ELEMENTARY EDUCATION—The same as Education 404 except in elementary grades. Fee, \$10.00. *Nine hours credit.*

413. THE TEACHING OF READING—A study of the principles and techniques of teaching reading, and the purpose of reading as a functional part of the day's activities. Attention will be given to oral, silent, and audience reading, and to diagnostic and remedial measures. *Three hours credit.*

420. PROBLEMS OF THE MODERN CLASSROOM TEACHER—The course is meant to stimulate teachers to better work in their classrooms through an adjustment to the teaching surroundings. Solutions to the problems will be sought through a re-thinking of philosophy, methods of instruction, and ethics. The solutions decided upon must be of a practical nature in the light of best practice and procedure. The professional, legal, and social status of the teacher, teacher adjustment, teacher-pupil relations, and other problems will be discussed. *Three hours credit.*

430. EDUCATIONAL PROGRAMS FOR CHILDREN IN ELEMENTARY SCHOOLS—The course affords opportunity to explore relationships with homes and other educational agencies. Special attention is given to utilizing resources of the arts, subject matter fields, community, and other related areas. *Two hours credit.*

431. CHILDHOOD EDUCATION I—This course is planned to explore, analyze, evaluate, and provide for the physical, emotional, intellectual, and social needs of children as we find them at the kindergarten-primary stage of development. *Two hours credit.*

432. CHILDHOOD EDUCATION II—In this course the findings and philosophy developed in Education 431 will be applied to the practical and specific phases of the kindergarten-primary period. Attention will be given to school and community environment, curriculum, equipment, daily program and materials. *Two hours credit.*

433. TEACHING SLOW LEARNERS IN THE REGULAR CLASSROOM—This course will be of special help to the teacher of regular classes. It includes a study of problems, techniques, and helps for the teacher with slow learners. Opportunity to study individual problems. Attention given to curricular units, definite guidance, and planning. *Three hours credit.*

441, 442. PROBLEMS OF PUPIL PERSONNEL—A study of the practical problems that confront teacher and pupil in regular school routine. Special emphasis will be given to discipline, attendance, public school delinquents, child labor, and school-parent relationship. Practical cases will be presented and social agencies studied as auxiliaries to the school program. Not open to freshmen. *Two hours credit each semester.*

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ENGINEERING

For engineering curriculums, see pages 82-86.

For mathematics requirements for engineering students, see page 137.

Any candidate for the degree of Bachelor of Engineering who has a cumulative scholastic point index of less than 1.00 at the end of any semester will be placed on probation during the next semester. The student will not be readmitted to candidacy for these degrees if he fails to raise the point index to the necessary minimum during the probation semester.

101. ELEMENTARY ENGINEERING DRAWING—A study of the use of drafting instruments, lettering, orthographic projection, sections, isometric drawing, and technical sketching. Special attention is given to pencil and ink line technique. Fundamentals of dimensioning are stressed. One hour lecture, three hours laboratory. Fee, \$2.50. *Two hours credit.*

102. ENGINEERING DRAWING—DESCRIPTIVE GEOMETRY—Exercises dealing with points, oblique lines, and oblique planes in space. Determination of distances, intersections, and angular measurements as occur in practice. The fundamental geometric solids are cut by oblique planes and surfaces are developed. Prerequisite, Engineering 101. *Three hours credit.*

105. ENGINEERING GEOLOGY—A study of the minerals of the earth's crust; of structural features of the earth's crust and how they were formed; and the surface features of the earth and their origin. Laboratory work consists of study and identification of the common minerals and rocks. Fee, \$3.00. *Three hours credit.*

130. SURVEYING—A study of the theory of surveying, and the use of instruments. Practical problems are given in leveling, traversing, and topography. Maps are drawn from field notes. One hour recitation and five hours laboratory. Course is given in the summer term only. Prerequisites, Mathematics 120-121 and Engineering 101. Fee, \$5.00. *Three hours credit.*

201. ADVANCED ENGINEERING DRAWING—The principles studied in Engineering 101 are applied to the making of detail and assembly drawings of machine parts. In the second half of the semester, students are grouped into the various branches of engineering in which they are majoring and each group is given problems pertaining to its particular branch. One hour lecture, three hours laboratory. Prerequisites, Engineering 101 and 102. Fee, \$2.50. *Two hours credit.*

203. ARCHITECTURAL DRAWING—This course is devoted to the drawing and designing of small homes. A study of various building materials and detail of construction. Prerequisite, Engineering 101. Fee, \$2.50. *Three hours credit.*

204. ARCHITECTURAL DRAWING—This course will embrace both interior and exterior perspective drawing. Interior and sectional isometric drawing will be included, along with shades and shadows of objects in respect to interior perspective. Prerequisite, Engineering 203. Fee, \$2.50. *Three hours credit.*

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211-212. PRINCIPLES OF RADIO—Circuit constants, resonant circuits, fundamental properties of vacuum tubes, diodes, triodes, vacuum tube amplifiers, power amplifiers, oscillators, tube characteristics, transmitters and receivers. Prerequisite, Mathematics 120-121.

Three hours credit each semester.

220. ANALYTICAL MECHANICS—STATICS—Study of fundamental principles of mechanics and their application to problems of engineering. Forces, components, vectors, moments, couples, cables, and friction. Moments of inertia are introduced in preparation for strength of materials. Prerequisites, Mathematics 209-210, Physics 201 and 202.

Three hours credit.

230. ROUTE SURVEYING—A study of preliminary route location, including the necessary office and field work, curves used in railroad and highway construction and earth work. Class for first ten weeks is conducted for six hours per week in the field. The remaining six weeks students spend three hours per week in the class room. Course is given in the fall term only. Prerequisites, Engineering 130 and Mathematics 120-121. Fee, \$5.00.

Three hours credit.

251, 252. GENERAL METALLURGY—Three lectures and recitations per week. A study of the principles of metallurgical processes with particular emphasis on the manufacture of iron and steel. Essentials of metallurgical reactions, refractories for metallurgical furnaces, furnaces and fuels, iron ores and other raw materials of the iron and steel industry, the iron blast furnace, the Bessemer converter, acid and basic open hearths, acid and basic electric furnaces, manufacturing costs, and marketing of steel products. Prerequisite, Chemistry 109-110 or equivalent.

Three hours credit each semester.

255. METALLOGRAPHIC TECHNIQUE—Two hours laboratory work per week including one discussion period. Essentially a laboratory course in the techniques of preparation, examination, and photography of iron and steel samples. The student will have the opportunity to become acquainted with typical steel structures after which various heat treatments and the general principles of heat treatment will be taught. There will be opportunity for the identification of non-metallic inclusions and study of defective steels. Prerequisite, Chemistry 205. Fee, \$5.00.

Two hours credit.

Upper Division Courses

301-302. REPORT WRITING—A study of the engineering report as to content and methods of presentation; the actual construction of a comprehensive report on an engineering enterprise, making use of data obtained in previous studies. Prerequisite, advanced standing in engineering.

Two hours credit each semester.

303. MACHINE DESIGN LABORATORY I—This course includes the design of actual machine elements, such as shafts, belt drives, gears, and cams; layouts for cam profiles and gear teeth. It also includes a study of displacements, velocities, and accelerations associated with machine elements. To be taken concurrently with Engineering 371. Fee, \$2.50.

One hour credit.

304. MACHINE DESIGN LABORATORY II—A continuation of Engineering 302. This course will also include the design of an entire machine. To be taken concurrently with Engineering 470. Fee, \$2.50.

One hour credit.

311-312. ELECTRIC CIRCUITS—Study of the electric circuit; the application of Ohm's Law and Kirchoff's Law to direct- and alternating-current circuits; wave form of E. M. F.; relations of simple harmonic

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E. M. F.'s and currents; phase differences; active, reactive, and apparent power, power factor and reactive factor; resistance, inductance, and capacitance, singly or in combination; polyphase circuits, balanced and unbalanced; power in polyphase systems; and vector representation and calculation. Prerequisites, Mathematics 209-210, Physics 201 and 202.

Three hours credit each semester.

311L-312L. ELECTRIC CIRCUITS LABORATORY—Two hours per week to be taken concurrently with Engineering 311-312. Fee, \$5.00 each semester.

One hour credit each semester.

313-314. ELEMENTS OF ELECTRICAL ENGINEERING—Recitations and problems dealing with the elementary principles of direct- and alternating-current circuits and machines. Electrical engineering laboratory practice throughout both semesters. Not open to electrical engineering students. All other engineering students will take this course. Fee, \$12.50 each semester. Prerequisites, Mathematics 209-210, Physics 201 and 202.

Four hours credit each semester.

325. ANALYTICAL MECHANICS—DYNAMICS—Study of all motions of a particle, dynamics of moving bodies, Newton's Laws, simple harmonic motion, mechanical vibrations, impulse and momentum, balancing, the gyroscope, governors, and work and energy. Prerequisite, Engineering 220.

Three hours credit.

326. STRENGTH OF MATERIALS—Study of the application of more advanced principles of mechanics to the solution of problems in stress and strain on engineering materials. Includes resistance to direct force, bending, torque, shear, eccentric load, deflection of beams, and compounding of simple stress. Prerequisite, Engineering 220.

Three hours credit.

326L. STRENGTH OF MATERIALS LABORATORY—Two hours per week to be taken concurrently with Engineering 326. Fee, \$10.00.

One hour credit.

328. HYDRAULICS—Study of the laws of fluid mechanics and their application; properties of fluids; statics of fluids, compressible and incompressible; accelerated liquids; dynamics of fluids; the flow of fluids in pipes; flow with free surface; orifices and nozzles; impulse and momentum; resistance to immersed and floating bodies; dynamical similitude. Prerequisite, Engineering 220.

Three hours credit.

330. THEORY OF STRUCTURES—Study of reactions, shears, bending moments and deflections in beams and trusses due to external fixed and moving loads; design of simple trusses and beams; analytical and graphical methods of solution. Three hours lecture and recitation and six hours in the drawing room. Prerequisite, Engineering 220. Fee, \$2.50.

Five hours credit.

331. DESIGN OF STEEL STRUCTURES—Study of the theory and design of beams, girders, steel bridges, and steel roofs. Three hours lecture and recitation and three hours in the drawing room each week. Prerequisite, Engineering 326.

Four hours credit.

332. HIGHWAY CONSTRUCTION—A study of the design and construction of roads and pavements. Also a study is made of materials used in their construction. Special attention is given to location and maintenance. Three hours lecture and recitation. Prerequisite, Engineering 220.

Three hours credit.

333. SEWAGE DISPOSAL—A study of the collection, treatment, and disposal of sewage. Special emphasis is given to municipal sewerage

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systems and the construction of sewage disposal plants. Three hours lecture and recitation. Prerequisites, General Chemistry, Engineering 328.

Three hours credit.

340-341. PRINCIPLES OF CHEMICAL ENGINEERING—Principles of Stoichiometry are reviewed, special emphasis being laid upon the utility of the pound mol as a unit for calculation. Because of their fundamental importance the phenomena accompanying the flow of heat and the flow of liquids, together with laws governing these operations are considered in detail. Processes of crushing and grinding, mechanical methods for separating materials, together with filtration in its many different forms, are given a descriptive treatment with a mathematical analysis. Processes depending upon vaporization are treated from the common standpoint of vapor pressure equilibria. With drying in its many phases, humidification, dehumidification, water cooling, evaporation, and distillation are considered. Prerequisites, Chemistry 207 and 208.

Three hours credit each semester.

343-344. FUELS AND COMBUSTION—This course treats the origin, combustion, and production of natural fuel—coal, petroleum, and natural gas—also manufactured fuels—producer, water, oil, and coal gas. In view of their rapidly growing importance the combustion of fuels is essentially a chemical change, and adequate treatment of the subject requires an understanding of the chemical principles involved. Other subjects treated are chemistry of the combustion reaction, combustion calculations, hand and mechanical fired furnaces, furnace efficiency and distribution of heat losses, the flow of liquids and gas, recuperators and regenerators, flow of heat, rate of heat transfer, heat transfer from flames—convection—radiation—and the mathematical development of the rate of intermittent heat. Prerequisites, Mathematics 209-210, Chemistry 205.

Three hours credit each semester.

350. METALLURGICAL ANALYSIS—A qualitative and quantitative analysis of natural ores, commercial alloys, and fluxes. One lecture and two three-hour laboratory periods each week. Prerequisite, Chemistry 207. Fee, \$5.00.

Three hours credit.

351, 352. PHYSICAL METALLURGY—This course will be devoted to a study of the physics of the metallic state. The crystal structure of pure metals and alloys, the freezing of metals, phase diagrams for metallic systems, solid solution alloys, intermetallic compounds, eutectic systems, the plastic deformation of metals and the principles of hot and cold working, recrystallization, X-ray diffraction for study of metal structures, diffusion in metals, the mechanical properties of metals and alloys, flow of heat in metals, magnetic properties, damping capacity, other physical properties of metals, powder metallurgy. Three lectures and recitations each week. Prerequisite, Engineering 252. Prerequisite or concurrent, Chemistry 311, 312.

Three hours credit each semester.

353. METALLURGY—A study of crystalline structure of metals, their freezing, age hardening, etc. A review of the most common non-ferrous alloys and their properties and uses. Development of the iron carbon equilibrium diagram and the significance of the thermal critical points. Two hours lecture and recitation and three hours laboratory each week. Fee, \$5.00.

Three hours credit.

354. METALLURGY—The effect of the various elements upon the mechanical properties of steel, testing, calculating hardenability, study of steel complaints and defects observed in laboratories. Strip and sheet mill processing. Two hours lecture and recitation and three hours laboratory each week. Fee, \$5.00.

Three hours credit.

355. METALLURGICAL CALCULATIONS—This course includes calculations in the field of thermo-chemistry. Calculations of blast furnace charges, open hearth charges, heat transfer, and chimney design. Mathematical

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determination of the efficiency of blowing engines, blast furnaces, Bessemer converters, and reheating furnaces are treated in detail. The subject material of the course covers the above treatment in the fields of ferrous and non-ferrous metallurgy. Prerequisites, Mathematics 209-210, Chemistry 207 and 208. *Three hours credit.*

360. INDUSTRIAL ORGANIZATION—The growth, present status of development, and indication of trends of modern industrial organizations dealing particularly with the principles which determine the location of plants, type of management, control of production, and type of equipment. Wage payments and cost finding methods, and policies regarding inspection standards and human relations. *Two hours credit.*

361. MOTION AND TIME ANALYSIS—Fundamentals and elements of motion study, construction and use of process charts and operation analysis, work simplification and standardization, characteristics of motions, and basic divisions of accomplishment. Visits to local plants will be arranged so that classroom theory and principles can be applied to actual operations. Prerequisite, Mathematics 120-121. *Two hours credit.*

362. TIME STUDY AND FORMULA MAKING—Tools and methods of time study, practice in making time study observations, determination of constants and variables, leveling for effort and skill, allowances for delays and fatigue, construction and use of formula standards. Time studies will be made on actual plant operations to provide practical experience. Prerequisite, Mathematics 120-121. *Two hours credit.*

371. ELEMENTARY MACHINE DESIGN—A study of the relative motions, velocities, and acceleration of moving parts of machinery; cams, gears, and miscellaneous mechanisms. Construction of velocity and acceleration diagrams. Prerequisites, Engineering 102, Physics 201, 202, Engineering 326, and Engineering 326L. *Two hours credit.*

372. IRON FOUNDRY—THEORY AND PRACTICE—A study of the theory of foundry practice of ferrous and nonferrous metals; heat requirements; a first-hand study in the foundry of actual practice in connection with core-making; snap-flask, floor, bench, and machine mouldings; pattern requirements for various classes of castings, etc. Three hours of lectures and six hours of foundry practice per week. *Three hours credit.*

373. STEEL FOUNDRY—THEORY AND PRACTICE—Sand mixtures; type of sand used, and discussion of moulding and core sand mixtures and their functions. Founding: floor, bench, and machine moulding; centrifugal casting; heading and gating; cleaning and preparing castings for shipment. Design: pattern and casting. Melting practice: crucible, converter, openhearth, and electric; discussion of acid and basic practices, and chemical reaction. Heat treatment: annealing, normalizing, air, oil, and water quenching of carbon and alloy steels. Specifications and uses of various types of alloy steels. Prerequisite, Engineering 372. *Three hours credit.*

374. HEAT ENGINEERING—The more practical application of the thermodynamic principles to steam, air, and gas power are pursued in this course. The lecture work covers reciprocating steam engines, steam engine power and economy, steam turbines, steam-condensing equipment, pumps, compressed air, and a study of compressors and internal-combustion engines. The laboratory work covers steam engine valve setting, air compressor tests, complete radiator tests of various designs, steam pump tests, thermometer calibration, and the testing of steam traps. Prerequisite, Physics 317. *Three hours credit.*

374L. HEAT ENGINEERING LABORATORY—Two hours per week to be taken concurrently with Engineering 374. Fee, \$10.00. *One hour credit.*

ENGINEERING

401-402. THESIS—Before graduation the student must prepare a written report containing a minimum of 2,500 words. This report is to be an investigation on some subject either selected by the student or designated by the dean of engineering. Three bound copies will be required. Specifications will be presented to the student upon request. No credit will be given until the thesis has been accepted by the dean and the department head. Prerequisite, senior standing. *Two hours credit each semester.*

411. DIRECT CURRENT MACHINES I—This course covers the study of direct current machines; dynamo principles, armature winding, magnetization curve; armature reaction, cross magnetization, and flashover; voltage characteristics of various types of direct current generators; operation of generators; speed and torque characteristics of motors; starting and speed control of motors; efficiency of generators and motors. Prerequisites, Engineering 311-312, Mathematics 315. *Three hours credit.*

411L. DIRECT CURRENT MACHINES I LABORATORY—Two hours per week to be taken concurrently with Engineering 411. Fee, \$10.00. *One hour credit.*

412. DIRECT CURRENT MACHINES II—This course covers the study of the testing of direct current machinery, operating characteristics of generators and motors, efficiency, rating and heating, special machinery and applications, elements of control circuits. Prerequisites, Engineering 411. *Three hours credit.*

412L. DIRECT CURRENT MACHINES II LABORATORY—Two hours per week to be taken concurrently with Engineering 412. Fee, \$10.00. *One hour credit.*

413. ALTERNATING CURRENT APPARATUS I—This course covers the study of the transformer, elementary and ideal. Equivalent circuit diagrams, transformer constants, efficiency and regulation, voltage and current waves for coils with steel cores. Transformer losses, parallel operation and polarity. Methods of obtaining single-phase systems from other single-phase systems or polyphase systems, auto-transformer connections. Prerequisite, Engineering 412. *Three hours credit.*

413L. ALTERNATING CURRENT APPARATUS I LABORATORY—Two hours per week to be taken concurrently with Engineering 413. Fee, \$10.00. *One hour credit.*

414. ALTERNATING CURRENT APPARATUS II—This course includes the study of synchronous machines; vector diagrams and equations for cylindrical rotor synchronous generators; rating, losses and efficiency, excitation, application of synchronous motors, parallel operation of synchronous generators, circle diagram of polyphase motors; frequency changers, synchronous converters, mercury arc rectifiers. Prerequisite, Engineering 413. *Three hours credit.*

414L. ALTERNATING CURRENT APPARATUS II LABORATORY—Two hours per week to be taken concurrently with Engineering 414. Fee, \$10.00. *One hour credit.*

415. ELECTRON DYNAMICS—This course covers the study of electron principles; motion of charged particles in electric and magnetic fields; application of motion of particles in applied fields; electrons in metals; bound and free electrons; phenomena at the surface of metals; energy of escaping electrons; calculation of thermionic emission; retarding and accelerating fields; kinetic theory of gases; Richardson's Equations; fundamental processes in gases; electrical discharges in gases; Paschen's Law; the negative glow and Faraday dark space; plasma characteristics; static volt-ampere arc curves; formation of corona, glow, and arc. Prerequisite, Engineering 313-314. *Three hours credit.*

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415L. ELECTRON DYNAMICS LABORATORY—Two hours per week to be taken concurrently with Engineering 415. Fee, \$10.00.

One hour credit.

416. ELECTRONIC APPLICATIONS—This is a continuation of Engineering 415 and covers study of commercial tubes, both vacuum and gaseous filled; rectification of half- and full-waves; polyphase rectifiers; controlled rectifiers; thyratron tubes; filtering of rectifiers; triode characteristics; multielectrode tubes; circuit elements; voltage amplification; photoelectricity and photoelectric cells; photoelectric theory; phototube applications. Prerequisite, Engineering 415.

Three hours credit.

417. ELECTRIC POWER TRANSMISSION—Study of the electrical, mechanical, and economic calculations of the design of electrical systems; the transmission and distribution of electrical power; long and short transmission lines; solution of transmission problems by hyperbolic functions. Prerequisite, Engineering 311-312.

Three hours credit.

430. CONCRETE CONSTRUCTION—A study of the design and construction of concrete walls, slabs, girders, beams, and columns. A study is made of the properties of concrete. Three hours lecture and recitation. Two hours laboratory. Prerequisites, Engineering 326 and 330.

Four hours credit.

431. CONSTRUCTION OF BUILDINGS—A study of materials, structural elements, details of stairs, windows, etc., utilities and services entering into building construction. Three hours lecture and recitation. Prerequisite, Engineering 331.

Three hours credit.

432. WATER SUPPLY—A study of public and industrial water supply systems and the methods of water purification. Also, a study is made of the construction and operation of water distribution systems. Three hours lecture and recitation. Prerequisites, General Chemistry, Engineering 328.

Three hours credit.

433. INDETERMINATE STRUCTURES—A study of the analysis of structures which are statically indeterminate. Elastic arches, closed rings, rigid frames, and continuous beams are analyzed. Three hours lecture and recitation. Prerequisites, Engineering 330, 331, 430.

Three hours credit.

440. CHEMICAL PLANT DESIGN—This course involves a detailed study of chemical plant layouts, including processes, flow diagrams, buildings, equipment, and geographical plant requirements in both the fields of chemical and metallurgical production. Prerequisites, Engineering 102, Chemistry 205, Physics 201 and 202.

Three hours credit.

451, 452. METALLOGRAPHY—A course in the principles and application of metallography and heat treatment of iron and steel. The iron carbon diagram, the heat treatment of plain carbon steel; annealing, normalizing, isothermal transformation, the "S" curves, quenching and tempering; hot working of steel, cold working and recrystallization, grain size, hardenability concepts, the influence of the alloying elements on steel, low alloy steels, medium alloy steels, stainless steels, high speed steels, other special steels, heterogeneities and defects in commercial steels, non-metallic inclusions, practical heat treating processes, cast iron and malleable irons. The laboratory will be devoted to acquiring familiarity with metallographic techniques, a study of typical metallographic structures, heat treatment and study of its effect. The student will be given practice in handling "unknown" samples in order to become familiar with commercial laboratory methods of study of "complaints" and defects. Two hours lecture and recitation and three hours laboratory each week. Prerequisites, Engineering 351, 352. Fee, \$10.00 each semester.

Three hours credit each semester.

ENGINEERING

455. IRON AND STEEL METALLURGY—This course includes the study of the raw materials required for the production of iron and steel. Ore concentration, by-products, ovens, blast furnaces, Bessemer processes, open hearth, and refractories. *Three hours credit.*

456. NONFERROUS METALLURGY—This course includes a study of the production of nonferrous materials including cadmium, chromium, copper, aluminum, gold, silver, tin, and zinc. Types of ores, types of blast furnace melting, converters, continuous decantation and cyanide processes. *Three hours credit.*

470. ADVANCED MACHINE DESIGN—This course is a continuation of Engineering 301. It consists of a study of combined normal and shear stresses, shafts, torsion and bending, stiffness of shaft, journal and plane-surface bearings, ball and roller bearings, round-wire helical springs, conical helical springs, leaf springs, brakes, clutches, and friction drives. Prerequisite, Engineering 371. *Two hours credit.*

471. HEATING, VENTILATING, AND AIR CONDITIONING—FUNDAMENTALS—This course covers the essentials of heating and ventilating, with particular reference to essential definitions, laws and properties of various media, factors affecting human comfort, heat transmission and air infiltration in buildings, calculation and estimation of building heat losses and heat gains, heat disseminators, radiators and convectors, fuels, combustion, draft and chimneys, pipe, pipe fittings, insulation, flow of steam in pipes and piping details, heating with steam and hot water. Lectures and problems. Prerequisite, Physics 317. *Three hours credit.*

472. HEATING, VENTILATING, AND AIR CONDITIONING—This course is devoted largely to air conditioning as it has to do with heating and ventilating problems, and the processing of materials. The work begins with air conveying and air cleaning, air-flow, fans, duct design, air cleaners, gravity-flow, unit systems of ventilation, heating with warm-air furnace systems, heating with central hot-blast systems and unit heaters, air humidification, air dehumidification and drying of materials, the control of air temperature and humidity, summer cooling of buildings. Lectures and problems. Prerequisite, Engineering 471. *Three hours credit.*

473. REFRIGERATION—Application of the thermodynamic theory to refrigeration; pumps, centrifugal and reciprocal; compressors; consideration of the refrigerants and their properties; compression and absorption systems. Prerequisite, Physics 317. *Three hours credit.*

474. TURBINES AND JETS—Theory of the turbines, thermodynamic study of the flow of gaseous mixtures through nozzles; design of blades; efficiency; governing. Prerequisite, Engineering 374. *Three hours credit.*

475. INTERNAL COMBUSTION ENGINES—Thermodynamic analysis of internal combustion engine cycles; fuels; combustion; carburetion, cooling, lubrication, and effect of supercharging on engine performance. Prerequisite, Engineering 374. *Three hours credit.*

475L. INTERNAL COMBUSTION ENGINES LABORATORY—Two hours per week to be taken concurrently with Engineering 475. Fee, \$10.00. *One hour credit.*

476-477. ROLLING MILL DESIGN—This course is designed to present the technical aspects of the design, maintenance, and operation of rolling mills. The theories of heating, heat transfer, rolling, cooling, and shearing are taken up. Equipment is classified as to types, capacities, and relative merit. Power requirements, speed relationships, controls, and layout

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and breakdown methods are emphasized particularly with respect to continuous billet, bar, and strip mills. Specifically, these subjects are limited to hot and cold ferrous rolling mills typified by blooming, slabbing, billet, rail, bar, hoop, strip, shape, tube, rod mills, their respective heating furnaces, appurtenances, and auxiliary equipment. Prerequisites, Mathematics 209-210, Physics 201 and 202. *Three hours credit each semester.*

ENGLISH

Composition, Dramatics, Journalism, Language, Literature, Speech

English majors are expected to complete at least one course in American literature, 12 hours in English literature, and English 351-352. Students who plan to teach high school English must complete courses 205 or 206, 351-352, and two courses in English literature which include the study of poetry and prose. English 101-102 or 103-104 is prerequisite to all other English courses. English 203 or 204 is prerequisite to other courses in English literature. English 115, 116 or 103-104 is prerequisite to all other courses in speech. Under special circumstances the head of the English department may accept other courses in lieu of these requirements. English 103-104 or 101-102 and 115 is required of all freshmen.

Courses in other departments for which credit in English will be given are: Humanities 401, Greek Classics and the Bible; Humanities 402, Roman, Medieval, and Renaissance Classics; Humanities 403, Early Modern Classics; and Humanities 404, Later Modern Classics.

101-102. ENGLISH COMPOSITION—A study of the elementary principles of composition, to teach the habits of clear and correct expression. Reading of models, writing of themes, class discussions, and personal conferences. *Three hours credit each semester.*

103-104. ORAL AND WRITTEN COMPOSITION—This course attempts to aid the student to organize his ideas more logically and express them more effectively in both oral and written form. (For certification, graduation, and transfer purposes the credit for this course will be interpreted as six hours composition and three hours speech.) This course duplicates English 101-102 and 115, 116. *Four and one-half hours credit each semester.*

115. FUNDAMENTALS OF SPEECH—This course aims to develop self-expression through the medium of mind, body, and voice. The attainment of this objective is sought by a study of proper speech habits and practice in the delivery of numerous extemporaneous and prepared speeches. *Two hours credit.*

116. FUNDAMENTALS OF SPEECH—Continuation of English 115. Prerequisite, Speech 115. *Two hours credit.*

203, 204. SURVEY OF ENGLISH LITERATURE—A study of the masterpieces of English prose and poetry, with emphasis on forms and backgrounds. *Three hours credit each semester.*

ENGLISH

205, 206. SURVEY OF AMERICAN LITERATURE—First semester: Colonial times to 1860. Second semester: Civil War to the present.
Three hours credit each semester.

213. PUBLIC SPEAKING—A practical course in the effective construction and delivery of business talks. The student is frequently required to deliver short talks before the class. This course is of especial interest to professional and business men.
Two hours credit.

215, 216. PUBLIC SPEAKING AND ORAL INTERPRETATION—A continuation of English 115 and 116 on an advanced level. Those who are interested may concentrate on oral interpretation.
Two hours credit each semester.

217. RADIO PUBLIC SPEAKING—A course designed to apply the essential principles of effective public speaking to the art of radio technique. The course includes: a review of the essential principles of effective public speaking and the application of these principles to the demands of modern radio; elementary principles of transmission and reception; an explanation of studio facilities; the use of studio equipment; the preparation of continuity; microphone technique; radio dramatics and actual broadcasting.
Two hours credit.

219, 220. PLAY PRODUCTION—The purposes of this course are threefold: to create an interest in the legitimate drama and an appreciation for it, particularly as it is found in the little theaters of today; to acquire a knowledge of the processes used in producing such dramas; and to gain some practical experience in producing plays in class and for the public. This course may be entered at the beginning of either semester.
Two hours credit each semester.

251. MODERN AMERICAN ENGLISH—A brief survey of the earlier development of the English language followed by a more thorough study of contemporary American pronunciation and usage. This course is intended for students not majoring in English. English majors should take English 351-352.
Three hours credit.

Upper Division Courses

315. DEBATING AND PUBLIC DISCUSSION—A study of the principles of argumentative speaking and public discussion. This course includes practical training in the analysis of questions in the finding and selecting of evidence, in the presentation of debates, and in public discussion.
Two hours credit.

319, 320. PLAY PRODUCTION—Continuation of English 219, 220. Prerequisite, English 219, 220.
Two hours credit each semester.

321. CLASSROOM TECHNIQUES IN SPEECH CORRECTION—Designed for classroom teachers and for others who have had no introduction to the field of speech correction. A study will be made of the nature, causes, and remedial procedures for correcting functional disorders.
Three hours credit.

323. APPLIED PUBLIC SPEAKING—The preparation for and delivery of speeches before various local groups. This course is offered on the conference plan and by demand. Admission only by consent of the instructor.
Two or three hours credit.

351-352. HISTORY OF THE ENGLISH LANGUAGE—A survey of the development of the language from Old English to Modern English, with an intensive study of Modern English sounds, inflections, syntax, word meanings, and usage.
Three hours credit each semester.

353, 354. ADVANCED COMPOSITION—A course in writing for mature students. Opportunity will be given for the development of creative

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ability. This course will be conducted entirely through conferences with the instructor. Registration only by permission of the instructor. Prerequisite, preparation satisfactory to the instructor.

One to three hours credit each semester.

355. NEWS WRITING AND REPORTING—A study of the organization and functions of a newspaper office and of how the newspaper gets news. Special attention paid to the different types of stories, how they are obtained and how they are written. Reporting work done in connection with college publications. Copy reading will also be studied. Prerequisite, junior standing.

Three hours credit.

357. EDITING AND MAKEUP—A study of the various phases and processes involved in preparing the printed page with emphasis on the principles and mechanics of copyreading, editing, makeup, head writing, typography, the use of illustrations, and page layout. Prerequisite, English 355.

Three hours credit.

361. SPENSER, MILTON, AND SOME CONTEMPORARIES—A study of the more important works in prose and verse from the early humanists to the death of Dryden. Particular attention will be given to Spenser and Milton.

Three hours credit.

363. ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY—A study of English literature from the reign of Anne to the Romantic period with attention to such major figures as Defoe, Addison, Steele, Pope, Swift, Johnson, Goldsmith, Boswell, Gibbon, and Burns.

Three hours credit.

366. ROMANTIC PROSE—A study of the works of Lamb, Hazlitt, Hunt, DeQuincey, Landor, Smith, Thompson, and Carlyle.

Three hours credit.

367. ROMANTIC POETRY—An intensive consideration of the works of Coleridge, Wordsworth, Scott, Byron, Shelley, Keats, and their relation to some early predecessors in the Romantic Movement.

Three hours credit.

368. VICTORIAN PROSE—This course considers the prose works of Macaulay, Newman, Mill, Darwin, Ruskin, Arnold, Huxley, Rossetti, Morris, Pater, and Stevenson.

Three hours credit.

369. VICTORIAN POETRY—A study of the Victorian poets including Tennyson, Browning, Arnold, Fitzgerald, Clough, Rossetti, Morris, Swinburne, Dobson, Henley, Stevenson, Wilde, Yeats, and Kipling.

Three hours credit.

381. THE ENGLISH NOVEL—A study of the history and development of the novel in England during the eighteenth and nineteenth centuries.

Three hours credit.

382. THE AMERICAN NOVEL—A study of the history and development of the novel in the United States during the nineteenth and twentieth centuries.

Three hours credit.

400. CHAUCER AND HIS PERIOD—Reading of Chaucer's principal works with a brief survey of his predecessors, contemporaries, and successors.

Three hours credit.

405. ENGLISH DRAMA—A survey of English drama from the sixteenth century to the nineteenth, excluding Shakespeare. Emphasis will be mainly on the works of Elizabethan and Restoration writers.

Three hours credit.

ENGLISH, FRENCH

406. CONTEMPORARY DRAMA—A survey of English, Irish, and American drama from the Ibsen revival to the present. Continental plays that have influenced English drama will be included in translation.

Three hours credit.

409, 410. SHAKESPEARE—A critical study of the work of Shakespeare. "The greatest dramatist and also, by the Grace of God, the greatest poet that ever lived."

Three hours credit.

419, 420. PLAY PRODUCTION—Continuation of English 319, 320. Prerequisite, English 319, 320.

Two hours credit each semester.

450. METHODS OF RESEARCH—A seminar for English majors who expect to do graduate work. Prerequisite, senior standing with major in English.

One hour credit.

FRENCH

A major in French consists of 30 semester hours of work above the elementary level. Of this total as many as twelve hours may be taken in related fields with the approval of the head of the department. Credits in French, Italian, and Spanish may be combined for a major in Romance Languages.

101-102. ELEMENTARY FRENCH—Fundamental principles of grammar and reading in simplified texts for the purpose of preparing the student to read at sight simple French of minimum vocabulary content.

Three hours credit each semester.

203. INTERMEDIATE FRENCH—Modern short stories and plays are read and discussed. Grammar is reviewed in connection with an elementary composition book. Prerequisite, grade of C or better in French 101-102 or in second year high school French.

Three hours credit.

204. INTERMEDIATE FRENCH—A continuation of French 203. The texts in this course are chosen with a view to their value as an introduction to the study of French literature and civilization. Prerequisite, French 203 or three years of high school French.

Three hours credit.

Upper Division Courses

The prerequisite for the following courses is French 204, four years of high school French, or the consent of the instructor.

325. ADVANCED FRENCH GRAMMAR—A review of the essential rules of French grammar with particular stress on generic differences between French and English especially as regards the verb.

Three hours credit.

326. FRENCH CIVILIZATION—A summary study of the geography, history, and traditions of contemporary France with a view to facilitating the reading of modern books and periodicals.

Three hours credit.

327. COURS DE STYLE—Through practice in translating English literary selections into French and passages from French masterpieces into literary English, a study is made of the relative differences in expression between the two languages.

Three hours credit.

328. FRENCH LITERARY TRADITION—A brief survey of the principal significant writers of France together with the reading of selections from the great masterpieces of French literature.

Three hours credit.

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329. CONVERSATIONAL FRENCH—One hour a week is spent in systematic drill on the elements of good pronunciation. The other two hours are devoted to practice in conversation based on exercises in composition.

Three hours credit.

330. CONTEMPORARY FRENCH LITERATURE—A study of Modern France in the writings of such contemporaries as Duhamel, Gide, Giraudoux, Romain, Valéry, and others.

Three hours credit.

411. COMPARATIVE GRAMMAR OF THE ROMANCE LANGUAGES—The morphology and syntax of a modern Romance language are studied in connection with those of any other Romance language in which the student may be interested. (Offered only on demand.)

Three hours credit.

GENERAL SCIENCE

Credit for these courses will not apply on curriculums leading to the degrees of Bachelor of Science or Bachelor of Engineering. Credit will be allowed toward the Bachelor of Arts degree only if these courses are taken by students planning to teach and desiring the credit toward General Science as a teaching minor.

101. THE MANUFACTURE OF FOODS—The process of photosynthesis and the syntheses of complex carbohydrates, proteins, and lipids. The principles of biology, chemistry, and physics necessary to explain these physiological activities are given in detail.

Three hours credit.

102. THE DIGESTION OF FOODS—The biology, chemistry, and physics of digestion in various organisms with emphasis on that which occurs within the human being. Prerequisite, General Science 101.

Three hours credit.

121. GENERAL SCIENCE—PHYSICAL—Orientation and professional study of the universe (astronomy) and of the earth (geology). The newer concepts of matter and energy as revealed by physics and chemistry. Simple demonstrations that can be used with little equipment are presented. Emphasis is laid on modern problems of the home, transportation, and communication.

Three hours credit.

122. GENERAL SCIENCE—BIOLOGICAL—Biological principles of plant and animal life are considered. Physiology, types, distribution, and ecology are emphasized. Also, relation of life to man, his work and play and health.

Three hours credit.

201. FUNCTIONAL MORPHOLOGY—Primarily the morphology of the human being and the physiological activities related to each structure. Analogies with other organisms are made to clarify the functions within man. Prerequisite, General Science 102.

Three hours credit.

202. REPRODUCTION, EMBRYOLOGY, AND HEREDITY—The early ontogeny of the human being and its relationship to heredity. The basic principles of genetics with examples drawn from man wherever possible. Prerequisite, General Science 201.

Three hours credit.

223. TEACHING OF GENERAL SCIENCE—Content material of courses 121 and 122 is studied with emphasis on techniques in the classroom, curriculum problems, developing methods of approach, and courses of study in use.

Three hours credit.

GENERAL SCIENCE, GEOGRAPHY

224. GENERAL SCIENCE—ADVANCED PHYSICAL SCIENCE—A study of scientific principles with emphasis on sound, electricity, communication, and transportation. *Three hours credit.*

225. CONSERVATION OF NATURAL RESOURCES—The history and principles of conservation as applied to the protection and replenishment of wild life and the proper utilization of non-renewable natural resources. *Three hours credit.*

226. ACOUSTICS OF MUSIC—Nature of vibrations and sound waves. Sources of musical sounds: strings, air columns, percussion, voice. Scales, intervals, and temperament. Acoustics of rooms. Recording, reproduction and synthesis of sound. Especially designed for music majors. *Three hours credit.*

246. FIELD BIOLOGY—A combined travel and study course. In this, an entirely new set of environments, both natural and man modified, will be observed, correlated and reported in written form. The study will include plant and animal life in its entirety as it relates to nature and to man. Taxonomy, ecology, and conservation will be stressed. Each student will be responsible for his travel, lodging, and board expenses. This course will apply toward a teaching field in biology. Prerequisite, consent of the instructor. *Three hours credit.*

GEOGRAPHY

102. PRINCIPLES OF GEOGRAPHY—A study of causal relationships between life activities and their physical surroundings. *Three hours credit.*

104. ECONOMIC GEOGRAPHY—See Economics 104.

201. REGIONAL GEOGRAPHY OF ANGLO-AMERICA—This course includes the physical background of Anglo-America; the physiographic regions; climate, including the major air masses, climatic controls, and the types of climate; natural vegetation; soils; the historical geography of the continent; and the geographic regions. The basic principles of both economic and human geography are emphasized. Prerequisite, Geography 102. *Three hours credit.*

202. REGIONAL GEOGRAPHY OF SOUTH AMERICA—This course is composed of a regional approach to the economic and cultural background of the ten countries of Spanish South America and of Portuguese South America. The application of geographic principles in the development and behavior of Latin America is stressed. Prerequisite, Geography 102. *Three hours credit.*

203. OUR NATURAL RESOURCES AND THEIR CONSERVATION—In studying the natural resources of our country and the problems concerning them, the course will investigate the public domain and its disposal; the soil of the United States; soil erosion and its prevention; tree crops; utilization and conservation of our arid and semiarid lands; the problem of our grasslands; reclamation of worn and overflow lands; our forests, past and present; essential measures in forest conservation; water supply for domestic and industrial use; our waterways and their utilization; floods and flood control; our mineral treasures; mineral fuels; conservation of natural resources in relation to the manufacturing industry; conservation of wildlife; fisheries for the future. Prerequisite, Geography 102. *Three hours credit.*

204. REGIONAL CLIMATOLOGY—The first part of this course deals with the general principles of climatology including the nature and elements of climate and the factors that give rise to climatic differences and that determine the distribution of climatic types; the influences exerted by climate

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on soils and land forms, on plants, and on man and his activities. A simplified classification of climate will be developed, making use of fourteen major types of climate and six subtypes. In the last part of the course, the continents will be taken up separately and the characteristics of the major types of climate as they are found on the several continents will be discussed in detail. Prerequisite, Geography 102. *Three hours credit.*

301. GEOGRAPHY OF WORLD WAR II—The distribution of raw materials; the need for markets; study of the German, Italian, and Japanese desire for empire; the English commonwealth; America as world-wide producer and as a market; the battleground of this war, and geographical problems at the peace table. *Three hours credit.*

GEOLOGY

101. HISTORICAL GEOLOGY AND PHYSIOGRAPHY—Economic and physical geology: field trips, rocks and minerals for indoor study. Historical geology: collection and study of fossils, application of geology to industry and to world building. *Three hours credit.*

205, 206. FIELD STUDY AND SPECIAL PROBLEMS—Open to students who have taken or are now taking geology and desire to extend their scholastic background to local conditions. Field trips in the fall and spring. The study of selected problems in the winter.

One hour credit each semester.

GERMAN

A major in German consists of 30 semester hours of work above the one hundred level. Of this total, six hours may be English 351-352.

101-102. ELEMENTARY GERMAN—Introduction to the fundamental principles of grammar, drill in the declensional forms of nouns and adjectives together with elementary conversation and the reading of easy prose and poetry. *Three hours credit each semester.*

203. INTERMEDIATE GERMAN—Elementary composition based on a review of the essentials of grammar. The reading material for this course is chosen with the double purpose of furnishing a basis for the further study of German literature and providing those who wish to do technical reading with a working knowledge of the modern language. Prerequisite, C or better in German 101-102 or in second year high school German.

Three hours credit.

204. INTERMEDIATE GERMAN—A continuation of German 203. Reading of texts of increasing difficulty accompanied by conversation and exercises in composition. Prerequisite, German 203.

Three hours credit.

215-216. CHEMICAL GERMAN—A basic course designed to expedite the acquisition of an ability to read chemical literature in German. Prerequisite, German 101-102 and Chemistry 111-112 or equivalent. (Formerly numbered 211-212.) *Three hours credit each semester.*

Upper Division Courses

325. GERMAN LITERARY TRADITION—A brief survey of significant German writers illustrated by selections from their writings. Prerequisite, German 204 or equivalent. *Three hours credit.*

GERMAN, GREEK, HISTORY

326. GERMAN CIVILIZATION—A summary study of the geography, history, and traditions of contemporary Germany, designed to serve as a background to the reading of modern authors. Prerequisite, German 204 or equivalent. *Three hours credit.*

327. GERMAN LITERARY STYLE—Through exercises in translation, a comparison is made between modes of literary expression in German and English. Prerequisite, German 204 or equivalent. *Three hours credit.*

328. GOETHE AND SCHILLER—Representative works of these two great German classical writers are read and discussed. Prerequisite, German 204 or equivalent. *Three hours credit.*

329. ADVANCED GERMAN GRAMMAR—A study of the most characteristic features of German word and sentence structure with especial reference to analogies in English. Prerequisite, German 204 or equivalent. *Three hours credit.*

330. CONTEMPORARY GERMAN LITERATURE—A survey of writers and tendencies of the twentieth century. Prerequisite, German 204 or equivalent. *Three hours credit.*

GREEK

Additional work in Greek is available for those who desire it.

101-102. ELEMENTARY GREEK—Grammar and exercises in translation. In the second semester selections will be read from Attic prose writers or from the Greek New Testament. This course is intended not only for those who desire to take up the study of Greek literature but also for those who wish to become familiar with the Greek element in the English vocabulary. *Three hours credit each semester.*

203-204. GREEK PROSE AND POETRY—Selections from Xenophon, Plato or Lucian, and from Homer's *Odyssey*. A play of Euripides will also be read. *Three hours credit each semester.*

HISTORY

A major in history consists of History 105, 106 and 30 semester hours in courses above the one hundred level.

Courses in other departments for which credit may be given toward a history major are: Political Science 304, 305, International Relations; Political Science 307, American Political Parties; Education 307, History of Education; a maximum of six semester hours in history of art and four semester hours in humanities. One-third credit will be allowed toward a major in history for any courses listed under humanities.

105, 106. HISTORY OF EUROPE SINCE THE FALL OF ROME—A survey of European civilization from the fall of Rome in 476 through the Middle Ages, the Renaissance, and the Modern Era to the present day. *Three hours credit each semester.*

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201. HISTORY OF THE UNITED STATES TO 1850—A study of the general, political, social, and economic development of the United States from the beginning of our history to the middle of the nineteenth century. Designed for sophomores. *Three hours credit.*

202. HISTORY OF THE UNITED STATES SINCE 1850—A continuation of History 201, giving special emphasis to the causes of the Civil War and the period which followed. *Three hours credit.*

215, 216. THE CONSTITUTIONAL HISTORY OF ENGLAND—The unfolding of Anglo-Saxon governmental and legal institutions from early Germanic times to the present day. Development of the court system, common law, representative government, the cabinet system, and imperial federation. Especially recommended to students of law and political science. History 215 is prerequisite to 216. *Three hours credit each semester.*

Upper Division Courses

301. ECONOMIC HISTORY OF EUROPE—Economic history is briefly traced from primitive times to about the sixth century A. D. After that the successive systems are given in great detail. In the main, the more advanced nations of each period are chosen for study. *Three hours credit.*

302. ECONOMIC HISTORY OF THE UNITED STATES—A study of the influence of economic forces on the evolution of our national life and their effect upon our religious and social developments. *Three hours credit.*

308. THE FAR EAST—A brief survey of the early history and civilization of China, Japan, and their dependencies, followed by a more detailed study of the relationships between the East and West. Prerequisite, History 105, 106. *Three hours credit.*

309, 310. CONSTITUTIONAL HISTORY OF THE UNITED STATES—A study of the formation, amendment, and interpretation of the Constitution of the United States. Of special interest to pre-law students. Prerequisites, Social Science 101 and 102; prerequisite or concurrent, History 201 and 202. History 309 is prerequisite to 310. *Three hours credit each semester.*

311. HISTORY OF GREECE—Political and cultural growth of Greece. *Three hours credit.*

312. HISTORY OF ROME—The first republic, the growth of the city of Rome and the Mediterranean states, the growth of the early imperial system, rule of the Caesars, to the decline of the empire. *Three hours credit.*

313, 314. ENGLISH HISTORY—From the earliest times to the present. Special emphasis is given to the social, industrial, and commercial development of England, the growth of parliament, the contest for religious freedom, the literary and intellectual development of the British people. *Three hours credit each semester.*

315, 316. LATIN AMERICA—The first semester will cover a study of the colonial and revolutionary periods in Latin American history. The second semester will include a study of the political, economic, and social institutions and problems of the Latin American nations from attainment of independence to the present time. Special emphasis will be given to inter-American relationships. *Three hours credit each semester.*

317. THE CIVIL WAR AND RECONSTRUCTION—The work will cover the period from 1848, when the Wilmot Proviso stirred the North and the South to question the value of the Union, to the Cleveland era, when

HISTORY, HOME ECONOMICS

the South begins to emerge from the darkness of Reconstruction days. Intensive study of the outstanding figures of the Civil War and the Reconstruction will be made. Prerequisites, History 201, 202. *Three hours credit.*

318. THE UNITED STATES SINCE 1918—An advanced course in American history covering the period from the Peace of Versailles to the present time with special attention to economic problems and a study of the New Deal. Prerequisites, History 201 and 202. *Three hours credit.*

319. THE REVOLUTION AND THE CONSTITUTION—A brief survey of the colonial background, the causes and events of the Revolution, the conditions leading to the Convention of 1787, and the formation of the Constitution. Prerequisites, History 201, 202. *Three hours credit.*

333. HISTORY OF THE UNITED STATES AND PENNSYLVANIA—The history of the State of Pennsylvania with emphasis on its position in general American history. This course satisfies a requirement for a teacher's certificate in Pennsylvania. Prerequisites, History 201 and 202. *Three hours credit.*

HOME ECONOMICS

101. FOOD AND NUTRITION—A study of the principles of nutrition, composition of foods, and food selection in acquiring and maintaining positive health. Meal planning and preparation to meet the needs of the individual. Scientific processes involved in the preparation and preservation of foods. One two-hour lecture and one two-hour laboratory period per week. Fee, \$2.50. *Three hours credit.*

102. FOOD PREPARATION AND SERVICE—Application of the principles of nutrition to family meal service. Food for special occasions. Problems of marketing and care of food in the home. Laboratory techniques are emphasized. One two-hour lecture and one two-hour laboratory period per week. Fee, \$2.50. *Three hours credit.*

203. CLOTHING APPRECIATION AND CONSTRUCTION—How to plan, purchase, and care for a satisfactory wardrobe for a college girl. Good taste in dress. Selection of clothes from the standpoint of color, material, and design. Construction of plain garments. One two-hour lecture and one two-hour laboratory period each week. Fee, \$2.50. *Three hours credit.*

204. CLOTHING SELECTION AND CONSTRUCTION—Factors entering into a wise choice of clothing for the family. Applications of the principles of line, design, and color to dress. Practical work in garment construction using commercial patterns. Fitting and altering ready-made garments. The clothing budget, accessories of dress, and care and upkeep of the wardrobe. One two-hour lecture and one two-hour laboratory period each week. Fee, \$2.50. *Three hours credit.*

Upper Division Courses

301. TEXTILES AND CLOTHING—Consumer problems in textiles such as; identification of fibres, study of quality in relation to price, labels, color design, and finishes. Development of technique in the use of wool, silk, and synthetic materials. One two-hour lecture and one two-hour laboratory period each week. Fee, \$2.50. Prerequisites, Home Economics 203 and 204. *Three hours credit.*

302. ADVANCED DRESSMAKING—Application of the principles of costume design to pattern alteration and designing. Development of specialized techniques in tailoring through the construction of a coat or suit. Use

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of sewing machine attachments. Economics of clothing. One two-hour lecture and one two-hour laboratory period each week. Fee, \$2.50. Prerequisites, Home Economics 203 and 204. *Three hours credit.*

305. CHILD PSYCHOLOGY—See Psychology 305.
306. PSYCHOLOGY OF ADOLESCENCE—See Psychology 306.
307. PSYCHOLOGY OF MARRIAGE AND FAMILY RELATIONS—See Psychology 307.
308. PERSONALITY AND MENTAL HYGIENE—See Psychology 308.

HUMANITIES

The material of the four courses in Humanities is drawn from the great writings of Western culture. The primary purpose of the readings is to arouse the students morally, intellectually, and aesthetically through the stimulus of these writings. An important secondary purpose is to acquaint them with a body of writing which has been extremely influential in the development of Western culture and to relate that material to the society in which it was produced and to our present society.

Full credit in these courses will be allowed toward the major in English; or the credit may be applied in various other fields as follows: 1/3 credit toward a major in history, 1/3 credit toward a major in philosophy, 1/6 credit toward a major in political science, and 1/6 credit toward a major in sociology. Humanities 401 and 402 give full credit toward the degree requirement in Religion.

The general prerequisite for all the courses is junior standing, but none of the courses is a prerequisite for another.

401. GREEK CLASSICS AND THE BIBLE—Old Testament, Homer, Greek drama, Herodotus, Thucydides, Plato, Aristotle, Plutarch, lyric poetry. Prerequisite, junior standing. *Three hours credit.*

402. ROMAN, MEDIEVAL, AND RENAISSANCE CLASSICS—Cicero, Virgil, Ovid, Augustine, Dante, Boccaccio, Chaucer, Machiavelli, Erasmus, More, Rabelais, Montaigne, Cervantes, New Testament, lyric poetry. Prerequisite, junior standing. *Three hours credit.*

403. EARLY MODERN CLASSICS—Bacon, Shakespeare, Descartes, Milton, Moliere, Spinoza, Locke, Racine, Swift, Voltaire, Fielding, Rousseau, Adam Smith, Gibbon, lyric poetry. Prerequisite, junior standing. *Three hours credit.*

404. LATER MODERN CLASSICS—Goethe, Balzac, Mill, Thackeray, Dostoevsky, Huxley, Ibsen, Tolstoy, Henry Adams, Hardy, William James, Shaw, lyric poetry. Prerequisite, junior standing. *Three hours credit.*

ITALIAN, JOURNALISM

ITALIAN

A major in Italian consists of 30 semester hours of work above the elementary level. Of this total as many as twelve hours may be taken in related fields with the approval of the head of the department. Credits in French, Italian, and Spanish may be combined for a major in Romance Languages.

101-102. ELEMENTARY ITALIAN—The fundamentals of grammar are taught by constant drill in syntax and inflectional forms. Spoken Italian with special attention to correct pronunciation and diction is studied in connection with the reading of simple modern texts.

Three hours credit each semester.

203. INTERMEDIATE ITALIAN—Review of grammar in connection with elementary composition. Modern texts are read and used as a basis for conversation in Italian. Prerequisite, C or better in Italian 101-102 or second year high school Italian.

Three hours credit.

204. INTERMEDIATE ITALIAN—A continuation of Italian 203. In this course the stories and plays are studied as literature and at the same time they serve as material for the study of the language.

Three hours credit.

Upper Division Courses

325. ADVANCED ITALIAN GRAMMAR—A review of the essentials of Italian grammar in connection with the grammatical analysis of a simple modern text.

Three hours credit.

326. ITALIAN CIVILIZATION—A general view of the geography, history, and traditions of Modern Italy with a view to understanding its influence on our own civilization.

Three hours credit.

327. CORSO DI STILE—Through the translation of English literary masterpieces into Italian and of models of Italian style into English the means of expression in both languages are compared and contrasted.

Three hours credit.

328. ITALIAN LITERARY TRADITION—A brief survey of the principal writers of Italy with especial attention to Dante.

Three hours credit.

329. CONVERSATIONAL ITALIAN—A part of the time in this course is devoted to a thorough drill in pronunciation. The rest consists of practice in conversation based on a composition text.

Three hours credit.

330. CONTEMPORARY ITALIAN LITERATURE—A study of modern Italian literary tendencies as expressed in the principal writers of the twentieth century. The text for this course is the anthology, *Poeti d'Oggi*.

Three hours credit.

JOURNALISM

The student preparing for journalism should take a major in English. See English, pages 124-127, and Curriculums, page 86.

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LATIN

101-102. ELEMENTARY LATIN—Essentials of Latin grammar and some reading of connected prose. Designed particularly for pre-law students and majors in English and modern languages.

Three hours credit each semester.

201. SELECTIONS FROM THE LETTERS AND ORATIONS OF CICERO—Prose composition. Prerequisite, two units of high school Latin.

Three hours credit.

202. SELECTIONS FROM VIRGIL'S AENEID, BOOKS I-VI—Prose composition. Prerequisite, Latin 201 or three units of high school Latin.

Three hours credit.

Upper Division Courses

301. OVID'S METAMORPHOSES—Prose composition. Prerequisite, Latin 201 or three units of high school Latin.

Three hours credit.

302. CICERO'S DE AMICITIA—History of Roman literature. Prerequisite, Latin 301 or four units of high school Latin.

Three hours credit.

303. LIVY—Prose composition. Prerequisite, Latin 302 or four units of high school Latin.

Three hours credit.

304. HORACE'S ODES—Roman life. Prerequisite, Latin 303.

Three hours credit.

LAW

See School of Law, pages 199-208.

LIBRARY SCIENCE

Courses 214, 302, and 330 in Library Science may be counted toward the 15 hours required by the Ohio State Department of Education for the granting of a Provisional High School Certificate in that field. It is planned to later add other courses so as to enable a student to secure the required 15 hours.

214. CHILDREN'S LITERATURE—See Education 214.

Upper Division Courses

302. LIBRARY ORGANIZATION AND ADMINISTRATION—Designed to assist those who plan to become school librarians or teacher-librarians, but open to others. The course provides instruction in the operation of a small library, in the selection, acquiring, cataloging, and administering of all types of library materials. Prerequisites, sophomore standing, and consent of the instructor. Two lectures and recitations, and one two-hour laboratory period each week.

Three hours credit.

330. AUDIO-VISUAL EDUCATION—See Education 330.

402. RESEARCH AND THESIS WRITING—Designed for those who plan to go on to graduate school for advanced degrees. Deals with the principles and techniques of thesis construction, the finding and delimiting of a problem, the study of scientific methods in research, and the use of the library in the proper development of such thesis work. Prerequisites, senior standing, approval of major department head, and consent of the instructor. Two lectures and recitations, and one two-hour laboratory period each week.

Three hours credit.

MATHEMATICS

MATHEMATICS

For the degree of Bachelor of Science with a major in mathematics, see curriculum, page 87.

All students in the School of Engineering and majors in mathematics and physics will be required to take entrance examinations in the field of mathematics. Persons failing these examinations will be required to repeat their high school mathematics. Any candidate for the degree of Bachelor of Science with a major in mathematics who has a cumulative scholastic point index of less than 1.00 at the end of any semester will be placed on probation during the next semester. The student will not be readmitted to candidacy for these degrees if he fails to raise the point index to the necessary minimum during the probation semester.

Courses in other departments for which credit may be given in mathematics are: Economics 305; Physics 322, 424; Engineering 220, 311-312, 325, 326, 415.

101-102. COLLEGE ALGEBRA—A rapid review of the fundamentals of algebra, followed by work on logarithms, progressions, binomial theorem and mathematical induction, permutations and combinations, complex numbers, and determinants. *Three hours credit each semester.*

103. TRIGONOMETRY—The study of trigonometric functions, use of tables, study of oblique triangles, radian measure and applications, graphs and special properties of trigonometric functions, trigonometric equations and identities, solutions of oblique triangles, and inverse trigonometric functions. Should be taken concurrently with Mathematics 101. *Two to three hours credit.*

114. ANALYTIC GEOMETRY—The study of equations and their graphs, the straight line, the locus of an equation by means of a complete discussion, locus problems, transformation of coordinates, polar equations, the circle, detailed work in conic sections. Should be taken concurrently with Mathematics 102. Prerequisite, Mathematics 103. *Two to three hours credit.*

120-121. FRESHMAN MATHEMATICS—This course presents the mathematics required for the intelligent pursuit of engineering courses and serves as a preparation for a course in calculus. It contains those topics from algebra, trigonometry, plane and solid analytic geometry which are needed to meet this dual objective. The purpose of the course is to relate mathematics as far as possible to its engineering applications without any sacrifice of mathematical rigor. Prerequisites, two units of high school algebra, and one and one-half units of high school geometry. (For transfers to or from this course, Mathematics 120-121 is equivalent to four semester hours of college algebra, three of trigonometry, and three of analytic geometry.) *Five hours credit each semester.*

209-210. DIFFERENTIAL AND INTEGRAL CALCULUS I AND II—A thorough course in the essentials of each phase of calculus. in-

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cluding limits, maxima and minima, rates, curve tracing, parametric and polar equations, Theorem of Mean Value and its applications; the definite integral, areas, volumes, centroids, with applications to physical and mechanical problems; general study of series, expansion of functions by Maclaurin's and Taylor's series. Prerequisite, Mathematics 114. Mathematics 210 is accepted as upper division credit for chemistry majors.

Five hours credit each semester.

231. THEORY OF STATISTICS—Elementary theory and application of mathematical statistics covering such topics as averages, measure of dispersion, and skewness, frequency distributions and frequency curves, correlation, and curve fitting. Applications to practical problems in student's major field. Prerequisite, Mathematics 101-102. *Three hours credit.*

Upper Division Courses

311. THEORY OF EQUATIONS—Solution of cubic and quartic equations. Newton's method, symmetric functions, determinants, resultants, discriminants. Prerequisite, Mathematics 209-210. *Three hours credit.*

314. CALCULUS III—Ordinary differential equations, hyperbolic functions, partial differentiation, applications of partial derivatives, and multiple integrals. Prerequisite, Mathematics 209-210. *Three hours credit.*

315. DIFFERENTIAL EQUATIONS—Methods of solving ordinary differential equations with applications to problems in various fields. Prerequisite, Mathematics 314. *Three hours credit.*

330. COLLEGE GEOMETRY—The study of geometric constructions by various methods, including the use of loci, indirect elements, and similar and homothetic figures; properties of the triangle, the nine-point circle, orthocentric quadrilateral; recent geometry of the triangle. This course has been made a specific requirement for a teaching major or minor in mathematics by the State Board of Education. Prerequisite, junior standing. *Three hours credit.*

401-402. THESIS—See Engineering 401-402.

416. PARTIAL DIFFERENTIAL EQUATIONS—Equations of higher order, partial differential equations, and systems of equations. Prerequisite, Mathematics 315. *Three hours credit.*

420. VECTOR ANALYSIS—A basic course in the elementary operations of vector analysis; scalar and vector products of two vectors, of three vectors; differentiation of vectors, with applications; a study of the differential operations; applications to electrical theory and to mechanics. Prerequisite, Mathematics 314 and consent of instructor. *Three hours credit.*

432. HISTORY OF MATHEMATICS—A study of the development of the fundamental ideas of mathematics through calculus from antiquity to the present. Prerequisite, Mathematics 209-210. *Three hours credit.*

MUSIC

See The Dana School of Music, pages 157-198.

NURSING

403. WARD MANAGEMENT AND TEACHING—This course is planned to enable the graduate nurse interested in ward management and

ORIENTATION, PHILOSOPHY AND RELIGION

teaching to learn the fundamental principles relating to the management of the head nurse unit and the duties of the head nurse as teacher, including discussions of the numerous types of problems which arise on the head nurse unit. For admission to this course the student must have had one year of experience as a graduate nurse, or be actually engaged in head nurse work. *Three hours credit.*

ORIENTATION

This course aims to help the new college student to adjust himself quickly to college life. The problems studied include: how to study in college; how to select college courses; how to select a life work. Lectures, library readings, and quizzes. Required of all freshmen students. *One hour credit.*

PHILOSOPHY AND RELIGION

A major in philosophy consists of thirty semester hours, including Philosophy 203, 220, 301, 302, and 305.

Credit may be given toward the philosophy major for Sociology 303, History of Social Philosophies, and Psychology 303, Psychology of Religion.

One-third credit will be allowed toward a major in Philosophy and Religion for any courses listed under Humanities. Humanities 401 and 402 give full credit toward the degree requirement in religion.

A major in religion, for those desiring to prepare themselves along lines leading to church or social work, may be planned in consultation with the head of the department and the head of the Social Science Division.

202. THE SPIRITUAL FOUNDATIONS OF A WORLD COMMUNITY—Such problems will be considered as the methods of preserving peace, international justice, moral law, the church's responsibility, Christian strategy, a Christian civilization, and the sovereignty of God. *Two hours credit.*

203. INTRODUCTION TO PHILOSOPHY—A lecture and discussion course designed to introduce the student to the methods, problems, and fundamental conceptions of philosophy, and to the significance of the higher values of life—moral, aesthetic, and religious. *Three hours credit.*

207. THE CHRISTIAN ETHIC—A study of the records of Matthew, Mark, and Luke, with the object of discovering Jesus' conception of life, and the ethical principles revealed in both his teaching and actions. The purpose of the course is to furnish a basis for the student's development of his own philosophy of life. *Three hours credit.*

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208. THE BEGINNING OF CHRISTIANITY—An introduction to the Palestinian environment, the Jewish tradition, the Greco-Roman culture of the age, the career and teaching of Jesus, the organization of the Church, and its expansion in the Roman Empire. *Three hours credit.*

220. LOGIC—An introductory study of the laws that lie behind all our thought processes. The nature of concept and the divisions of its expression, the term, Judgment and the valid forms of immediate inference. Reasoning: categoric, disjunctive and conditional, and its laws. Formal and material fallacies. Inductive reasoning. *Three hours credit.*

221. PHILOSOPHY OF LOWER ANIMATE NATURE—The comparison of living and non-living things to discover the meaning of life. Its definition and its cause. Mechanism. The nature of the vital principle of plant and animal sensation. The nature of sensation and what it implies; the cerebro-spinal system. The question of animal intelligence. A philosophical discussion of evolution. *Three hours credit.*

230. INTRODUCTION TO BIBLICAL LITERATURE—A general survey of the literature of the Old and New Testament, with attention given to the authorship and purpose of the various books, insofar as these are known; to the history of their compilation into the present canon; to their structure and style; and with emphasis upon the applicability of their teachings to the problems of today. *Three hours credit.*

Upper Division Courses

301. HISTORY OF PHILOSOPHY—The development of philosophic thought from the time of the early Greeks to the end of the Middle Ages. *Three hours credit.*

302. HISTORY OF PHILOSOPHY—Continuation of Philosophy 301 from the end of the Middle Ages to the present day. *Three hours credit.*

303. OLD TESTAMENT—An introduction to the writings of the Old Testament; the nature of the Bible; the authorship, origin, and meaning of the various books; the development of religious and ethical ideas throughout the Old Testament period; the significance of the law and of the prophets in the life of the Hebrews, and the contribution of the Hebrews to the life of mankind. *Two hours credit.*

304. PHILOSOPHY OF RELIGION—A consideration of the meaning of religion, and its relation to other aspects of culture. The function and evaluation of religious experience. The existence and nature of God; the problem of evil: the soul, with the problems of freedom and immortality. Prayer. Current trends toward skepticism and faith. *Three hours credit.*

305. ETHICS—A study of human nature, biological and psychological bases of behavior, duty, conscience, habit, freedom, the nature of right and wrong, good and bad, and analysis of the principal ethical theories. *Three hours credit.*

307. TYPES OF PHILOSOPHY—A study of the principal approaches which have been made to the problems of philosophy, and the points wherein they differ. Intended to follow the Introduction to Philosophy, and to outline the answers historically given to the questions there indicated. Prerequisite, Philosophy 203. *Three hours credit.*

310. MAKING OF THE MODERN MIND—A study of the philosophic, religious, scientific, political, and social developments out of which our present patterns of thought have arisen. Prerequisites, History 105, 106. *Three hours credit.*

PHILOSOPHY AND RELIGION

315. RELIGIONS OF THE WORLD—A study of Hinduism, Buddhism, Confucianism, Taoism, Zoroastrianism, Mohammedanism, Judaism, and Christianity. *Three hours credit.*

316. CONTEMPORARY RELIGIOUS THOUGHT—A study of the religious convictions of the leading thinkers of today—American, British, German, Oriental. *Two hours credit.*

322. PHILOSOPHY OF MAN—A discussion of the sentient, emotional, and rational life of man. Abnormal manifestations and attempted explanations of the psycho-analyst, the analytical psychologist, and the individual psychologist. The nature of rational thought and of the principles required to explain it. The explanation of the modern psychologist. Freedom of the human will vs. behaviorism. The nature of the human soul and its corollaries, the origin and destiny of the soul. Prerequisite, Philosophy and Religion 220 or 221. *Three hours credit.*

323. THEORIES OF KNOWLEDGE—The nature of the epistemological problem and its attempted solution. The position of the skeptic, the pragmatist, the sensist, the idealist. The solution of the moderate realist. The nature of truth and certitude, their sources and ultimate criterion. Prerequisite, Philosophy 220 or 221. *Three hours credit.*

324. PHILOSOPHY OF BEING—A study of the metaphysical concept of abstract being. Essence and existence; act and potency; substance and accident. The nature of the possibles. Cause and causality. The meaning and nature of relations. Prerequisite, Philosophy and Religion 220 or 221. *Three hours credit.*

325. METAPHYSICS OF MATTER—What is matter? A philosophical concept of its nature and constitution. Hylomorphism. The origin of the physical universe. The physical laws. Miracles. The space-time concepts. Prerequisite, Philosophy and Religion 220 or 221. *Three hours credit.*

326. PHILOSOPHY OF GOD—Proofs for the existence of God. The nature of God and his Divine attributes. God's knowledge and the various media in which God knows. The "scientia media." Providence and the problem of evil. Miracles. Prerequisite, Philosophy and Religion 220 or 221. *Three hours credit.*

330. PHILOSOPHICAL CLASSICS—A reading course intended to provide the student with a first-hand knowledge of certain great documents of philosophy. Plato's *Republic*, Descartes' *Meditations*, Kant's *Critique of Pure Reason*, and selections from other modern philosophers will be considered. *Three hours credit.*

427. MORAL CONDUCT—Basic Principles—The definition of moral good and moral evil established by positive proof. The nature of morality. The true norm of morality. False norms. The existence and qualities of the Eternal and Natural Laws. Obligation and sanction of the Natural Law. Conscience. The nature of rights and duties. The existence of natural rights. Prerequisite, Philosophy and Religion 322. *Three hours credit.*

428. MORAL CONDUCT—Specific Applications—The application of the precepts of the natural law to specific classes of human activity. Man's duties to God; the natural right to property; rights and duties of conjugal society; marriage and divorce. Industrial ethics; the solution of the communist; wages, strikes, labor unions. The nature of civil society. Prerequisite, Philosophy and Religion 427. *Three hours credit.*

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431. THE PROBLEMS OF RELIGION—An objective examination of the areas of human experience, individual and social, in which religion is primarily operative. Several of the classic religions will be studied in an attempt to determine the problems for which humanity has traditionally sought a religious solution. *Three hours credit.*

432. THE PROBLEMS OF RELIGION—A continuation of Philosophy and Religion 431 considering modern religious cults, with an emphasis upon their psychological and sociological aspects. *Three hours credit.*

PHOTOGRAPHY

151. ELEMENTARY PHOTOGRAPHY—This course is planned for the average camera enthusiast. It will be developed as a science on a scientific basis. The nature of light, lenses, the elementary chemistry of photography, etc., will be included. Demonstration and practice in picture taking for various purposes and effects. Miniature camera work will be compared with other types. Laboratory work will include developing, printing, and enlarging. Various grades of films and papers will be used. Color work will also be included. Fee, \$2.50. *Three hours credit.*

252. ADVANCED PHOTOGRAPHY—Studio work covering commercial and illustrative photography, copying, retouching, including actual practice with cameras, lights, filters, lenses, exposures, etc. Individual dark room instruction on negative processing, contact printing, enlarging. Fundamentals of composition, photographic make-up, and portraiture. Prerequisite, Physics 151. Fee, \$2.50. (Offered on demand.) *Three hours credit.*

PHYSICAL EDUCATION

A medical examination of all students taking physical education is required. (See page 65). Special clothing suitable for the activity engaged in is required of students and should be purchased after consultation with the physical education instructor. Handicapped students or those in need of remedial work are given special attention.

Four semesters of physical education and one semester of hygiene are required of all students. Students may select their activity at the beginning of each semester. An effort is made to offer a varied program and students are urged to register for different activities in successive semesters.

Courses offered during 1949-50 will include: calisthenics and body building games, tumbling, shuffleboard, badminton, deck tennis, ping-pong, dancing (modern, folk, square, and social), basketball, volleyball, softball, recreational games, swimming (beginning, intermediate, advanced, life-saving), eurhythmics, golf, bowling, riding, tennis, fencing, baseball, football, squash, archery, and other recreational and competitive sports.

PHYSICAL EDUCATION

Physical Education 121 will denote the first semester of physical education activity; 122, the second; 221, the third; and 222, the fourth.

Students are encouraged to participate in physical education classes or in intra-mural activities in addition to their regularly required classes. Music students are normally required to complete four semesters of eurhythmics.

Two hours of physical education a week throughout the semester are required for one-half hour of credit.

Youngstown College is approved by the State of Ohio for the training of physical education teachers. While certified only for the state teaching minor, a college major is offered. A suggested curriculum is found on page 79. Professional courses offered toward this major and field of certification follow:

105. HYGIENE (Men)—Personal hygiene. Two hours each week for one semester. *Two hours credit.*

106. HYGIENE (Women) —Personal hygiene. Two hours each week for one semester. *Two hours credit.*

201. FIRST AID AND CARE OF ATHLETIC INJURIES—A study of the best procedures in safety and first aid especially slanted toward injuries a physical education teacher should be prepared to treat. Principles and methods of taping are demonstrated and practiced. The Red Cross Manual is followed and Red Cross First Aid Certificates are awarded. *Two hours credit.*

203. PRINCIPLES OF HEALTH AND PHYSICAL EDUCATION—This is an elementary course in the techniques and skills involved in the teaching of health and physical education. Principles and ideals of health are related to the processes which make for a sound physical education. *Two hours credit.*

Upper Division Courses

306. HYGIENE FOR TEACHERS—A general course in health and hygiene dealing with personal health and living, community health, mental and social hygiene, handling of foods, nutrition, sanitation, disease control, health counseling. The course is designed to be more advanced than Hygiene 105 or 106, and is slanted to include facts and details necessary for the informational background for teachers of hygiene and health courses. *Two hours credit.*

307. HYGIENE OF COMMUNITY LIVING—A study of the administrative interrelationships of special agencies dealing with the health of community living. *Two hours credit.*

309. ORGANIZATION AND ADMINISTRATION OF INTRAMURAL ACTIVITIES—A study of the principles underlying the various phases of conducting an intramural program. The problems of pupil participation, awards, tournaments, types of officiating, publicity, sportsmanship, and other pertinent subjects are studied. *Two hours credit.*

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311. THEORY AND PRACTICE OF PHYSICAL EDUCATION OTHER THAN ATHLETICS—Games of low organization, relays, shuttles, stunts, apparatus, tumbling, swimming, dancing, and elementary skills are taught in this course. The place of games in a physical education and recreation program is stressed. Games in the gymnasium and on the playground, which can easily be taught and give the participant satisfaction, are developed in both theory and practice. *Three hours credit.*

321. HYGIENE FOR ELEMENTARY GRADES—This course includes health habits, and ways and means of ingraining them in pupils, use of the snellen chart, auditory acuity tests, principles governing seating, lighting, air space, illuminating information to motivate health habits, and the recognition of common disorders and malnutrition in children. The teacher-in-training will be made aware that health should be taught at every opportunity and in every possible connection in the classroom and on the playground. The possibilities of the home project as a means of projecting the training into the home will be studied. *Three hours credit.*

322. HEALTH ACTIVITIES FOR ELEMENTARY GRADES—The prospective teacher will be equipped with an extensive program of games of low organization suitable for the grades, rhythms, dancing and singing games, mimetic and story plays, hunting and chasing games, relays, stunts and self-testing activities, games for use in the schoolroom, and seasonable sports and games for use in and out of school. The teacher-in-training will learn the games, play them in class, and become familiar with their purposes and the method of teaching them to children. They will be viewed not only from a health standpoint but also as opportunities for practicing desirable traits. *Three hours credit.*

400. SPECIAL METHODS IN PHYSICAL EDUCATION—A study of the special problems involved in the teaching of health and physical education. Each student will be required to spend 100 hours in observation and participation with some selected group as well as to observe extensively in the public schools. Reports and a term paper are required as well as weekly conferences with the adviser in charge of the work. Prerequisites, senior standing in accordance with the health and physical education curriculum. *Three hours credit.*

403. ORGANIZATION AND ADMINISTRATION OF HEALTH AND PHYSICAL EDUCATION—Physical education as it is organized today requires administrators of executive ability. Techniques involved in organization and administration of intramural and interscholastic activity are studied and practiced. *Two hours credit.*

404. ORGANIZATION AND ADMINISTRATION OF PLAY-
GROUNDS AND RECREATION—Techniques involved in organization and administration of playgrounds and recreation are studied and practiced. *Three hours credit.*

405. ORGANIZATION AND ADMINISTRATION OF RECREATIONAL ACTIVITIES—A study is made of the related fields of physical education and recreation as they help each other. The principles, aims, and objectives of recreation are emphasized along with an attempt to familiarize the physical education student with sources of help in finding material for, and in the organization and administration of, recreational group activities. *Two hours credit.*

409. THEORY AND PRACTICE OF ATHLETIC COACHING (Men)—Skills, strategy, and systems in the field of athletics are studied as they are related to basketball, baseball, track, soccer, and speedball. The student will learn the rules of the game and how to play, officiate, and coach these types of activities. *Two hours credit.*

PHYSICAL EDUCATION, PHYSICS

410. FOOTBALL (Men)—This course is devoted to the study of the offensive and defensive characteristics of various systems. The student will receive instruction and actual practice by coaching a squad of players.
Two hours credit.

411-412. THEORY AND PRACTICE OF PHYSICAL EDUCATION (Women)—Instruction and practical experience in methods, materials, and programs of physical education for elementary and secondary schools.
Two hours credit each semester.

413. SPORTS APPRECIATION—A course designed to help in the understanding of the rules, mechanics, skills, social benefits, contemporary status, and in otherwise gaining a familiarity with many selected sports, including baseball, football, golf, tennis, skiing, sailing, fishing, and others.
Fee, \$2.00.
Two hours credit.

415. TEACHING OF HEALTH IN SECONDARY SCHOOLS—The health education teacher must be aware of the health needs of his students, including their prevalent defects as well as their environmental surroundings in the school, home, and community. This course is concerned with techniques for finding those needs, discovering the facts concerning them, and in the organization of functional health teaching in accord with the facts discovered. Courses of study are planned, sources of help investigated, and the various media for aid in teaching are evaluated.
Three hours credit.

416. INDIVIDUAL CORRECTIVE GYMNASTICS AND NORMAL DIAGNOSIS—A study is made of the theory and practice of the use of the best diagnostic methods and treatment of remediable physical defects. Attention is also given to good theory and practice in the problem of helping the person with a more permanent handicap. Prerequisite, Biology 250.
Two hours credit.

425. SEMINAR IN PHYSICAL EDUCATION—A course designed to give an opportunity for study of special problems pertinent to physical education. Open to seniors.
Two hours credit.

426. SEMINAR IN HEALTH EDUCATION—A course designed to give an opportunity for study of special problems pertinent to health education. Open to seniors.
Two hours credit.

427. SEMINAR IN ATHLETICS—A course designed to give an opportunity for study of special problems pertinent to athletics. Open to seniors.
Two hours credit.

PHYSICS

The instructional work in physics has been organized with the view of obtaining the following objectives: (1) To acquaint the student who is pursuing a non-specialized course of study with the place of physics in the modern world and to train him in the scientific methods of work; (2) to provide basic training in physics for engineering and pre-medical students; (3) to offer a well-rounded training to those students pursuing a course of study leading to the degrees of Bachelor of Science in Education, Bachelor of Science, or Bachelor of Arts. In this category should be those students who desire to prepare themselves for teaching positions in the secondary schools, po-

sitions requiring training in physics and scientific work with commercial companies, or leading to graduate work in physics and mathematics.

Any candidate for the degree of Bachelor of Science with a major in physics who has a cumulative scholastic point index of less than 1.00 at the end of any semester will be placed on probation during the next semester. The student will not be readmitted to candidacy for these degrees if he fails to raise the point index to the necessary minimum during the probation semester.

Courses in other departments for which credit may be given toward a major in physics are: Engineering 203, 204, 220, 311-312, 313-314, 325, 328, 401-402, 415, 416, and Economics 309.

For requirements, see curriculum, pages 88-89.

101-102. FUNDAMENTALS OF PHYSICS—This course covers the study of the elementary laws of physics. The course content will contain elementary mechanics, sound, light, heat, and electricity. This course is not open to engineers. *Three hours credit each semester.*

101L-102L. FUNDAMENTALS OF PHYSICS LABORATORY—Two hours laboratory per week to be taken concurrently with Physics 101-102. Fee, \$7.50 each semester. *One hour credit each semester.*

201. GENERAL PHYSICS—MECHANICS, HEAT, AND SOUND—This course covers the study of composition and resolution of forces; Newton's Laws of Force and Motion; accelerated motion, circular and simple harmonic motion; molecular forces in liquids and solids; surface phenomena; fluids at rest and in motion; expansion and thermometry; heat energy and calorimetry; the kinetic theory of matter; elementary thermodynamics; transfer of heat and radiation; sound and hearing; combination of sound waves; noises, tones, and scales; wave motion and vibration. Prerequisite or concurrent, Mathematics 209. *Four hours credit.*

201L. GENERAL PHYSICS LABORATORY—Two hours laboratory per week to be taken concurrently with Physics 201. *One hour credit.*

202. GENERAL PHYSICS—LIGHT AND ELECTRICITY—This course covers the study of the propagation of light by wave motion; mirrors and lenses; reflection, refraction, absorption, and dispersion of light; diffraction and interference; optical instruments; fundamental phenomena of electricity at rest; introduction to current electricity; the nature and production of electric current; electric currents and magnetic phenomena; Ohm's and Kirchoff's Laws; measurements in simple circuits, electrical energy, and power; elementary electrical oscillations and radio. Prerequisite, Physics 201. *Four hours credit.*

202L. GENERAL PHYSICS LABORATORY—Two hours laboratory per week to be taken concurrently with Physics 202. *One hour credit.*

225. GENERAL METEOROLOGY—An introductory course in elementary meteorology dealing with meteorological elements including cloud

PHYSICS, POLITICAL SCIENCE

types, pressure, temperature, humidity, and precipitations, composition and circulation of the atmosphere, type of stability, air mass analysis, and analysis of surface maps. Prerequisite, sophomore standing. *Three hours credit.*

Upper Division Courses

303. ELECTRICITY AND MAGNETISM—A study of the fundamental laws of electrostatics and electromagnetism. Prerequisite or concurrent Mathematics 314; prerequisite, Physics 201 and 202. *Three hours credit.*

303L. ELECTRICITY AND MAGNETISM LABORATORY—Two hours laboratory per week to be taken concurrently with Physics 303. Fee, \$5.00. *One hour credit.*

317. THERMODYNAMICS—This course covers the fundamentals regarding energy and its transformation, general energy equations, characteristic equations of a perfect gas, energy equations of a perfect gas, reversible non-flow processes of gases, the Carnot cycle, heat power plants, steam and steam calorimetry, steam fuels and combustion, steam boilers, steam generator auxiliaries, feedwater treatment and feedwater heaters, draft apparatus, chimneys and fans. Prerequisites, Physics 201 and 202, Mathematics 209-210. *Three hours credit.*

317L. THERMODYNAMICS LABORATORY—Two hours laboratory per week to be taken concurrently with Physics 317. Fee, \$10.00. *One hour credit.*

322. PHYSICAL OPTICS AND ADVANCED LIGHT—Elementary theory of thick and thin lenses, interference, diffraction, and polarization phenomena; wave surfaces, resolving power of optical instruments. Prerequisites, Physics 201 and 202, Mathematics 314. Fee, \$5.00. *Three hours credit.*

401-402. THESIS—See Engineering 401-402.

424. HISTORY OF PHYSICS—A study of the history of physics from the early times, the lives of the great physicists, and the development of the physical laboratory. Prerequisite, Mathematics 209-210. *Three hours credit.*

425. THEORY OF HEAT TRANSMISSION—This deals with the theory of heat transmission for radiation, convection, and conduction. Development of dimensional analysis and heat transfer, practical work in the design of insulation for power plant, boilers, condensers, evaporation, and other practical work. Prerequisites, Mathematics 315 and Physics 201 and 202. *Three hours credit.*

426-427. ELEMENTS OF ATOMIC ENGINEERING—This course includes the study of the fundamental particles of physics. It constitutes one of the basic fields of preparation for the understanding of the modern concepts of atomic structure. It covers a study of the electron, the electric discharge, cathode rays, isotopes, natural radio activities, atomic nuclei, and artificial disintegration. *Three hours credit each semester.*

POLITICAL SCIENCE

A major in political science consists of 24 semester hours in addition to Social Science 101, 102, 201, and 202. The major is designed to prepare students for graduate study in political science or law, and to provide a background for the student interested in a career in government or politics.

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Courses in other departments for which credit may be given toward the political science major are: Economics 304, Public Finance; Economics 402, Comparative Economic Systems; History 308, The Far East; History 215, 216, The Constitutional History of England; and History 309, 310, Constitutional History of the United States. One-sixth credit will be allowed toward a major in Political Science for any courses listed under Humanities.

201. AMERICAN NATIONAL GOVERNMENT AND POLITICS—A study of the historical background, form, structure, administrative organization, and expanding activities of the Federal Government.

Three hours credit.

202. AMERICAN STATE AND LOCAL GOVERNMENT—A study of the form, structure, administrative organization and functioning of state, county, and municipal government in the United States. Prerequisite, Political Science 201.

Three hours credit.

Upper Division Courses

304, 305. INTERNATIONAL RELATIONS—The main motives in modern international politics, imperialism, the economic background, the first World War, the League of Nations, the United States and Europe, the United States and the Far East, the second World War, postwar problems, the United Nations organization.

Three hours credit each semester.

307. AMERICAN POLITICAL PARTIES—The origin, functions, and development of the political party with emphasis on its relation to practical politics, propoganda, and pressure groups. Prerequisites, Social Science 101 and 102; prerequisite or concurrent, History 201 and 202.

Three hours credit.

308. PUBLIC ADMINISTRATION—The organization and practice of national, state, and local administration, including problems of governmental reorganization, civil service, budget procedures, and administrative law. Prerequisites, Political Science 201 and 202.

Three hours credit.

311. DEVELOPMENT OF AMERICAN FOREIGN POLICY—The diplomatic problems that have confronted the United States from the American Revolution to the present time. Prerequisites, History 201 and 202.

Three hours credit.

312. MUNICIPAL GOVERNMENT AND ADMINISTRATION—A study of the principles and plans of city government in the United States. The problems of the modern city-home rule, public utilities, administrative organization, city finance, city planning, public health and recreation, school systems. Prerequisite, Social Science 101-102.

Three hours credit.

403. COMPARATIVE GOVERNMENT—A study of the structure and functioning of the principal types of national governments, with emphasis upon the governments of the western European nations and of Soviet Russia. Prerequisite, one of the following: Political Science 201, History 201, 202, 309, 310, Economics 402.

Three hours credit.

404. INTERNATIONAL LAW—A survey of the development and present content of the principles of law governing the relations of national states. Prerequisites, two of the following: Political Science 201, 202, 304, 305, 311, History 309, 310.

Three hours credit.

POLITICAL SCIENCE. PSYCHOLOGY

405, 406. DEVELOPMENT OF POLITICAL THOUGHT—A study of the political theories from antiquity to modern times, with emphasis upon the practical applications of political theories and the resulting relationship of the individual and the state. Prerequisites, two of the following: Political Science 201, 202, 403, History 215, 216, 311, 312.

Three hours credit each semester.

PORTUGUESE

See Spanish, page 155.

PSYCHOLOGY

A major in Psychology consists of 30 semester hours including Psychology 201, 301, and 302. Biology 321, Philosophy 431 and 432 may be counted toward the major.

201. GENERAL PSYCHOLOGY—A study of the fundamental principles of human behavior. This includes a brief survey of the field, the relationship of physiological structure to behavior, the study of the nature and development of perception, emotion, behavior, and other factors in the integration of personality. Prerequisite to all other courses in the field. Fee, \$1.00 for educational film. Not open to freshmen. *Three hours credit.*

202. PSYCHOLOGY OF EDUCATION—A study of those principles and laws of psychology that form the background and underlying conditions for learning and teaching, and for the growth of a successful personality. Prerequisite, Psychology 201. *Three hours credit.*

Upper Division Courses

300. SOCIAL PSYCHOLOGY—A study of the underlying psychological principles that give rise to the self, personality, and social-cultural reality; aspects of human conflict such as prejudice, revolution, and war; forms of mass behavior including the crowd, fashion, public opinion, and propaganda; and finally, the psychology of social control and power. Prerequisite, Psychology 201. *Three hours credit.*

301. APPLIED PSYCHOLOGY—A study of the psychological factors and principles involved in human relationships in marketing, law, advertising, medicine, selling, and personnel management, as found in business and professional life. Prerequisite, Psychology 201. *Three hours credit.*

302. PSYCHOLOGY OF THE ABNORMAL—A study of the causes, nature, and trend of mental maladjustments and injured personality, especially the major trends and illnesses, and stressing the place of mental hygiene in this study. Prerequisite, Psychology 201. *Three hours credit.*

303. PSYCHOLOGY OF RELIGION—A study of the psychological facts and principles affecting religious experiences, sense of sin, conversion, character changes, faith, worship, development of personality, and mental adjustments as a hygiene for dynamic, useful, and happy living. Prerequisite, Psychology 201. *Three hours credit.*

305. CHILD PSYCHOLOGY—A genetic study of child development from the prenatal period to puberty, stressing the characteristic behavior and suitable training methods for each period of development. Recommended for elementary teachers. Prerequisite, Psychology 201.

Three hours credit.

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306. PSYCHOLOGY OF ADOLESCENCE—A study of characteristics and behavior problems of teen-age children. Recommended for high school teachers. Prerequisite, Psychology 201. *Three hours credit.*

307. PSYCHOLOGY OF MARRIAGE AND FAMILY RELATIONS—A practical study of social and psychological factors which contribute to marital success and happiness, including intersex relations, eugenics, mental hygiene, child training, home finance and community usefulness. Especially recommended for those who have little advanced credit in psychology or sociology. Prerequisites, Psychology 201, Biology 103, Social Science 101 and 102, and junior standing. Fee, \$5.00. *Three hours credit.*

308. PERSONALITY AND MENTAL HYGIENE—A study of those principles and habits which insure a well-balanced personality and a sound mind. Prerequisite, Psychology 201. Fee, \$1.00. *Three hours credit.*

309. PSYCHOLOGY OF PERSONNEL SELECTION AND PLACEMENT—Designed to acquaint the student with the application of the principles and techniques of psychology to business, industry, and management, with special emphasis on methods of selecting and training personnel. The human factor in business and industrial management, fatigue and monotony and other factors affecting worker efficiency, mental health, and morale. Prerequisite, Psychology 201. Fee, \$2.00. *Two hours credit.*

310. PSYCHOLOGICAL ASPECTS OF PERSONNEL RELATIONS—This course will be concerned with the central problem of how people get along with each other, how this is sometimes difficult, and how resentments develop and effect relationship and work. Underlying personality needs will be discussed. Some of the essential elements in interviews and group discussions will be included. The course will be made practical and useful through discussion and actual problems. A point of view for a few basic concepts will be given which should assist in understanding why groups and persons act as they do. Prerequisite, Psychology 201. *Two hours credit.*

332. PSYCHOLOGY OF EXCEPTIONAL CHILDREN—The psychology and treatment of children having inferior and superior intellectual ability; defects of vision, hearing, or speech; physical handicaps of a neurological or orthopedic nature; delinquent children. Consideration of emotional needs and programs of educational treatment and training. Meeting their needs in the regular classroom period. Prerequisite, Psychology 305. *Three hours credit.*

401. BUSINESS PSYCHOLOGY—An advanced course in applied psychology dealing with the psychological factors which affect employment, selling, and advertising. Prerequisite, Psychology 301. *Three hours credit.*

405. INTERVIEWING AND COUNSELING—This course is a study of the basic principles, purposes, and psychological problems involved in interviewing; discussions of interests and problems of members of the class; special purpose interviews and counseling, recording and evaluation of facts; reporting and discussion of actual interviews. Prerequisite, Psychology 201. *Three hours credit.*

406. VOCATIONAL GUIDANCE—A study of the techniques of vocational guidance and their application to high school students, college students, vocational rehabilitation subjects, and adults in general. Prerequisites, Psychology 201 and 301. *Three hours credit.*

407. CLINICAL TRAINING—Clinical experience for a limited number of qualified students in the fields of mental and physical illness and delinquency. Opportunities for work and observation in hospitals and other

PSYCHOLOGY, RUSSIAN

institutions. The course will be divided between institutional work and observation and seminar conferences. Case study method. Prerequisite, Psychology 302. *Three hours credit.*

425. GUIDANCE OF HIGH SCHOOL STUDENTS—This course covers principles and procedures in vocational, educational, personal and social counseling at high school level. The discovery of the problems and needs of high school students will be basic. Methods of interviewing and testing, as well as classroom procedures and organization of guidance programs will be dealt with. Prerequisite, Psychology 202. *Two hours credit.*

426. STUDY OF AN INDIVIDUAL CHILD—Special problems. The purpose of the course will be to assist teachers, social workers, parents, and prospective parents in studying and working with individual children who present special problems. Interviews, records, test interpretation, and corrective work will be utilized. Some attention will be given to remedial work in school subjects. Major emphasis, however, will be upon corrective procedures and adjustment of problems. Prerequisite, Psychology 305. *Two hours credit.*

428. PHYSIOLOGICAL PSYCHOLOGY—An advanced course which emphasizes the structuro-functional relationships for the various divisions and sub-divisions of the neural system and their relationships to the organism as a whole. Emphasis is placed upon the contribution of the various parts of the nervous system towards human behavior. Prerequisites, Psychology 301 and 302. *Three hours credit.*

429. INTRODUCTION TO PSYCHIATRY—A study of the fundamental psychoses and psychoneuroses. Special attention is given to schizophrenia, manic-depressive psychosis, alcoholism, and psychopathic personalities. Methods of treatment such as electro-shock, insulin, and various forms of psychotherapy are discussed. Prerequisites, Psychology 300, 302, and 308. *Three hours credit.*

430. CONTEMPORARY SCHOOLS OF PSYCHOLOGY—An overview of the field of psychological theories, their evolution, their salient principles, and their status of current acceptance. Prerequisites, Psychology 301 and 302. Especially recommended for psychology majors. *Three hours credit.*

RUSSIAN

101-102. ELEMENTARY RUSSIAN—The fundamental differences between Russian and English are explained graphically so as to afford a simplified approach to easy scientific texts, and so as to make possible the acquisition of the essential vocabulary of conversation in a minimum of time. *Three hours credit each semester.*

203. INTERMEDIATE RUSSIAN—Elementary composition based on a review of the essentials of grammar. The reading material for the course is chosen with the double purpose of furnishing a basis for the further study of Russian literature and providing those who wish to do technical reading with a working knowledge of the modern language. Prerequisite, C or better in Russian 101-102 or in second year high school Russian. *Three hours credit.*

204. INTERMEDIATE RUSSIAN—A continuation of Russian 203. Reading of texts of increasing difficulty accompanied by conversation and exercises in composition. Prerequisite, Russian 203. *Three hours credit.*

305. RUSSIAN LITERATURE—A continuation of Russian 204 with more difficult selections from the great writers of Russia. *Three hours credit.*

YOUNGSTOWN COLLEGE

SECRETARIAL STUDIES

Courses in secretarial studies give credit only toward the commercial education course leading to the degree of Bachelor of Science in Education, and the course leading to the degree of Bachelor of Science in Business Administration with a major in secretarial studies.

For curriculums, see pages 74 and 77.

100. TYPEWRITING—This course is for beginners. A speed of 20 words a minute is required for completion of this course. *Two hours credit.*

101. TYPEWRITING—Consists of advanced letter writing, legal papers, tabulating, filling in forms, and speed work. A speed of 20 words a minute is required for admission to this course and a speed of 40 words a minute must be attained for credit. *Two hours credit.*

104-105. BOOKKEEPING—First semester, single proprietorship; second semester, partnership. *Two hours credit each semester.*

200. SHORTHAND—This course is for beginners. Mastery of the shorthand manual and speed study text is required for completion. *Four hours credit.*

201. TRANSCRIPTION—Advanced course in typewriting and transcribing. The student is required to attain a typing speed of 60 words per minute. *Two hours credit.*

202. BUSINESS MATHEMATICS—Computation for accounting, interest, discount, pay roll, social security, insurance, tax, etc. *Two hours credit.*

203. BOOKKEEPING—A study of corporation accounting. *Two hours credit.*

207. BUSINESS ENGLISH AND CORRESPONDENCE—This course includes a study of business terms; the psychology, mechanics, and principles of effective letter writing; practice in correcting common errors and in writing different types of letters. *Three hours credit.*

208. COMMERCIAL LAW—A brief study of the following: contracts, sales, bailments, negotiable instruments, guaranty and suretyship, agency, master and servant, partnership, corporations, insurance, property, wealth and income and their management, the financial system and investing, buying and selling relations, and the organization and operation of business. *Three hours credit.*

215, 216. OFFICE MACHINES—A working knowledge of typical machines used in offices, such as adding and calculating machines, dictaphone, mimeographing, and bookkeeping machines. *Three hours credit.*

Upper Division Courses

300-301. SHORTHAND—Beginning dictation and transcription. This course is planned for students who have completed the shorthand manual and speed study text. All students must pass the theory test for admission to this class. A speed of 60 to 80 words per minute must be attained for credit. *Two hours credit each semester.*

302. SHORTHAND—Advanced dictation at 100 words per minute and transcription at the rate of 25 words per minute. *Two hours credit.*

SECRETARIAL STUDIES, SOCIAL SCIENCE

303. SECRETARIAL DICTATION—Advanced dictation at 120 words per minute and transcription at the rate of 35 words per minute.
Two hours credit.

304. ADVANCED DICTATION AND TRANSCRIPTION—This course is devoted to acquiring greater speed and accuracy in transcription.
Two hours credit.

403. OFFICE PRACTICE—Application of theory to practice; consists of typical office problems, dictation, transcription, copy-work, answering of letters, filling in forms, and discussion of office procedure. Prerequisite, Business Education 301.
Three hours credit.

404. FILING AND INDEXING—A study of the basic principles of filing and indexing. Laboratory work consists of the use of practice equipment for the most widely used filing procedures.
One hour credit.

SOCIAL SCIENCE

All students of the college working toward a degree are required to take Social Science 101, 102, 201, and 202, with the following exceptions: Engineering students who take only Social Science 101 and 102, students who transfer from other institutions to Youngstown College with a minimum of 30 semester hours who take only Social Science 201 and 202, and transfer students with 60 semester hours who are not required to take any of these courses. All transfer students, however, must have a minimum of 12 semester hours in any of the social sciences.

A major in social science consists of 45 semester hours, selected from the following departments: economics, history, philosophy, political science, psychology, sociology, and law. (For law credit, see statement, page 56.) Selection of the particular courses which constitute this major should be made in consultation with the instructor in any one of the social science fields.

A minor in social science consists of 15 semester hours, all of which must be in some one of the social sciences.

101. SOCIAL SCIENCE—A study of the principles of economics against a sociological background.
Three hours credit.

102. SOCIAL SCIENCE—A study of American government against a socio-economic background.
Three hours credit.

201. SOCIAL SCIENCE—See History 201.

202. SOCIAL SCIENCE—See History 202.

YOUNGSTOWN COLLEGE

SOCIOLOGY

A major in sociology consists of 24 semester hours in addition to Social Science 101, 102, 201, and 202. The major is designed to furnish needed background for students contemplating professional training in social work, law, teaching, and allied fields.

Credit toward a sociology major may also be given for the following courses in other departments: Psychology 307, Marriage and Family Relations; Education 308, Educational Sociology; Economics 305, Elementary Statistics; Economics 402, Comparative Economic Systems; and Philosophy and Religion 432, The Problems of Religion.

One-sixth credit will be allowed toward a major in Sociology for any courses listed under Humanities.

203. PRINCIPLES OF SOCIOLOGY—Underlying principles of the science of society, including types of societies, groups, and classes; laws of population, marriage, family; social basis of the state and of religion; the evolution of culture. *Three hours credit.*

204. CULTURAL ANTHROPOLOGY—The origin, diffusion and continuity of primitive social institutions with their relation to social phenomena. Prerequisites, Social Science 101 and 102. *Three hours credit.*

Upper Division Courses

301. CRIME AND PENAL INSTITUTIONS—A study of the nature and causes of crime and criminals, our present methods of apprehending the criminal, and the problems connected with our penal institutions. Prerequisites, Social Science 101 and 102. *Three hours credit.*

302. SOCIAL PATHOLOGY—A study of the causes, present status, and possible remedies for a selected number of social maladjustments. An examination of defective social structure and defective social control in their relation to youth, war, poverty, vice, suicide. *Three hours credit.*

303. HISTORY OF SOCIAL PHILOSOPHIES—A course surveying the evolution of social theory with emphasis upon various schools of thought of the present time. *Three hours credit.*

402. HISTORY OF AMERICAN SOCIAL WELFARE—An examination of the political, social, economic, and cultural forces which have led to the evolution of modern social welfare institutions. The historical background of social work as it functions in the United States. Prerequisites, Social Science 101, 102, History 201, 202. *Three hours credit.*

403. INTRODUCTION TO SOCIAL WELFARE—Survey of the field of social and public welfare services; an analysis of programs of local organizations and agencies; their interrelationships with national welfare services and with other types of local agencies. Field visits arranged to local social agencies. *Three hours credit.*

SOCIOLOGY, SPANISH

404. MODERN SOCIAL MOVEMENTS—A study of the 19th and 20th century social movements with special emphasis on the United States. Consideration will be given to the communistic communities, cooperatives, and the labor movement. Prerequisites, Social Science 101, 102, 201, and 202.

Three hours credit.

405. SOCIAL CONTROL—Means of control in primitive and advanced societies. The role of the family, school, church, clubs, leagues, corporations, labor unions, trade and professional associations, the press, radio, and movies. Group valuations, praise, rewards, symbols, slogans, advertising, ridicule, and intimidations in relation to individual behavior, leadership, and propaganda.

Three hours credit.

406. SOCIAL RESEARCH—Seminar for seniors majoring in sociology or social science, to acquaint the student with methods of obtaining, interpreting, and presenting sociological data using the techniques of case studies, social surveys, etc. Each student will be required to make an intensive study of an actual problem in the social field. Prerequisite, Elementary Statistics and consent of instructor.

Three hours credit.

407-408. INTRODUCTION TO SOCIAL WORK METHODS—An outline of the development of social work as a profession; an analysis of the major processes employed in case work, group work, community organization, and social action; relating social work methods to areas other than social work. Prerequisites, Sociology 402 and 403.

Three hours credit each semester.

SPANISH

A major in Spanish consists of 30 semester hours of work above the elementary level. Of this total as many as 12 hours may be taken in related fields with the approval of the head of the department. Credits in French, Italian, and Spanish may be combined for a major in Romance Languages.

101-102. ELEMENTARY SPANISH—The essentials of Spanish grammar are taught through written and oral exercises and are supplemented with the reading of simple texts.

Three hours credit each semester.

203. INTERMEDIATE SPANISH—Review of grammar with imitative exercises in composition. Reading of selected classics of Spanish and Spanish-American prose narration. Prerequisite, C or better in Spanish 101-102 or in second year high school Spanish.

Three hours credit.

204. INTERMEDIATE SPANISH—A continuation of Spanish 203. Reading of modern stories and plays with conversational exercises based upon the text.

Three hours credit.

Upper Division Courses

The prerequisite for the following courses is Spanish 204, four years of high school Spanish, or the consent of the instructor.

325. CONVERSATIONAL SPANISH—One hour a week is spent in exercises designed to facilitate the acquisition of a correct pronunciation. The other two hours are devoted to conversation based on composition assignments.

Three hours credit.

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326. SPANISH CIVILIZATION—A summary study of the tradition, history, and geography of Spain and Spanish speaking countries. The material of this course is fundamental to the understanding of Spanish books and periodicals.
Three hours credit.

327. CURSO DE ESTILO—Through the preparation and study of translations from English to Spanish and from Spanish to English an insight is given into the fundamental differences in expression between the two languages.
Three hours credit.

328. SPANISH LITERARY TRADITION—A brief survey of the principal writers of Spain together with the study of selections from some of their principal works.
Three hours credit.

329. JOURNALISTIC AND COMMERCIAL SPANISH—A study of selected periodicals from Mexico and other Spanish-American countries, with special attention to the vocabulary of advertising. One hour a week is devoted to practice in commercial correspondence.
Three hours credit.

330. CONTEMPORARY LITERATURE IN SPANISH—A study of the principal writers of the twentieth century through their work: Baroja, Unamuno, Valle-Inclán, Azuela, Goy de Silva, and others.
Three hours credit.

331. PORTUGUESE—Basic elements of the language, with practice in easy conversation and exercises in the written language. Reference is made constantly to variations from Spanish idiom and resemblances to old Castilian.
Three hours credit.

332. PORTUGUESE AND BRAZILIAN READINGS—Selections from the modern literature of Portugal and Brazil.
Three hours credit.

400. COMMERCIAL SPANISH—Continuation of Spanish 329 with practice in the translation of business letters.
Three hours credit.

401. CLASSICAL SPANISH LITERATURE—A study of the literature of the Golden Age with special emphasis on Cervantes, Lope de Vega, and Calderon.
Three hours credit.

411. COMPARATIVE GRAMMAR OF THE ROMANCE LANGUAGES—See French 411.

SPEECH

See English, pages 124-127.

The Dana School of Music*

ORGANIZATION AND PURPOSE

The Dana School of Music of Youngstown College began as Dana's Musical Institute in 1869 in Warren, Ohio. It was merged with Youngstown College during the summer of 1941, and the Charles S. Thomas mansion at 616 Wick Avenue, a block from the main college building, was purchased to house the new school of music.

Its efforts are along the line of maintaining a school of music wherein instruction of a professional and avocational nature is provided. Talented high school students whose musical study on an instrument or voice has accompanied their high school academic courses are offered the opportunity to continue their study of music. A well integrated program of general education is provided concurrently with the several curriculums.

The Dana School of Music offers courses leading to the degree of Bachelor of Music with a major in piano, organ, voice, violin, viola, cello, string bass, woodwind and brass instruments, percussion, theory-composition, or music education.

Other schools and departments of the college allow credit in music in varying amounts to be applied toward degree requirements.

REQUIREMENTS FOR ADMISSION

Students applying for admission to the Dana School of Music must satisfy the general requirements for admission to the college. See pages 51-52.

In addition to the above requirements, all candidates must submit in writing an application for admission to the Dean of the Dana School of Music on or before August 1.

*The School of Music is an associate member of the National Association of Schools of Music.

YOUNGSTOWN COLLEGE

Placement examinations are required of all freshmen to determine their proficiency in applied music and basic theory. Such examinations are usually given one week in advance of the opening of each semester.

Requirements for Admission to Courses Leading to the Degree of Bachelor of Music

English	3 units
Foreign Language (in one language)	2 units
Mathematics	1 unit
Science or History	1 unit
Acceptable Electives	9 units

In addition to the above requirements, candidates must satisfy the faculty concerning their musical fitness to enter the course leading to the degree of Bachelor of Music.

Admission from Other Colleges

Advanced standing in applied music and aural and written theory is granted tentatively and must be validated by examinations or by completion of a more advanced course in the Dana School of Music.

See page 53.

Special Students

The Adult Department provides musical training for mature students who wish to improve their playing ability or to study the art from a cultural standpoint, but who for technical reasons cannot enter the degree courses. Private lessons on all instruments and admission to the college classes are available to such students.

See page 53.

THE DANA SCHOOL OF MUSIC

THE DEGREE OF BACHELOR OF MUSIC

Instrumental or Voice Major

In order to receive the degree of Bachelor of Music, a student must satisfactorily complete one of the curriculums listed on pages 160-168 with a point average of not less than 1.00 for the degree, maintain a point average of 1.5 or better in all major courses numbered 200 or above, meet the upper division requirements, and the course requirements which follow:

English Satisfactory Proficiency (9 hours)

The head of the department of English is the judge of this proficiency. Ordinarily, he will grant a certificate to those who have completed with grades of C or higher, 9 hours of oral and written composition.

Social Science 101, 102, 201, and 202 12 hours

Electives 1-10 hours

Music 85-91 hours

Physical Education (Eurhythmics) and Hygiene . 4 hours

Orientation 1 hour

Major in Music Education

English Satisfactory proficiency (9 hours)

The head of the department of English is the judge of this proficiency. Ordinarily, he will grant a certificate to those who have completed with grades of C or higher, 9 hours of oral and written composition.

General Science 226 3 hours

Social Science 101, 102, 201, and 202 12 hours

Psychology 6 hours

Education 14 hours

Orientation 1 hour

Physical Education and Hygiene 4 hours

Music 76-94 hours

Electives (Upper Division) 5-17 hours

YOUNGSTOWN COLLEGE

Major Course Curriculums

INSTRUMENT OR VOICE

The following curriculum is designed for students who are primarily interested in performance and/or teaching.

Entrance Requirements. To be admitted to this program without deficiencies the student should have studied an instrument or voice for several years and must qualify in technique and repertory for courses numbered 101. Placement examinations are given to determine any deficiencies.

It is desirable for the instrumental major to elect piano as the minor applied field. The voice major must elect piano as his minor instrument.

Bachelor of Music Degree—Instrumental Major

First Year	Hrs.	Second Year	Hrs.
Major Instrument 101-102	6	Major Instrument 201-202	6
Minor Instrument 105-106	2	Minor Instrument 205-206	2
Theory 103*-104	8	Theory 203-204	8
Music Ensemble	2	Survey of Music Literature 207-208 ..	4
English 103-104	9	Music Ensemble	2
Orientation	1	Social Science 101, 102	6
Phys. Educ. 121, 122	1	Hygiene 105 or 106	2
Elective (Non-Music)	4	Phys. Educ. 221, 222	2
	33	Philosophy and Religion	3
		34	
			34
Third Year		Fourth Year	
Major Instrument 301-302	6	Major Instrument 401-402	6
Minor Instrument 305-306	2	Minor Instrument 405-406	2
Sightsinging and Ear Training 301-302	2	Form and Analysis 327-328	4
Counterpoint I 209-210	4	Sightsinging and Ear Training 401-402	2
History of Music 305-306	4	Instrumental Conducting 405-406 ..	2
Conducting 319-320	2	Counterpoint II 333-334	4
Orchestration 409-410	4	Composition I 421-422	4
Music Ensemble	2	Symphonic Literature 427-428	4
Social Science 201, 202	6	Music Ensemble	2
	32	Recital	1
		31	

Bachelor of Music Degree—Voice Major

First Year		Second Year	
Major, Voice 101-102	6	Major, Voice 201-202	6
Minor Instrument 105-106	2	Minor Instrument 205-206	2
Theory 103*-104	8	Theory 203-204	8
Music Ensemble	2	Survey of Music Literature 207-208 ..	4
English 103-104	9	Music Ensemble	2
Orientation	1	Social Science 101, 102	6
Phys. Educ. 121, 122	1	Phys. Educ. 221, 222	2
Italian 101-102	6	French 101-102	6
	35	35	

*Prerequisite: Music 109 or passing theory placement exam.



*Assembly at the Dedication
C. J. Strouss Memorial Auditorium*

Commencement at Stambaugh Auditorium





THE DANA SCHOOL OF MUSIC

Third Year	Hrs.	Fourth Year	Hrs.
Major, Voice 301-302	6	Major, Voice 401-402	6
Minor Instrument 305-306	2	Minor Instrument 405-406	2
Sightsinging and Ear Training 301-302	2	Counterpoint II 333-334	4
Counterpoint I 209-210	4	Form and Analysis 327-328	4
History of Music 305-306	4	Sightsinging and Ear Training 401-402	2
Conducting 319-320	2	Choral Conducting 403, 404	2
Music Ensemble	2	Music Ensemble	2
Hygiene 105 or 106	2	Social Science 201, 202	6
German 101-102	6	Philosophy and Religion	3
	30	Recital	1
			32

THEORY—COMPOSITION MAJOR

This major is designed for those wishing to specialize in the theoretical field or composition, and to prepare for advanced study and specialization at the graduate level.

Entrance Requirements. To be admitted to this program, the student should present evidence of ability to handle the materials of music.

If piano is not the major instrument, and if at the time of the placement examinations, a proficiency of Piano 305 is not demonstrated, the election of piano is required until the minimum proficiency is met.

The student who wishes to place the major emphasis on composition must present original compositions as evidence of creative talent.

Bachelor of Music Degree—Theory-Composition Major

First Year	Hrs.	Second Year	Hrs.
Major Instrument or Voice 103-104	4	Major Instrument or Voice 203-204	4
Minor Instrument or Voice 105-106	2	Minor Instrument or Voice 205-206	2
Theory 103*-104	8	Theory 203-204	8
Music Ensemble	2	Survey of Music Literature 207-208	4
English 103-104	9	Counterpoint I 209-210	4
Orientation	1	Music Ensemble	2
Social Science 101, 102	6	Social Science 201, 202	6
Phys. Educ. 121, 122	1	Hygiene 105 or 106	2
	33	Phys. Educ. 221, 222	1
			33

*Prerequisite: Music 109 or passing theory placement exam.

YOUNGSTOWN COLLEGE

Third Year	Hrs.	Fourth Year	Hrs.
Major Instrument or Voice 303-304	4	Major Instrument or Voice 403-404	4
Minor Instrument (String) 105-106	2	Minor Instrument (Woodwind and Brass) 105	2
Sightsinging and Ear Training 301-302	2	Sightsinging and Ear Training 401-402	2
History of Music 305, 306	4	Choral Conducting 403, 404 or Instrumental Conducting 405-406	2
Form and Analysis 327-328	4	Counterpoint II 333-334	4
Conducting 319-320	2	Symphonic Literature 427-428	4
Orchestration 409-410	4	Modern Harmony 430	2
Composition I 421-422	4	Music Ensemble	2
Music Ensemble	2	Philosophy and Religion	3
English 203, 204, 205, or 206	3	Recital†	1
	31	Elective** (Upper division)	7

35

**Music 431-432 required of composition major.

**Music 433-434 required of theory major.

†The theory major may either perform or submit compositions for public presentation. The composition major will submit a proposed program of approximately one hour duration for public presentation.

Music Education Major

VOCAL—INSTRUMENTAL—GENERAL

The curriculums given below lead to the special certificate to teach music in the public schools of Ohio.

Students in the music education department have ample opportunity for practice teaching. Close cooperation between the college and the public schools of Youngstown is maintained.

Since the requirements of the various states differ greatly in the certification of teachers of music in the public schools, the responsibility for including in his undergraduate elections the specific requirements of the state in which he wishes to certify is placed upon the student. Requirements of other states may be included in the degree requirements, generally by electing additional courses.

Entrance Requirements. It is expected that the student wishing to enter one of the music education curriculums will have developed proficiencies in piano, voice, orchestral, or band instrument before entering the college. It is necessary that the student, upon entering as a freshman, give considerable thought to his applied major since the requirements are sufficiently different to cause delay in graduation if changes are made from one program to another.

THE DANA SCHOOL OF MUSIC

Applied Music Requirements. If the student has no deficiencies at the time of admission, he may expect to complete the applied music requirements when the following totals are met:

Vocal 24 hours, Instrumental 26 hours, General 30 hours.

If a student does not qualify for the specific course number indicated, he will elect course 45 in the respective division without credit until such deficiency is made up. The study of piano takes precedence over all other applied minors.

Students who can meet the proficiency requirements in a given curriculum without taking the courses in residence may apply those hours of credit to which he is entitled on his fee to electives in applied music.

Bachelor of Music Degree—Music Education Major

For convenience, the applied music sequences which may be elected in any of the curriculums on pages 164-168 have been designated with the letters A, B, C, D, and E, and are listed below:

VOCAL							
A				B			
VOICE MAJOR		PIANO MINOR		PIANO MAJOR		VOICE MINOR	
First Year				First Year			
				Total Hrs.			
1st Semester	103	105	3	103	105	3
2nd Semester	104	106	3	104	106	3
Second Year				Second Year			
1st Semester	203	205	3	203	205	3
2nd Semester	204	206	3	204	206	3
Third Year				Third Year			
1st Semester	303	305	3	303	305	3
2nd Semester	304	306	3	304	306	3
Fourth Year				Fourth Year			
1st Semester	403	405	3	403	405	3
2nd Semester	404	406	3	404	406	3
				24			24

YOUNGSTOWN COLLEGE

C—INSTRUMENTAL

	STRING, WIND, OR PERCUSSION MAJOR	PIANO MINOR	OTHER MINORS		
	First Year			Total Hrs.	
1st Semester	103	105	—	3	
2nd Semester	104	106	—	3	
	Second Year				
1st Semester	203	205	C-1, 2, 3, or 4, below	4	
2nd Semester	204	206		4	
	Third Year				
1st Semester	303	—		3	
2nd Semester	304	—	3		
	Fourth Year				
1st Semester	403	—	3		
2nd Semester	404	—	3		
			26		

C-1 VIOLIN MAJOR

	Total Hrs.
Cello 105-106	2
Trumpet 105-106	2
Clarinet 105-106	2

C-2 CLARINET MAJOR

	Total Hrs.
Violin 105-106	2
Cello 105-106	2
Trumpet 105-106	2

C-3 TRUMPET MAJOR

	Total Hrs.
Violin 105-106	2
Cello 105-106	2
Clarinet 105-106	2

C-4 OTHER MAJOR INSTRUMENTS

	Total Hrs.
Violin 105-106	2
Cello 105-106	2
Clarinet 105-106	2

A or B—VOCAL CURRICULUM

First Year	Hrs.	Second Year	Hrs.
Applied Major A or B, 103-104	4	Applied Major A or B, 203-204	4
Applied Minor A or B, 105-106	2	Applied Minor A or B, 205-206	2
Theory 103*-104	8	Theory 203-204	8
Music Ensemble	2	Survey of Music Literature 207-209 ..	4
Introduction to Education 101	2	Music Ensemble	2
English 103-104	9	General Psych. 201	3
Social Science 101 and 102	6	Educational Psych. 202	3
Orientation	1	General Science 226	3
Phys. Educ. 121, 122	1	Hygiene 105 or 106	2
	—	Phys. Educ. 221, 222	1
	35		32
	Third Year		
Applied Major A or B, 303-304	4		
Applied Minor A or B, 305-306	2		
Sightsinging and Ear	2		
Training 301-302	2		
Music in First Six Grades 315-316 ..	4		
Class Voice Methods 311-312	2		
Conducting 319-320	2		
Music Ensemble	2		
Principles of Teaching 301	3		
Classroom Management 304	3		
Social Science 201 and 202	6		
Philosophy and Religion	3		
	—		
	33		
	Fourth Year		
		Applied Major A or B, 403-404	4
		Applied Minor A or B, 405-406	2
		Choral Conducting 403, 404	2
		Orchestration 409-410	4
		Junior and Senior High School ..	
		Methods 411-412	1
		Music Ensemble	2
		Student Teaching 404	6
		Elective (Upper division)	5
		Recital	1
			30

*Prerequisite: Music 109 or passing theory placement exam.

THE DANA SCHOOL OF MUSIC

C—INSTRUMENTAL CURRICULUM

First Year		Hrs.	Second Year		Hrs.
Applied Major C, 103-104	.....	4	Applied Major C, 203-204	.....	4
Applied Minor C, 105-106	.....	2	Applied Minor C, 205-206	.....	2
Theory 103 ^a -104	.....	8	Applied Minor C, 1, 2, 3, or 4, 105-106	.....	2
Music Ensemble	.....	2	Theory 203-204	.....	8
Introduction to Education 101	.....	2	Survey of Music Literature 207-208	.....	4
English 103-104	.....	9	Woodwind Methods 225-226	.....	2
Social Science 101 and 102	.....	6	Music Ensemble	.....	2
Orientation	.....	1	General Psych. 201	.....	3
Phys. Educ. 121, 122	.....	1	Educational Psych. 202	.....	3
		—	Hygiene 105 or 106	.....	2
		35	Phys. Educ. 221, 222	.....	1
					33
					—
Third Year			Fourth Year		
Applied Major C, 303-304	.....	4	Applied Major C, 403-404	.....	4
Applied Minor C, 1, 2, 3, or 4, 105-106	.....	2	Applied Minor C, 1, 2, 3, or 4, 105-106	.....	2
Sight-reading and Ear Training 301-302	.....	2	String Methods 325-326	.....	2
Percussion Methods 318	.....	1	Instrumental Conducting 405, 406	.....	2
Brass Methods 329-330	.....	2	Orchestration 409-410	.....	4
Conducting 319-320	.....	2	Instrumental Problems 417	.....	2
Music Ensemble	.....	2	Band Organization 419	.....	2
Principles of Teaching 301	.....	3	Music Ensemble	.....	2
Classroom Management 304	.....	3	Student Teaching 404	.....	6
Social Science 201 and 202	.....	6	Philosophy and Religion	.....	3
General Science 226	.....	3	Recital	.....	1
Elective (Upper Division)	.....	2			30
		—			—
		32			

D—GENERAL

	PIANO OR VOICE MAJOR		VOICE OR PIANO MINOR		STRING OR WIND MINOR		Total Hrs.
	First Year						
1st Semester	103	105	—	—	—	—	3
2nd Semester	104	106	—	—	—	—	3
Second Year							
1st Semester	203	205	—	—	—	—	3
2nd Semester	204	206	—	—	—	—	3
Third Year							
1st Semester	303	305	—	—	—	—	3
2nd Semester	304	306	—	—	—	—	3
Fourth Year							
1st Semester	403	—	—	—	—	—	3
2nd Semester	404	—	—	—	—	—	3
Fifth Year							
1st Semester	—	—	—	—	—	—	3
2nd Semester	—	—	—	—	—	—	3
					D-1, 2, 3, or 4, below		30

* Prerequisite, Music 109 or passing theory placement exam.

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D-1 VIOLIN MINOR

	Total Hrs.
Cello 105-106	2
Clarinet 105-106	2
Trumpet 105-106	2
Elective 105-106	2

D-2 CLARINET MINOR

	Total Hrs.
Violin 105-106	2
Cello 105-106	2
Trumpet 105-106	2
Elective 105-106	2

D-3 TRUMPET MINOR

	Total Hrs.
Violin 105-106	2
Cello 105-106	2
Clarinet 105-106	2
Elective 105-106	2

D-4 OTHER MINOR INSTRUMENTS

	Total Hrs.
Violin 105-106	2
Cello 105-106	2
Clarinet 105-106	2
Elective 105-106	2

D—GENERAL CURRICULUM

By starting with a summer session, the following five-year curriculum may be completed in four years and five summers.

First Year	Hrs.	Second Year	Hrs.
Applied Major D, 103-104	4	Applied Major D, 203-204	4
Applied Minor D, 105-106	2	Applied Minor D, 205-206	2
Theory 103*-104	8	Theory 203-204	8
Music Ensemble	2	Survey of Music Literature 207-208 ..	4
English 103-104	9	Music Ensemble	2
Social Science 101 and 102	6	Introduction to Education 101	2
Orientation	1	General Science 226	3
Phys. Educ. 121, 122	1	General Psych. 201	3
	33	Hygiene 105 or 106	2
		Phys. Educ. 221, 222	1
			31

Third Year		Fourth Year	
Applied Major D, 303-304	4	Applied Major D, 403-404	4
Applied Minor D, 305-306	2	Applied Minor D, 1, 2, 3, or 4, 105-106	2
Woodwind Methods 225-226	2	Class Voice Methods 311-312	2
Sightsinging and Ear Training 301-302	2	String Methods 325-326	2
Music in First Six Grades 315-316 ..	4	Brass Methods 329-330	2
Percussion Methods 318	1	Conducting 403, 404	2
Conducting 319-320	2	Orchestration 409-410	4
Music Ensemble	2	Junior and Senior High School Methods 411-412	4
Educational Psych. 202	3	Music Ensemble	2
Social Science 201 and 202	3	Classroom Management 304	3
Principles of Teaching 301	3	Philosophy and Religion	3
Electives (Upper division)	2	Recital	1
	33	Electives (Upper division)	2
			33

Fifth Year		Hrs.
Applied Minor D,1,2,3, or 4, 105-106	2	
Applied Minor D,1,2,3, or 4, 105-106	2	
Applied Minor D,1,2,3, or 4, Conducting 405, 406	2	
Instrumental Problems 417	2	
Band Organization 419	2	
Music Ensemble	2	
Student Teaching 404	6	
Electives (Upper division)	10	
		30

* Prerequisite. Music 109 or passing theory placement exam.

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E—GENERAL

	STRING, WIND OR PERCUSSION MAJOR	PIANO MAJOR MINOR	VOICE MINOR	STRING OR WIND MINOR	Total Hrs.
First Year					
1st Semester	103	105	—	—	3
2nd Semester	104	106	—	—	3
Second Year					
1st Semester	203	205	—	—	3
2nd Semester	204	206	—	—	3
Third Year					
1st Semester	303	—	105	—	3
2nd Semester	304	—	106	—	3
Fourth Year					
1st Semester	403	—	205	—	3
2nd Semester	404	—	206	—	3
Fifth Year					
1st Semester	—	—	—	E-1, 2, 3, or 4,	3
2nd Semester	—	—	—	below	3
					30

E-1 VIOLIN MAJOR

	Total Hrs.
Cello 105-106	2
Clarinet 105-106	2
Trumpet 105-106	2

E-2 CLARINET MAJOR

	Total Hrs.
Violin 105-106	2
Cello 105-106	2
Trumpet 105-106	2

E-3 TRUMPET MAJOR

	Total Hrs.
Violin 105-106	2
Cello 105-106	2
Clarinet 105-106	2

E-4 OTHER MAJOR INSTRUMENTS

	Total Hrs.
Violin 105-106	2
Cello 105-106	2
Clarinet 105-106	2

E—GENERAL CURRICULUM

By starting with a summer session, the following five-year curriculum may be completed in four years and five summers.

First Year	Hrs.	Second Year	Hrs.
Applied Major E, 103-104	4	Applied Major E, 203-204	4
Applied Minor E, 105-106	2	Applied Minor E, 205-206	2
Theory 103*-104	8	Theory 203-204	8
Music Ensemble	2	Survey of Music Literature	
English 103-104	9	207-208	4
Social Science 101 and 102	6	Music Ensemble	2
Orientation	1	Introduction to Education 101	2
Phys. Educ. 121, 122	1	General Science 226	3
	33	General Psych. 201	3
		Hygiene 105 or 106	2
		Phys. Educ. 221, 222	1
			31

*Prerequisite: Music 109 or passing theory placement exam.

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Third Year	Hrs.	Fourth Year	Hrs.
Applied Major E, 303-304	4	Applied Major E, 403, 404	4
Applied Minor E, 105-106	2	Applied Minor E, 205-206	2
Woodwind Methods 225-226	2	Class Voice Methods 311-312	2
Sightsinging and Ear Training 801-302	2	String Methods 325-326	2
Music in First Six Grades 315-316 ..	4	Brass Methods 329-330	2
Percussion Methods 318	1	Conducting 403, 404	2
Conducting 319-320	2	Orchestration 409-410	4
Music Ensemble	2	Junior and Senior High School Methods 411-412	4
Educational Psych. 202	3	Music Ensemble	2
Social Science 201 and 202	6	Classroom Management 304	2
Principles of Teaching 301	3	Philosophy and Religion	2
Electives (Upper Division)	2	Recital	1
	33	Electives (Upper division)	2

Fifth Year	Hrs.
Applied Minor E, 1, 2, 3, or 4, 105-106	2
Applied Minor E, 1, 2, 3, or 4, 105-106	2
Applied Minor E, 1, 2, 3, or 4, 105-106	2
Conducting 405, 406	2
Instrumental Problems 417	2
Band Organization 419	2
Music Ensemble	2
Student Teaching 404	6
Electives (Upper division)	10
	30

BACHELOR OF ARTS DEGREE

Major in Music History and Music Literature

The major in music for the Bachelor of Arts Degree is considered to be purely cultural and non-professional in character; courses relating to music education are not to be included on this program.

The candidate for graduation must complete the requirements of courses numbered 201-202 in his chosen applied field.

The following courses are to be elected:

	HOURS
Applied Music 201-202	6
Theory 103*-104, 203-204	16
Survey of Music Literature 207-208	4
Counterpoint I, 209-210	4
History of Music 305-306	4
Form and Analysis 327-328	4
Symphonic Literature 427-428	4
Music Ensemble	3
	45

*Prerequisite: Music 109 or passing theory placement exam.

THE DANA SCHOOL OF MUSIC

The Bachelor of Arts degree is granted by the College of Arts and Sciences. Students should consult statements of that college relative to its requirements for graduation.

FEES AND EXPENSES

See pages 42-47.

Full-Time Students

Payable each semester:

(11 to 15 semester hours)	\$210.00
Lecture—Recital fee	2.00

This charge of \$212.00 covers tuition and the following regular fees: student activities, health, athletic, library, and guidance. The charge also includes two private lessons per week in the major music subject, one private lesson per week in the minor music subject, and the use of practice rooms.

Organ practice will be charged by the hour at the prevailing rates when using the following organs: College pipe organ or Hammond, First Reformed Church, and First Presbyterian Church.

Students in instrumental classes are expected to provide their own instruments. While the School of Music does not obligate itself to provide practice instruments, it does have available a limited number of string, woodwind, and brass instruments which are allocated to the use of members of the class, at the discretion of the instructor in charge. The rental fee for these class instruments is \$3.00 per semester. The student will receive the instrument in playing condition, but, thereafter, must supply his own strings, reeds, etc., and must return the instrument in as good condition as when received.

Special Students in Applied Music

Students of the general college wishing to study applied music will pay at the rates listed below. These fees are payable under the same conditions as all other college fees. See the Dean of the School of Music for assignment to teachers.

YOUNGSTOWN COLLEGE

Private Students

Students outside the college wishing to study with one of the music faculty listed below are required to pay at the rate specified under the following plan:

Arrangements for lessons and assignment to teachers must first be made with the Office of the Dean of the Dana School of Music.

No private student will be enrolled for less than a full semester or a complete summer session.

Lessons must be paid for in advance for the complete semester or summer session. In a normal semester the student may arrange an installment contract by paying 33-1/3% at the time of enrollment, and the balance in 30 and 60 days. A 10% carrying charge will be assessed on the balance after the initial payment. For the summer session installment contracts may be arranged through the business office. All payments are to be made to the cashier in the main building, 410 Wick Avenue.

Lessons may be taken on a weekly basis only. Lessons missed (with satisfactory excuse) must be made up by the end of the semester. No lessons will be carried over from one semester to another.

No student will be permitted to enroll for a new term until all previous semester's lessons have been paid for in full.

In case of official withdrawal during a semester, fees paid in advance will be refunded on the basis of the number of lessons taken during that semester.

Tuition Rates—Music Faculty

	Semester of Eighteen Weeks	
	One Half-hour Lesson per week	Two Half-hour Lessons per week
<i>Brass</i>		
Raymond H. Dehnbostel (trumpet)	\$36.00	\$72.00
(French horn)	36.00	72.00
John W. Remick (trombone)	36.00	72.00
(tuba)	36.00	72.00

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<i>Organ</i>		
Samuel S. Badal	\$45.00	\$90.00
Henry V. Stearns	45.00	90.00
<i>Percussion</i>		
Myron J. Wisler	36.00	72.00
<i>Piano</i>		
Theodore Baar	36.00	72.00
Samuel S. Badal	36.00	72.00
Mary E. Fankhauser	45.00	90.00
Elizabeth Hrecz Dull	36.00	72.00
Jacob Schmitt	45.00	90.00
Henry V. Stearns	45.00	90.00
James A. Tavolario	45.00	90.00
Etheleda Szalma	27.00	54.00
<i>Reeds</i>		
Max Adams	36.00	72.00
Oliver P. Cash	36.00	72.00
Mark Dolliver	45.00	90.00
Harry L. Joyce	36.00	72.00
<i>Strings</i>		
Theodore Baar (violoncello)	45.00	90.00
(contrabass)	36.00	72.00
Alvin Myerovich (violin)	45.00	90.00
(viola)	45.00	90.00
<i>Voice</i>		
Kathryn T. Guarnieri	45.00	90.00
Kenneth Kitchen	45.00	90.00
Leah MacDonald McIlroy	45.00	90.00
William Hugh Miller	45.00	90.00

Self-Help

If it is necessary that the student find work to help defray part of his expenses, it is advisable that he carry a part-time academic program. Students should know that the college accepts no substitute for satisfactory academic work. Those students wishing part-time employment should apply at the placement office.

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Scholarships

The Dana School of Music has a number of scholarships at its disposal. Applications should be made to the Dean of the School of Music.

College Scholarships. A limited number of scholarships are awarded for the following: band and orchestral instruments, voice, and accompanying. The stipends are variable.

The Strouss-Hirshberg Music Center Scholarships. The scholarships were presented to the School of Music in 1947 for the use of worthy students of the Greater Youngstown Area. They are awarded through competitive audition on the basis of talent, intelligence and need. The stipend is one hundred dollars a year to each of four students.

COURSES OF INSTRUCTION

The use of a hyphen between numbers, as 101-102, indicates that credit is not given toward graduation for the work of one semester until the work of the other semester is completed except when special permission is granted by the head of the department involved. The use of a comma between the semester numbers, as 105, 106, indicates that the course extends throughout the year but credit toward graduation is given for the work of either semester.

Courses numbered from 101 to 199 are freshman courses; from 201 to 299, sophomore; 301 and above are upper division courses.

Applied Music

Credit and non-credit students wishing to study in the applied music fields only, must pay the applied music fees as listed under "Fees and Expenses."

Advanced standing in applied music is granted tentatively after a placement examination given by members of the faculty. Final classification is made at the end of the first semester of residence study.

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Students in applied music may enroll at any time. Students desiring credit must enroll for not less than one semester. See pages 169-170 for rules governing fees.

Instruction in major courses includes two half-hour lessons per week. Instruction in minor courses includes one half-hour lesson per week.

A student may transfer from a minor course to a major course with the approval of the faculty concerned. On the basis of his proficiency and repertory, he will be assigned an appropriate course number.

Proficiency examinations in applied music are given at the end of each semester. Promotion to the next applied course is contingent upon quality of performance and quantity of repertoire.

Students from other departments of the college may enroll for applied music. In so far as teaching staff and practice rooms are available, enrollments will be accepted in the following order:

1. Full-time music majors
2. Students of the general college
3. Private students outside the college.

In so far as possible, the students choice of instructor will be respected, however, final assignment will be made by the Dean of the School of Music.

Ensembles

Voice, piano majors, and voice minors are required to participate in *A Cappella Choir* and/or *Mixed Chorus* each year of residence. Also open to students of the general college who can qualify. Awarding of credit presupposes satisfactory participation. *One hour credit each semester.*

Instrumental majors are required to participate in *Concert and Marching Band* and/or *Orchestra* each year of residence. These ensembles are also open to students of the general college who can qualify. Awarding of credit presupposes satisfactory participation. *One hour credit each semester.*

Laboratory Band is designed for those college students who need additional training to qualify for the Concert Band. Awarding of credit presupposes satisfactory participation. *One hour credit each semester.*

Brass Ensemble. Limited to selected students of the School of Music. Awarding of credit presupposes satisfactory participation. *One-half hour credit each semester.*

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Madrigal Singers. Limited to selected students of the School of Music. Awarding of credit presupposes satisfactory participation.
One-half hour credit each semester.

String Ensemble. Open to all students of the college who can qualify. Awarding of credit presupposes satisfactory participation.
One-half hour credit each semester.

String Quartet. Limited to selected students of the School of Music. Awarding of credit presupposes satisfactory participation.
One-half hour credit each semester.

Woodwind Ensemble. Limited to selected students of the School of Music. Awarding of credit presupposes satisfactory participation.
One-half hour credit each semester.

PIANO

Major Courses

45. For those who do not qualify for Piano 101 or 103. This course may be repeated.
No credit.

101-102. Studies such as Czerny Op. 299, Loeschorn Op. 66, Philipp Studies, Bach, Two and Three Part Inventions; Mozart, Haydn sonata; earlier Beethoven sonatas; romantic and modern compositions; chords, major and minor scales, arpeggios, octaves.
Three hours credit each semester.

201-202. Cramer Studies; Czerny Op. 740; Preyer, Kullak or other octave studies; Bach three part inventions, French and English suites, Well-Tempered Clavichord; Beethoven sonatas of a more advanced grade; a Mendelssohn, Mozart or Beethoven concerto in C major, or C minor. Schumann, Andante and Variations for two pianos. Selected Chopin nocturnes, waltzes, mazurkas, polonaises; classic, romantic and modern compositions.
Three hours credit each semester.

301-302. Clementi, Gradus ad Parnassum or Czerny Studies Op. 740. Bach: English Suite, Well Tempered Clavichord. Beethoven Sonata, one of three in Op. 31 begun here and completed in 402. Chopin compositions. more advanced. One major concerto completed in 402. Debussy and Ravel compositions.
Three hours credit each semester.

401-402. One Bach Partita. Beethoven Sonata, advanced. Bach advanced compositions such as: toccatos, Italian Concerto, Chromatic Fantasy and Fugue. Concerto completed. Romantic compositions such as: Brahms Rhapsodies, Chopin Ballades, Liszt Rhapsodies. Compositions by standard American and foreign composers such as: MacDowell, Debussy, Ravel, Rachmaninoff, Griffes, Ibert, Medtner, and others. The student will prepare for final examinations a recital program of serious content and difficulty ranging from classic to modern music: also a major piano concerto should be prepared for performance with orchestra.
Three hours credit each semester.

Major Courses—Music Education

The following courses differ only in degree from those listed above. A high standard of performance is insisted upon. A recital is required.

103-104. For description see 101-102.
Two hours credit each semester.

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- 203-204. For description see 201-202.
Two hours credit each semester.
- 303-304. For description see 301-302.
Two hours credit each semester.
- 403-404. For description see 401-402.
Two hours credit each semester.

Minor Courses

- 105-106. First Melody Book, Bilbro. Adult Explorer—Dr. Burrows. Bach-Schaum. Three pieces from 53 Piano Solos. Chords. Sight-reading.
One hour credit each semester.
- 205-206. All major scales. Sightreading of part songs and duets. Bach-Carroll Vol. I. Hanon, Czerny-Germer Vol. I. Burgmuller Op. 100. Romantic and modern compositions.
One hour credit each semester.
- 305-306. Added technical work. All the minor scales. Bach-Carroll Vol. II or Bach-Foote First Year. Czerny-Germer Vol. I Part II. Heller Studies Op. 47. Sonatinas by Clementi, Kuhlau, and others. Romantic and modern compositions. Arpeggios: tonic, dominant seventh, diminished seventh. Major and minor triads played in three positions. Sightreading, transposition.
One hour credit each semester.
- 405-406. For those who can qualify. *One hour credit each semester.*

ORGAN

Major Courses

45. Intended for those who do not qualify for Organ 101 or 103. The course may be repeated. *No credit.*
- 101-102. Schneider-Warren Studies; Buck, Pedal Phrasing Studies; preparatory manual exercises; Bach: chorale preludes for manuals; trios for manuals and pedals; Bach, chorale and preludes from Orgelbuchlein; Variation II from Sei Gegrusset (Book V, ed. Peters); short preludes and fugues; Canzona Fugue in B minor (Corelli); Prelude and Fugue in E minor (Lesser, ed. Schirmer); also modern compositions. *Three hours credit each semester.*
- 201-202. Continuation of Schneider and Buck Studies; Bach: Fantasie and Fugue in C minor (Book III, ed. Schirmer); Fugue in G minor (Book II, ed. Schirmer); Prelude and Fugue in A major; Prelude in C minor (Book III, ed. Schirmer); First Sonata; Prelude in F minor. Mendelssohn Second Sonata. Pieces by the old masters from Historical Series, Vol. I, ed. Bonnet. Bach chorale preludes; Neilson Pedal Studies; modern compositions of American, French, English, or German composers.
Three hours credit each semester.
- 301-302. Bach: chorale preludes; Prelude and Fugue in E minor (Wedge); Prelude and Fugue in A minor (Book IV, ed. Schirmer); Second Sonata; Toccata and Fugue in D minor and Toccata in D minor (Dorian); Prelude and Fugue in G major. Franck: Cantabile; Prelude, Fugue, and Variation; Pastorale; Pièce Héroïque. Mendelssohn, Third Sonata. Modern compositions.
Three hours credit each semester.

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401-402. Bach: Third Sonata, chorale preludes, Fantasia and Fugue in G minor, Toccata, Adagio and Fugue in C major, Prelude and Fugue in E flat (St. Ann's), Passacaglia and Fugue in C minor. Franck, Chorale in A minor. Mendelssohn: First Sonata, Sixth Sonata. Vierne, selected movements from the six symphonies. Widor, Sixth Symphony. Sowerby: Suite, Symphony in G minor, Roger-Ducasse, Pastorale. Bennett: Sonata in G. Shorter compositions suitable for recitals. Concerto for organ and orchestra. Prelude and Fugue in B minor. Bach. Preparation for public recital.

Three hours credit each semester.

Major Courses—Music Education

The following courses differ only in degree from those listed above. A recital is required.

- 103-104. Organ. For description see 101-102.
Two hours credit each semester.
- 203-204. Organ. For description see 201-202.
Two hours credit each semester.
- 303-304. Organ. For description see 301-302.
Two hours credit each semester.
- 403-404. Organ. For description see 401-402.
Two hours credit each semester.

Minor Courses

- 105-106. Organ. For description see Piano 105-106.
One hour credit each semester.
- 205-206. Organ. For description see Piano 205-206.
One hour credit each semester.
- 305-306. Organ. For description see Piano 305-306.
One hour credit each semester.
- 405-406. Organ. For description see Piano 405-406.
One hour credit each semester.

VOICE

Major Courses

45. For those who do not qualify for Voice 101 or 103. The course may be repeated. *No credit.*

101-102. Must be preceded or accompanied by Italian 101-102. Classification of the voice, vocalizations for tone production and simple songs in English and Italian classics. Songs from Volumes I and II of *Italian Anthology* (Schirmer Edition); two easy oratorio and operatic arias. A selected list of songs by American composers.

Three hours credit each semester.

201-202. Must be preceded or accompanied by French 101-102. Continuation of technical studies for the development of the individual voice. Additional songs from Volumes I and II, *Italian Anthology*. Additional songs in English; songs in French by Debussy, Fauré, Lalo, Duparc; two operatic and oratorio arias. A selected list of songs by American composers.

Three hours credit each semester.

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301-302. Must be preceded or accompanied by German 101-102. Advanced literature and technique. Songs in German by Schubert, Brahms, Wolf, Strauss; additional songs in French by Chausson, Saint-Saens, Debussy; Italian songs by Respighi, Donaudy, Sibella; two operatic and three oratorio arias; additional songs by American composers.

Three hours credit each semester.

401-402. Advanced literature and technique. Additional songs from a selected list of twentieth century French, German, Italian, Russian, English and American composers. Six additional opera and oratorio arias.

The work of this course is concerned with the preparation of the public recital and the preparation of one or more programs from the repertoire of the previous courses.

Three hours credit each semester.

Major Courses—Music Education

The following courses differ only in degree from those listed above. A high standard of proficiency is insisted upon. A recital is required.

103-104. Voice. For description see 101-102.

Two hours credit each semester.

203-204. Voice. For description see 201-202.

Two hours credit each semester.

303-304. Voice. For description see 301-302.

Two hours credit each semester.

403-404. Voice. For description see 401-402.

Two hours credit each semester.

Minor Courses

105-106. Open to students with no previous training. Classification of voices, breath control, are stressed. Technical exercises and appropriate song material. Amount of repertoire decided by voice faculty.

One hour credit each semester.

205-206. Advanced vocal technique and literature suited to the individual voice. Standard oratorio arias. Songs in foreign languages left to the discretion of the instructor. Amount of repertoire decided by voice faculty.

One hour credit each semester.

305-306. Open to those who can qualify.

One hour credit each semester.

405-406. Open to those who can qualify.

One hour credit each semester.

VIOLIN

Major Courses

45. For those who do not qualify for Violin 101 or 103. The course may be repeated.

No credit.

101-102. Kreutzer Studies up to No. 32. Concertos by Vivaldi, Nardini, Rode and deBeriot. Sonatas by Corelli, Veracini, Leclair. Technical material including Sevcik Op. 8 and 9, Schradier and Casorti. The above material supplemented by not less than six short compositions suitable for recital repertoire. Also major and minor scales and arpeggios in three octaves using fundamental strokes.

Three hours credit each semester.

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201-202. Kreutzer Studies concluded followed by Fiorillo and Rovelli. Concertos by Bach, Viotti, Kreutzer and deBeriot. Sonatas by Tartini, Mozart and Handel. Not less than six compositions added to repertoire. Scales and arpeggios in three octaves continued with secondary strokes. Technical material of 101-102 continued. *Three hours credit each semester.*

301-302. Rode Studies. Concertos by Mozart, Bruch, Vieuxtemps. Sonatas by Beethoven, Bach. Not less than six short compositions added to repertoire. Scales in double stops in all keys. Technical material from Sevcik Op. 4, Part 4; Schradier Book II. *Three hours credit each semester.*

401-402. Advanced studies from Wieniawski; Dont Op. 35; Gavines and Paganini Concerti. Wieniawski, Saint-Saens, Mendelssohn, Lalo, Beethoven, etc. Completion of repertoire and recital program requirement. *Three hours credit each semester.*

Major Courses—Music Education

The following courses differ only in degree from those listed above. A high standard of proficiency is insisted upon. A recital is required.

- 103-104. Violin. For description see 101-102.
Two hours credit each semester.
- 203-204. Violin. For description see 201-202.
Two hours credit each semester.
- 303-304. Violin. For description see 301-302.
Two hours credit each semester.
- 403-404. Violin. For description see 401-402.
Two hours credit each semester.

Minor Courses

105-106. Fundamentals in correct posture and positions of the left hand, and of the bow arm are acquired. Yost Violin Method supplemented by Riegger's Exercises. Studies by Wohlfahrt, Rodin, and easy first position pieces. Scales and arpeggios in keys of not more than four accidentals. *One hour credit each semester.*

205-206. Beginning of position studies. Maia Bang, Book III. Hans Sitt Op. 32, Book II and III. Kayser Op. 20, pieces in first three positions. Not less than six compositions by Seitz and Rieding. *One hour credit each semester.*

305-306. Position studies continued. Maia Bang, Book IV. Schubert sonatinas. Mazas, special studies. Accozay and Hollander concertos. Easy double stops and scales. Scales and arpeggios in five positions. Not less than six new recital pieces are added. *One hour credit each semester.*

405-406. Continued study of positions. Maia Bang, Book V. Studies by Mazas, Dont, and beginning of Kreutzer. Allegro Brilliant by Tenhave. concerto by Hollander, sonatas by Handel, scales in three octaves. *One hour credit each semester.*

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VIOLA

Major Courses

45. For those who do not qualify for Viola 101 or 103. The course may be repeated. *No credit.*

101-102. Studies by Mazas, Kreutzer, Sitt, Schradier technic. Sonatas by Handel; repertoire material; not less than six scales. Scales and arpeggios in three octaves. *Three hours credit each semester.*

201-202. Studies by Kreutzer and Fiorillo. Sonatas by Vivaldi, Mar-
cello. Scales and arpeggios continued. Six recital pieces added. *Three hours credit each semester.*

301-302. Studies by Rode, Campagnoli and Bruni. Concertos by
Stamitz and Mozart. Scales in double stops. Six recital pieces. *Three hours credit each semester.*

401-402. Studies by Gavinies and Dolesji, Sonatas of Bowen, Bach
and others. Scales and arpeggios continued. Preparation of recital. *Three hours credit each semester.*

Major Courses—Music Education

The following courses differ only in degree from those listed above. A high standard of performance is insisted upon. A recital is required.

103-104. Viola. For description see 101-102. *Two hours credit each semester.*

203-204. Viola. For description see 201-202. *Two hours credit each semester.*

303-304. Viola. For description see 301-302. *Two hours credit each semester.*

403-404. Viola. For description see 401-402. *Two hours credit each semester.*

Minor Courses

105-106. Fundamentals of left and right hand technics are acquired. Reading facility in alto clef is developed. Studies by Hofmann. Scales in the first position. Easy pieces. *One hour credit each semester.*

205-206. Development of left hand facility. Beginning of lower positions. Studies by Kayser. Scales in positions. Pieces in positions. *One hour credit each semester.*

305-306. First five positions. Studies by Mazas and Dont. Schubert sonatina. Seventeenth and eighteenth century sonatas. Six recital pieces. Scales in three octaves. Easy double stops. *One hour credit each semester.*

405-406. Higher positions. Mazas studies, Kreutzer. Pieces by Nardini, Sitt and others. Scales in three octaves. *One hour credit each semester.*

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CELLO

Major Courses

45. Intended for those who do not qualify for Cello 101 or 103. This course may be repeated. *No credit.*

101-102. Studies from Dotzauer Op. 35 and Duport. Scales and arpeggios in three octaves. Solos such as: Bach Suite No. 1 and Goltermann Concerto No. 4. *Three hours credit each semester.*

201-202. Scales and arpeggios in four octaves. Franchomme Studies. Repertoire to include: Romberg Concerto No. 2, Bach Suite No. 2 or 3, and Beethoven Sonata Op. 69 in A major. *Three hours credit each semester.*

301-302. Scales in octaves, thirds, sixths. Popper Studies. Concert pieces to include: Breval Sonata in G major or Eccles Sonata in G minor, and Concertos by Boccherini and Lalo. *Three hours credit each semester.*

401-402. All scales in octaves, thirds, sixths, and tenths. Piatni Studies and Servais Caprices. Repertoire such as: Reger Solo Suite No. 2, Haydn or Dvorak Concerto. Preparation of recital. *Three hours credit each semester.*

Major Courses—Music Education

The following courses listed below vary in degree only from those listed above. A high standard of proficiency is maintained. A recital is required.

103-104. Cello. For description see 101-102. *Two hours credit each semester.*

203-204. Cello. For description see 201-202. *Two hours credit each semester.*

303-304. Cello. For description see 301-302. *Two hours credit each semester.*

403-404. Cello. For description see 401-402. *Two hours credit each semester.*

Minor Courses

105-106. Kummer Method and Schroeder Studies. Scales and solos in first position. *One hour credit each semester.*

205-206. Schroeder Studies continued. Scales. Klengel Concerto in C major, Marcello Sonata in F major. *One hour credit each semester.*

305-306. Schroeder Studies continued. Scales. Loeillet Sonata in G major, Goltermann Concerto No. 4. *One hour credit each semester.*

405-406. For those who can qualify. *One hour credit each semester.*

STRING BASS

Major Courses

45. For those who do not qualify for String Bass 101 or 103. The course may be repeated. *No credit.*

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101-102. Simandl 30 Etudes. Major and minor scales in two octaves. Solos such as: Anderson Sonatina, Chapini Fantasie Concertante. Bach Minuet and Gavotte, Vivaldi Intermezzo. *Three hours credit each semester.*

201-202. Hrabe Etudes. Repertoire such as: Cappuzzi Concerto, Galliard Sonata, Loeillet Sonata, Rameau Six Characteristic Pieces Op. 46. *Three hours credit each semester.*

301-302. Bille Method, Part II Book 4 and 5. Concert pieces to include: Eccles Sonata, Antoniotti Sonata, D'Andrieu Sonata. *Three hours credit each semester.*

401-402. Kreutzer Etudes. Reynolds Orchestra Studies, Strauss Orchestra Studies. Solos to include: Koussevitzky Concerto or Dragonetti Concerto. Preparation of recital. *Three hours credit each semester.*

Major Courses—Music Education

The following courses differ only in degree from those listed above. A high standard of proficiency is insisted upon. A recital is required.

103-104. String Bass. For description see 101-102. *Two hours credit each semester.*

203-204. String Bass. For description see 201-202. *Two hours credit each semester.*

303-304. String Bass. For description see 301-302. *Two hours credit each semester.*

403-404. String Bass. For description see 401-402. *Two hours credit each semester.*

Minor Courses

105-106. Simandl Method, Part I. Scales. *One hour credit each semester.*

205-206. Simandl Method, Part II. Bach Minuet and Gavotte, Vivaldi Intermezzo. *One hour credit each semester.*

305-306. Simandl 30 Etudes. Anderson Sonatina. *One hour credit each semester.*

405-406. For those who can qualify. *One hour credit each semester.*

FLUTE

Major Courses

45. To be elected by students who do not qualify for Flute 101 or 103. The course may be repeated. *No credit.*

101-102. Special studies for tone placement and ear training; scales and chords in all rhythms and articulations; orchestra and ensemble studies; intervals. Studies and solos such as: Berbiguier, 18 Exercises; Andersen Etudes, Op. 33; Handel, Sonata No. 3; Briccialdi, Il Vento; Pessard, Bolero. *Three hours credit each semester.*

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201-202. Studies in tone, intonation, technique, color, and style; single, double, and triple tonguing; long tones, attacks; broken chords and arpeggios; major, minor, and whole tone scales; scales in all the articulated forms; exercises in chromatics, trills, and tremolos. Studies and solos, such as: Barrere, The Flautist's Formulae; Handel, Sonata, No. 1; Bach, Sonata, No. 1; Mozart, Concerto in D Major. *Three hours credit each semester.*

301-302. Climbing scale and chord patterns. Memorization of the more difficult etudes by Andersen; orchestral solo passages; special and alternate fingerings. Studies and solos, such as: Strauss, Orchestral Studies; Jeanjean, sixteen studies in the modern style; Bach, Sonata, No. 4; Mozart, Concerto in G Major; Faure, Fantasie. *Three hours credit each semester.*

401-402. Special work on the piccolo. Memorization of solo passages in orchestral literature; ensemble playing; long tones executed in different intensities. Preparation of program for public recital. Bach, Sonatas No. 5 and 6; Griffes, Poem; Enesco, Cantabile et presto; Godard, Valse. *Three hours credit each semester.*

Major Courses—Music Education

The following courses differ only in degree from those listed above. A high standard of proficiency is insisted upon. A recital is required.

103-104. Flute. For description see 101-102.
Two hours credit each semester.

203-204. Flute. For description see 201-202.
Two hours credit each semester.

303-304. Flute. For description see 301-302.
Two hours credit each semester.

403-404. Flute. For description see 401-402.
Two hours credit each semester.

Minor Courses

105-106. Special studies for development of embouchure, breath control and articulation; derivation of fingerings; long tones; major and minor scales and chords. Studies and solos such as: Wagner, Foundation to Flute Playing; simple ensembles; Hahn, Transcriptions for Flute; Labate, Rondino; Mozart-Lentz, Adagio; Sibelius-Amans, Nocturne.
One hour credit each semester.

205-206. Scales and chords in all keys and registers. Tone placement, sustained tones, development of low register. Studies and solos such as: Popp-Soussman, Duets, Book II; Boehm, 24 Caprice Etudes; Mozart, Andante; Bizet, Minuet; Pessard, Andalouse; Bach, Polonaise and Badinage.
One hour credit each semester.

305-306. Special studies for tone placement and ear training; scales and chords in various rhythms and articulations. Studies and solos such as: DeLorenzo Studies; Lindpaintner-Altes, 20 Duet Studies; Grieg, Rigaudon; Molique, Andante; Krantz, The Whirlwind; Goldman, Divertimento.
One hour credit each semester.

405-406. For those who qualify. *One hour credit each semester.*

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CLARINET

Major Courses

45. To be elected by those who do not qualify for clarinet 101 or 103.
The course may be repeated. *No credit*

101-102. Development of tone and intonation. Selected studies from:
Book III. C. Baermann; Klose Methods, Books I-II; 30 Caprices, E.
Cavalini; Magnani, Book III; G. Langenus, Book III; Etudes Progressive
et melodiques, Jeanjean. Solos such as Prelude et Rigaudon, Avon; Von
Weber, Concertino; Jeanjean, Clair Matin; Von Weber, **Concertos I or II**;
Jeanjean, Arabesques. *Three hours credit each semester.*

201-202. Eighteen Etudes de Virtuosité, Jeanjean (complete) Baer-
mann Method, Book IV; C. Baermann (complete); Etudes de Genres et
Interpretation, Perier. Solos such as: Marty, Fantasie; Rabaud, Piece de
Concours; Adam, Giralda. *Three hours credit each semester.*

301-302. Etudes de Virtuosité, Book I, Sarlit; Perier, Vingt-deux
Etudes Modernes; Baermann Method, Book V; Gaetano Labanchi Method,
Book II; Solos such as: Mozart, Concerto Op. 107; Lefebvre, Fantasie
Caprice; Mazellier, Fantasie de Ballet; Von Weber, Fantasie and Rondo;
Pièrné, Andante-Scherzo; Delmas, Fantasie Italienne; Langenus, Ninth solo.
Three hours credit each semester.

401-402. Vingt Etudes de Virtuosité, Perier (complete); Vingt-deux
Etudes Modernes, Perier; G. Labanchi Method, Book II. Solos such as:
Widor, Introduction and Rondo; Boucher, Ballade in ré mineur; Mozart-
Bellison, Concert Rondo; Spohr, Concertos No. 1, 2. Brahms, Sonatas and
concertos. Preparation of recital. *Three hours credit each semester.*

Major Courses—Music Education

The following courses differ only in degree from those listed above. A high standard of proficiency is insisted upon. A recital is required.

- 103-104 Clarinet. For description see 101-102.
Two hours credit each semester.
- 203-204 Clarinet. For description see 201-202.
Two hours credit each semester.
- 303-304 Clarinet. For description see 301-302.
Two hours credit each semester.
- 403-404 Clarinet. For description see 401-402.
Two hours credit each semester.

Minor Courses

105-106. Special attention given to reed, mouthpiece, tone production,
and breathing. Hovey, Elementary Studies; Miller, Clarinet Method; Lazarus,
Book I. Major and minor scales, chromatic scale and diminished arpeggios
in velocity. *One hour credit each semester.*

205-206. Chromatic scales, arpeggios in all keys; Rhythmic studies;
Staats, Imperial Method; Lazarus, Book II; Klose No. 2; Rose, 40 Studies,
Books I and II. *One hour credit each semester.*

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305-306. Scales and arpeggios in velocity; Lazarus, Book III; Solos such as: Von Weber, Concertino; Clair Matin, Jeanjean; Avon, Prelude et Rigaudon.
One hour credit each semester.

405-406. For those who can qualify. *One hour credit each semester.*

SAXOPHONE

Courses in saxophone are offered but they cannot be taken for credit, nor can they be applied toward any degree. If the student wishes to work for a degree, he must major in clarinet.
No credit.

OBOE

Major Courses

45. For those who do not qualify for Oboe 101 or 103. This course may be repeated.
No credit.

101-102. Special studies for intervals, broken chords, and alternate fingerings. Emphasis on half-hole technique and smooth register changes, scales and chords. Studies and solos such as: Ferling, 48 Etudes; Sellner, Etudes for oboe, Part II; Handel, Concerto in G Minor, Concerto Grosso, No. 8; Labate, Villanella.
Three hours credit each semester.

201-202. Whole tone scales; emphasis on alternate fingerings; scales in thirds; trills. Start work on English horn and English horn reed-making. Studies and solos such as: Labate, 16 Exercises; Cimarosa, Concerto; Nielson, Romance; Ropartz, Pastorale and Dances.
Three hours credit each semester.

301-302. Emphasis on drives and control of vibrato; climbing scale and chord patterns in all keys; sight reading; orchestra studies. Student should do all playing on reed of own making. Studies and solos such as: Andraud, Vade Mecum; Bleuzet, Studies, Book II; Saint-Saens, Sonata; Hindemith, Sonata; Palidilhe, Concertante.
Three hours credit each semester.

401-402. Orchestral studies; work on English Horn; ensembles. Prepare public recital. Studies and solos such as: Ferling, 48 Etudes; Jeanjean, Remembrances; Mozart, Oboe Quartet; Smith, D. S., Oboe Sonata; Dallier, Fantasy Caprice.
Three hours credit each semester.

Major Courses—Music Education

The following courses differ only in degree from those listed above. A high standard of proficiency is insisted upon. A recital is required.

103-104 Oboe. For description see 101-102.
Two hours credit each semester.

203-204 Oboe. For description see 201-202.
Two hours credit each semester.

303-304 Oboe. For description see 301-302.
Two hours credit each semester.

403-404 Oboe. For description see 401-402.
Two hours credit each semester.

THE DANA SCHOOL OF MUSIC

Minor Courses

105-106. Special studies for development of embouchure, breath control, tone, and articulation; derivation of fingerings; major and minor scales and chords through three sharps and three flats; detached notes in simple scales; simple ensembles; fundamentals of reed-making. Studies and solos such as: Fitch, Study of the Oboe; Niemann-Labate, Oboe Method; Bakaleinikoff, Elegy; Templeton, Siciliana.

One hour credit each semester.

205-206. Major and minor scales and arpeggios up to four sharps and four flats. Continue reed-making. Studies and solos such as: Gekler, Book II; Pares, Daily Technical Studies; Klemcke, Pastorale; Handel, Sonata No. 1; Scarlatti, Concerto No. 1 (arr. Bryan); Gliere, Chanson.

One hour credit each semester.

305-306. Special studies for intervals, broken chords, and alternate fingerings. Studies and solos such as: Ferling, 48 Etudes; Barret, Studies; Schumann, Three Romances; DeBueris, Musette; Labate, Pastorale; Saint-Saens, Sonata (1st Movement only).

One hour credit each semester.

405-406. For those who can qualify. *One hour credit each semester.*

BASSOON

Major Courses

45. For those who do not qualify for Bassoon 101 or 103. The course may be repeated. *No credit.*

101-102. Tonal, articulation, and embouchure studies. Studies and solos such as: Weissenborn, Duets; Oubradous, Enseignement Complet du Bassoon, Book I; Jancourt, Reverie; Weber, Adagio from Concerto in F; Mozart, Adagio from First Concerto; Mozart-Voxman, Andante and Minuet.

Three hours credit each semester.

201-202. Orchestral Studies; whole tone scales; emphasis on alternate and "muffled" fingerings. Studies and solos such as: Milde, Book II; Oubradous, Enseignement complet du Bassoon, Book II; Mozart, Concerto in Bb, 1st Movement; Hindemith, Sonata; Handel Concerto in C Minor; Jeanjean, Capriccioso.

Three hours credit each semester.

301-302. Special studies in clef reading, scales and chord patterns in all major and minor keys; orchestral studies. Student should be playing on reeds of own making. Studies and solos, such as: Bozza, Daily Studies; Oubradous, Enseignement complet du Bassoon, Book III; Saint-Saens, Sonata; Weber, Concerto in F, 3rd movement; Grovlez, Sicilienne and Allegro Giocoso; Jancourt, Cantilene.

Three hours credit each semester.

401-402. Emphasis on flow of tone and control of vibrato. Special studies for intonation. Transposition and clef studies. Prepare public recital. Studies and solos such as: Giampieri, Daily Studies; Strauss, Orchestral Studies; Pierne, Prelude de Concert; Bozza, Concertino; Bozza, Fantaisie; Bozza, Recitative, Sicilienne and Rondo.

Three hours credit each semester.

Major Courses—Music Education

The following courses differ only in degree from those listed above. A high standard of proficiency is insisted upon. A recital is required.

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- 103-104 Bassoon. For description see 101-102.
Two hours credit each semester.
- 203-204 Bassoon. For description see 201-202.
Two hours credit each semester.
- 303-304 Bassoon. For description see 301-302.
Two hours credit each semester.
- 403-404 Bassoon. For description see 401-402.
Two hours credit each semester.

Minor Courses

105-106. Special Studies for development of embouchure, breath control, tone production, articulation, intervals; derivation of fingerings. All major and minor scales and chords through three sharps and flats. Chromatic scale three octaves, simple combinations of articulation; simple ensembles with emphasis on intonation; studies and solos such as: Weissenborn Method; Isaac, Jolly Dutchman; Ziesl, Souvenir. *One hour credit each semester.*

205-206. Special studies for tone and control of pitch. Scales and chords through four sharps and flats. Exercises in tenor clef. Study of reed-making. Studies and solos such as: Weissenborn, Studies; Milde, Studies; Bakaleinikoff, Ballad; Jancourt, Progressive Sonatas, Book I. *One hour credit each semester.*

305-306. Special studies for control of vibrato; continue reed-making. Studies and solos such as: Milde, Studies; Pares, Daily Technical Studies. *One hour credit each semester.*

405-406. For those who can qualify. *One hour credit each semester.*

TRUMPET

Major Courses

45. To be elected by those who do not qualify for Trumpet 101 or 103. This course may be repeated. *No credit.*

101-102. The adaptation of a daily practice routine suitable to each individual, for the purpose of acquiring a correct and lasting command of fundamental skills such as: tone production, embouchure, breath control, flexibility, legato and staccato articulations. The study of major and minor scales and chords, introduction to transposition, sight-reading, and the study of cantabile solos such as: the "lieder" of Schubert, Brahms, Schumann, and other solos of grade III difficulty. Materials used include Arban's Method for cornet, Etudes by Hering, Daily Drills and Studies by Schlossberg. *Three hours credit each semester.*

201-202. Concentration upon basic techniques: slurs, scales, chords, intervals; single, double and triple articulations in major and minor keys. Materials used include the Arban Method for cornet, Daily Drills and Studies by Schlossberg, Clarke Studies, Brandt Orchestral Studies, Transposition Studies by Sachse, study of cantabile solos, and other solos of grade III & IV difficulty. *Three hours credit each semester.*

301-302. The continuation of technical studies using Arban's Method for cornet. Schlossberg Studies, Paudert Studies, Brandt Orchestral Studies, Petit Studies, Transposition Studies by Sachse. Sightreading. Solos of grade IV & V difficulty by Fitzgerald, Vidal, Barat, Goeyens, Deboeck, Busser and others. *Three hours credit each semester.*

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401-402. Advanced studies by Clarke, Pietzsch, Laurent, Petit, Charlier. Transposition Studies by Sachse. Sightreading. Solos of grade V & VI difficulty. Concertos by Haydn, Vidal, Williams, Brandt, Delcroix. Preparation of senior recital program. *Three hours credit each semester.*

Major Courses—Music Education

The following courses differ only in degree from those listed above. A high standard of perfection is insisted upon. A recital is required.

- 103-104 Trumpet. For description see 101-102.
Two hours credit each semester.
- 203-204 Trumpet. For description see 201-202.
Two hours credit each semester.
- 303-304 Trumpet. For description see 301-302.
Two hours credit each semester.
- 403-404 Trumpet. For description see 401-402.
Two hours credit each semester.

Minor Courses

105-106. Open to students without previous training. Introduction to problems of brass instrument playing stressing formation of embouchure, attack and release, breath control, tone quality, flexibility, legato and staccato articulation: Elementary exercises stressing these skills in Edwards-Hovey Method, Arban's cornet method or equivalent studies. Introduction to scales. Study of selected cantabile solos. *One hour credit each semester.*

205-206. Continued stress upon fundamentals of grade I with extension of range. Scale studies to include all major and minor keys. Selected cantabile solos. Materials stressing these skills in World's Method for cornet. Hering Studies or equivalent. *One hour credit each semester.*

305-306. Extension of range using scale studies in major and minor keys and broken chords. Flexibility studies as found in Schlossberg's Daily Drills. Additional progress in World's Method for cornet, Hering Studies or equivalent studies. Selected cantabile solos. *One hour credit each semester.*

405-406. For those who can qualify. *One hour credit each semester.*

FRENCH HORN

Major Courses

45. For those who do not qualify for French Horn 101 or 103. The course may be repeated. *No credit.*

101-102. Development of the fundamental skills such as: tone production, embouchure, breath control, flexibility, and legato and staccato articulations. The study of major and minor scales and chords. Transposition and sightreading. Materials used include Franz, Kopprasch, Alphonse, Michiels. The study of cantabile solos, and other solos of grade III difficulty. *Three hours credit each semester.*

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201-202. Studies of Franz, Kopprasch, Alphonse, Pottag, Slura, scales, chords, intervals, legato and staccato articulations in major and minor keys. Transposition and sightreading. The study of cantabile solos, and other solos of grade III and IV. *Three hours credit each semester.*

301-302. The continuation of technical studies using materials by Pottag, Gallay, Alphonse, Gumbert. Transposition and sightreading. Solos of grade IV and V difficulty. *Three hours credit each semester.*

401-402. Advanced studies including studies by Pottag, Gallay, Alphonse, Gumbert's Orchestral Studies. Transposition and sightreading. The study of solos of grade V and VI difficulty. Preparation of senior recital program. *Three hours credit each semester.*

Major Courses—Music Education

The following courses differ only in degree from those listed above. Quality of performance is insisted upon. A recital is required.

103-104 French Horn. For description see 101-102. *Two hours credit each semester.*

203-204 French Horn. For description see 201-202. *Two hours credit each semester.*

303-304 French Horn. For description see 301-302. *Two hours credit each semester.*

403-404 French Horn. For description see 401-402. *Two hours credit each semester.*

Minor Courses

105-106. Special studies for development of embouchure, breath control, articulation, flexibility, tone control. Pottag-Hovey Method for French Horn, Primary Studies by Horner. Introduction to scales. Study of selected cantabile solos. *One hour credit each semester.*

205-206. Horner Studies. Continued stress upon fundamentals of grade I. Scale studies in major and minor keys. Extension of range. Study of selected cantabile solos. *One hour credit each semester.*

305-306. Extension of range using scale studies in major and minor keys and broken chords. Flexibility studies as found in Schlossberg's Daily Drills. Additional progress in World's Method for cornet, Hering Studies or equivalent studies. Selected cantabile solos. *One hour credit each semester.*

405-406. For students who can qualify. *One hour credit each semester.*

TROMBONE

Major Courses

45. To be elected by those who do not qualify for Trombone 101 or 103. This course may be repeated. *No credit.*

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101-102. The development of a daily practice routine suitable for each individual in order to acquire the fundamental skills such as: tone production, embouchure, breath control, flexibility, legato and staccato articulations. The study of major and minor scales and chords. Introduction to transposition. Sightreading. Materials used include Mueller, Rochut, Dieppo, Mantia. The study of cantabile solos, and other solos of grade III and IV difficulty. *Three hours credit each semester.*

201-202. Continuation of basic technical studies. Slurs, scales, chords, intervals, single, double and triple articulations in major and minor keys. Transposition and sightreading. Methods used include Mueller, Rochut, Dieppo, Mantia. The study of cantabile solos, and other solos of grade III and IV difficulty. *Three hours credit each semester.*

301-302. Studies used include material from: Mueller, Rochut, Blume, Kopprasch. Transposition and sightreading. Solos of grade IV and V difficulty. *Three hours credit each semester.*

401-402. Advanced studies by Mueller, Voboran, Rochut, Blazevitch. Transposition and sightreading. Solos of grade V and VI difficulty. Preparation of senior recital program. *Three hours credit each semester.*

Major Courses—Music Education

The following courses differ only in degree from those listed above. A high standard of perfection is insisted upon. A recital is required.

- 103-104 Trombone. For description see 101-102. *Two hours credit each semester.*
- 203-204 Trombone. For description see 201-202. *Two hours credit each semester.*
- 303-304 Trombone. For description see 301-302. *Two hours credit each semester.*
- 403-404 Trombone. For description see 401-402. *Two hours credit each semester.*

Minor Courses

105-106. Studies to develop embouchure, attack, release, breath control, tone quality, flexibility. Knowledge of positions. Studies by Cimerahovey, Endressen. Selected cantabile solos. *One hour credit each semester.*

205-206. Continuation of development of skills stressed in grade I. Scale studies stressing legato and staccato articulation. Extension of range. Studies by Mueller, Cimerahovey. Study of cantabile solos for development of legato-cantabile style. *One credit hour each semester.*

305-306. Extension of range using scale studies in major and minor keys and broken chords. Flexibility studies as found in Schlossberg's Daily Drills. Additional progress in World's Method for Cornet, Hering Studies or equivalent studies. Selected cantabile solos. *One hour credit each semester.*

405-406. For students who can qualify. *One hour credit each semester.*

YOUNGSTOWN COLLEGE

TUBA

Major Courses

45. For those who do not qualify for Tuba 101 or 103. The course may be repeated. *No credit.*

101-102. The development of the fundamental skills such as: tone production, embouchure, breath control, flexibility and legato and staccato articulations. The study of major and minor scales and chords. Sightreading. Material used includes studies by Bell, Eby, Arban. The study of cantabile solos, and other solos of grade III difficulty. *Three hours credit each semester.*

201-202. Studies used include Arban, Eby, Blazevitch. Slurs, scales, chords, intervals, and legato and staccato articulations in major and minor keys. Sightreading. The study of orchestral and band works. Cantabile solos, and other solos of grade III and IV difficulty. *Three hours credit each semester.*

301-302. The continuation of technical studies using material by Arban, Eby, Blazevitch. Sightreading. Study of orchestral and band works. Solos of grade IV and V difficulty. *Three hours credit each semester.*

401-402 Continuation of technical studies. Study of band and orchestral works. Sightreading. The study of solos of grade V and VI difficulty. Preparation of senior recital program. *Three hours credit each semester.*

Major Courses—Music Education

The following courses differ only in degree from those listed above. A high degree of proficiency is insisted upon. A recital is required.

103-104 Tuba. For description see 101-102. *Two hours credit each semester.*

203-204 Tuba. For description see 201-202. *Two hours credit each semester.*

303-304 Tuba. For description see 301-302. *Two hours credit each semester.*

403-404 Tuba. For description see 401-402. *Two hours credit each semester.*

Minor Courses

105-106. Introduction to fundamental skills such as: tone production, development of embouchure, attack and release, breath control, tone quality, flexibility. Introduction to scales. Studies by Eby, Arban, Bell. Study of cantabile solos. *One hour credit each semester.*

205-206. Continuation of development of skills stressed in grade I. Scale and chord studies. Extension of range. Studies by Eby, Arban, Bell. Study of cantabile solos. *One hour credit each semester.*

305-306. Extension of range using scale studies in major and minor keys and broken chords. Flexibility studies as found in Schlossberg's Daily Drills. Additional progress in World's Method for Cornet, Hering Studies or equivalent studies. Selected cantabile solos. *One hour credit each semester.*

405-406. For students who can qualify. *One hour credit each semester.*

THE DANA SCHOOL OF MUSIC

PERCUSSION

Major Courses

45. To be elected by those who do not qualify for Percussion 101 or 103. The course may be repeated. *No credit.*

101-102. Snare Drum. Review and/or complete twenty-six rudiments. Stick Control, Stone. Modern Methods, Wilcoxon. Studies for independence of hands. Progressive Studies Book III, Gardner. Rudimental drumming, Moeller. Relaxation. Bass drum, cymbals and accessories.

Mallet played instruments, including bells, xylophone, marimbas and vibraharp. Malleting, roll, scales, arpeggios. Exercises; Rubank Elementary Method by Peterson. Graded violin, saxophone and clarinet exercises.

Three hours credit each semester.

201-202. Snare drum, continued. Rudimental solos, Moeller. Rudimental swing, Wilcoxon. Foot Studies for Bass Drum. Post-graduate Studies, Gardner. Latin American and Afro-Cuban Rhythms, Phil Rale and Humberto Morales.

Mallet instruments, continued. Keyboard Harmony, phrasing, expression, solos and excerpts from standard compositions. Three and four mallet playing, Peterson. Tympani—position, mechanics, attack, single strokes, tuning. Exercises for ear training. Studies: Gardner, Sietz. Cross Methods.

Three hours credit each semester.

301-302. Snare Drum, continued. Moeller, Wilcoxon, Bellson Methods.

Mallet instruments, continued. Solos for two, three and four mallets.

Tympani—advanced studies for Tympani including technical problems, cross sticking, fast tone changes. Excerpts from classic and modern compositions. Use of pedal, pedal effects, glissandi. Gardner, Sietz, Cross and Zettleman Methods.

Three hours credit each semester.

401-402. Snare drum, continued. Hand and foot independence studies. Rudimental solos.

Mallet instruments. Music of Chopin, transcriptions by Musser. Master-Works for vibraharp, Musser. Modern Solos by Norvo, and others of instructors choice.

Tympani—modern arrangements, concertos, solos by Stock, Berlioz, Striegler, and others chosen by instructor. Preparation of recital.

Three hours credit each semester.

Major Courses—Music Education

The following courses differ only in degree from those listed above. A high standard of proficiency is insisted upon. A recital is required.

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|---------|-------------|-----------------|--|
| 103-104 | Percussion. | For description | see 101-102. |
| | | | <i>Two hours credit each semester.</i> |
| 203-204 | Percussion. | For description | see 201-202. |
| | | | <i>Two hours credit each semester.</i> |
| 303-304 | Percussion. | For description | see 301-302. |
| | | | <i>Two hours credit each semester.</i> |
| 403-404 | Percussion. | For description | see 401-402. |
| | | | <i>Two hours credit each semester.</i> |

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Minor Courses

105-106. Snare Drum; Position, mechanics of playing, muscular action, method of attack, relaxation. Rudiments including single stroke roll, double stroke roll, five, seven, and nine stroke rolls, flams, three and four stroke ruffs. Primary exercises. Harr, Book I and II. Gardner "Progressive Studies," Book I. *One hour credit each semester.*

205-206. Snare Drum. Rudiments including flam taps, flam accents, flamacues, single, double and triple paradiddles, half drags, single drags. Exercises. Harr, Book II. Gardner "Progressive Studies," Book II. *One hour credit each semester.*

305-306. Snare Drum. Stick Control, Stone. Modern Methods. Wilcoxon. Progressive Studies Book III, Gardner. Beginning mallet played instruments, bells, xylophone, marimba, vibraharp. Malleting, roll, scales, arpeggios. Exercises; Rubank Elementary Method by Peterson. Various graded violin, saxophone and clarinet exercises. *One hour credit each semester.*

405-405. For those who can qualify. *One hour credit each semester.*

THEORY, COMPOSITION, HISTORY, AND LITERATURE OF MUSIC

103-104. THEORY—Meets five hours each week. A unified course of study consisting of part writing, ear training, sight singing and keyboard harmony. Harmony-chord structures; diatonic triads, triad forms, chord progressions, simple cadences, harmonization of melodies, uses of inversions, sequences, open harmony, non-harmonic tones, the dominant seventh chord, dominant ninth, and modulation to nearly related keys, application of materials to simple compositions. Harmonic analysis of simple compositions. Harmonic ear training and keyboard practice; exercises in singing, playing, dictation and notating with the purpose of developing skill in the use of the items being studied theoretically; special attention to the memorization of tonal effects of chords and their progression; work correlated with study step by step. Solfeggio and sight singing; melodic reading and dictation; use of syllables; study of meter and rhythm; development of reading skill through a sequence of graded exercises. Prerequisite, Music 109 with a grade of C or better, or passing entrance examination in theory.

Four hours credit each semester.

109. FUNDAMENTALS OF MUSIC—This course is to provide a comprehensive introduction to the theoretical factors of music. It will include a study of staves, clefs, key signatures, rhythms, intervals and chords. Simple exercises in sight singing and ear training. *Three hours credit.*

203-204. THEORY—Meets five hours each week. Continuation of Music 103-104. Study of diminished and dominant seventh chords, augmented sixth chords, modulation to remote keys and compositions in smaller forms. Ear training, sight singing, keyboard harmony to correlate with work in harmony. Prerequisite, Music 103-104 with a grade of C or better.

Four hours credit each semester.

207-208. SURVEY OF MUSIC LITERATURE—A psychological and aesthetic approach to listening to music, with a discussion of the problems of listening. The first semester includes an elementary study of the elements of music and the fundamental principles of analysis. The second semester deals with the study of form from the simpler da capo to the larger and more complex forms. Lectures, outside readings, scores, and representative recordings. *Two hours credit each semester.*

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209-210. COUNTERPOINT I—A study of the medieval modes and vocal polyphony with special emphasis upon the works of Palestrina and other sixteenth century composers. *Two hours credit each semester.*

301-302. SIGHT SINGING AND EAR TRAINING—Two recitations each week. Sight Singing: Two-part exercises on modal basis, three-part exercises for soprano, alto, and baritone. Ear training: melodic dictation—difficult diatonic skips and chromatic tones in both major and minor keys and in treble, bass, tenor, and alto clefs; rhythmic dictation—phrase, irregular phrase, period form, major and minor keys, bass and treble clef and two-part exercises using the bass and treble clef combined, time and key signatures indicated by student; intervals—quality, consecutive intervals in bass and treble clef, major and minor keys with chromatic tones, two-part intervals combining bass and treble clefs; chords—quality, chord progressions introducing all the diatonic seventh chords and chromatic triads in addition to the chords already studied, all parts indicated as in preceding year. *One hour credit each semester.*

305-306. HISTORY OF MUSIC—A study of music from earliest times to the present day, with special reference to the relation of the history of music to that of the other arts and to political and religious history of the same periods. *Two hours credit each semester.*

327-328. FORM AND ANALYSIS—A study of musical form beginning with the phrase and continuing through the song form to the rondo forms and sonata allegro. *Two hours credit each semester.*

333-334. COUNTERPOINT II—A study of eighteenth century counterpoint with emphasis upon the style of J. S. Bach. *Two hours credit each semester.*

401-402. SIGHT SINGING AND EAR TRAINING—Two recitations each week. Sight singing: three- and four-part exercises for soprano, alto, tenor, and bass voices. Ear training: Melodic dictation of maximum difficulty in all clefs and keys; rhythmic dictation—phrase, irregular phrase, and periodic form exercises in two parts using bass and treble clefs combined, time and key signatures to be indicated by student; intervals of maximum difficulty introducing modulation to nearly-related and remote keys; chord progressions using all the diatonic and chromatic chords with modulations to nearly-related and remote keys. *One hour credit each semester.*

409-410. ORCHESTRATION—A study of the instruments of the modern orchestra, their technic, tone color, individually and in combination. Writing and arranging for them singly, in groups, and finally for full orchestra. *Two hours credit each semester.*

421-422. COMPOSITION I—For those working toward a major in composition. The course includes a study of the phrase and section leading to the two and three part forms, theme and variations, and sonatina. As a corollary to this study, the student will compose in these forms for piano alone or in combination with some other instrument or voice. *Two hours credit each semester.*

427-428. SYMPHONIC LITERATURE—The historical development of the symphony from its beginning to the present time. Symphonic poems, suites, overtures, and miscellaneous compositions for the modern orchestra. *Two hours credit each semester.*

430. MODERN HARMONY—A study of harmonic trends to be found in modern music. Polytonality, atonality, and other factors to be found in the works of modern composers will be studied. Prerequisite, senior standing as a music major. *Two hours credit.*

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431-432. COMPOSITION II—A continuation of Composition I. Writing for the string quartet and larger instrumental groups in the sonata-allegro, overture, symphonic poem, rhapsody, and rondo designs.

Two hours credit each semester.

433-434. PEDAGOGY OF THEORY—A study of methods, materials, specific problems encountered in the teaching of theory.

Two hours credit each semester.

MUSIC EDUCATION

121. INTRODUCTION TO MUSIC—FOR ELEMENTARY TEACHERS—Fundamental knowledge of the problems of notation and development of skill in sight singing and ear training.

Two hours credit.

221. MUSIC LITERATURE AND APPRECIATION—FOR ELEMENTARY TEACHERS—A general orientation course to meet the needs of the classroom teacher and the average music lover. Human values of music and the relationship to art, literature, geography, history, and other curricular interests are emphasized. Prerequisite, Music 121.

Two hours credit.

225-226. WOODWIND METHODS—Meets two hours each week. These classes are organized to furnish the necessary training in this field. Each student selects one of the instruments of this group which he learns to play as well as possible during the time allotted. As soon as enough progress has been made in playing the instrument selected, other instruments of the classification may be selected and studied. The problems underlying the teaching of woodwind instruments are kept constantly before the class.

One hour credit each semester.

311-312. CLASS VOICE METHODS—Fundamentals of correct voice production. Methods of conducting voice classes, glee clubs, and choirs, with a survey and evaluation of materials.

One hour credit each semester.

315-316. MUSIC IN THE FIRST SIX GRADES—General methods of teaching public school music in the first six grades. A study of rote songs, rhythmic and tonal problems, analysis of student problems in successive years, with actual demonstration of methods used in elementary grades.

Two hours credit each semester.

318. PERCUSSION METHODS—Same as Music 225-226 applied to percussion instruments.

One hour credit.

319-320. CONDUCTING—Meets two hours each week. A practical course in conducting that stresses baton technique, interpretation, and leadership. Interpretative studies are in chorals, anthems, part-songs, opera, and symphony.

One hour credit each semester.

321. MUSIC EDUCATION—FOR ELEMENTARY TEACHERS—A study of the child voice and its care. Rote songs, materials for rhythmic expression and listening, and the teaching skills and methods which the classroom teacher needs to work effectively under supervision. Prerequisites, Music 121 and 221.

Two hours credit.

325-326. STRING METHODS—For detailed information concerning the aims of this class, refer to Music 225-226.

One hour credit each semester.

329-330. BRASS METHODS—Meets two hours each week. For detailed information concerning the aims of this class, refer to Music 225-226.

One hour credit each semester.

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403, 404. CHORAL CONDUCTING AND SCORE READING—A course designed to cover the organization and conducting of choral groups. Practical work in connection with chorus. Practice in score reading. Prerequisite: Conducting 319-320. *One hour credit each semester.*

405, 406. INSTRUMENTAL CONDUCTING AND SCORE READING—A course designed to cover the organization and conducting of instrumental groups. Practical work in connection with orchestra and band. Practice in score reading. Prerequisite: Conducting 319-320. *One hour credit each semester.*

411-412. TEACHING OF MUSIC IN THE JUNIOR AND SENIOR HIGH SCHOOL—Classification, problems, materials, methods, organization, and management. Prerequisite, Music 311-312. *Two hours credit each semester.*

417. INSTRUMENTAL PROBLEMS—Methods of organizing and conducting instrumental classes, band and orchestra in the public schools, with a survey of materials. *Two hours credit.*

419. BAND ORGANIZATION, DRUM MAJORING, AND FIELD TECHNIQUE—Methods of organizing and conducting the concert and military bands. Selection of materials, seating plans, preparation for rehearsals, and conductor problems. A study of balanced instrumentation and marching formations. An opportunity for study and practical experience in drum majoring with emphasis in military baton signals, field techniques, and drum figures. *Two hours credit.*

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FACILITIES

Buildings

The largest of the Dana School of Music buildings, located at 616 Wick Avenue, contains the administrative offices, thirteen studios, four classrooms, four practice rooms, two sound-proof listening rooms, and the record library. The Annex, located directly behind the main building, contains twenty-one sound-proof practice rooms and a small rehearsal room. A second annex, located on the main campus, houses the instrumental and choral libraries, one studio and classroom, a practice room for the pipe organ, and a large sound-proof rehearsal and recital hall seating three hundred. Equipment includes fifteen grand pianos and twenty-seven uprights, a Moller two-manual pipe organ, a Hammond model E electric organ, and a collection of band and orchestral instruments. The library of band, orchestral, and choral music consists of over seven hundred titles.

Additional organ practice is available at the First Reformed and First Presbyterian churches. These churches are equipped with two and three manual Austin organs respectively. They are also available for teaching.

Libraries

The Youngstown College Library houses the music library of more than six hundred and fifty books on music. In 1948, the Dana School of Music was the recipient of a gift of phonograph records valued at twelve hundred dollars. This record library, which covers the entire field of music history, is available for student listening and teaching purposes.

Placement Service

Because of its many alumni, The Dana School of Music is able to give its graduates a considerable amount of assistance in finding positions in the musical profession. Contacts extend through forty-two of the forty-eight states, and each year the school receives a number of requests for graduates. These requests come from all branches of the profession, from teaching to every type of professional playing. Through the Alumni

Association, a continuing relationship is maintained between the school and its graduates, and the services of this association are continually increasing.

In addition, the college maintains a placement service for teachers. Students wishing to take advantage of this service should contact the head of the Department of Education.

Musical Activities

The Dana School of Music supplements the concert activities of the Monday Musical Club and the Youngstown Symphony Society with a series of lecture-recitals by outstanding artists, composers, and musicologists. In addition, the faculty presents a series of complimentary programs for the general public.

Graduation and Other Student Recitals provide additional opportunity for training in public performance. Informal student recitals are held every Monday at 5 p.m. Attendance at recitals is required. Additional hours credit may be required in the student's major applied field for non-attendance.

The Youngstown College Bands are an integral part of the campus life. The Marching Band functions during the football season and is open to all students of the general college who can qualify. The *Concert Band* presents a series of concerts throughout the year. Students are admitted to this group through auditions. The Concert Band performs various types of band literature. The *Laboratory Band* is designed for students of the college who need additional training to qualify for the Concert Band.

The *Symphony Orchestra* provides opportunity for musical growth and development in the presentation of symphonic works. The orchestra possesses an adequate library of symphony and chamber music. It is open to students of the general college who can qualify.

The *A Cappella Choir* offers to both men and women students of the general college the opportunity to participate in unaccompanied singing of sacred and secular compositions from

YOUNGSTOWN COLLEGE

the several periods of musical history including the choral compositions of contemporary composers.

The *Mixed Chorus* is a group of men and women chosen for their vocal and musical ability, and is open to students of the general college who can qualify. The larger choral works are studied and presented throughout the year. This group also forms the nucleus of the operatic presentations.

The *Madrigal Singers* is a group of sixteen selected voices from the School of Music. A Cappella compositions of the English Madrigal School, the more modern arrangements of folk tunes, and such works by contemporary composers which are suitable to the small ensemble are studied and presented.

Opera is a tradition in the School of Music. The cast is selected through competitive audition and the productions are staged in collaboration with the Drama and Art Departments of the college. The Mixed Chorus plays an important part in these presentations.

Professional Fraternities

Alpha Nu Chapter of Sigma Alpha Iota, a national honorary professional women's music fraternity, and Delta Eta Chapter of Phi Mu Alpha Sinfonia, an honorary professional men's music fraternity, are chartered to the Dana School of Music.

School of Law

COMMITTEE

WILLIAM F. MAAG, JR. *Chairman*
Editor and Publisher, The Youngstown Vindicator

J. C. ARGETSINGER Vice-President and Secretary, Youngs-
town Sheet and Tube Company

JOSEPH G. BUTLER III Butler, Wick, and Company

SIDNEY J. COLLINS Clark and Collins, Certified Public
Accountants

RAYMOND L. FALLS Dean, School of Law

GENERAL INFORMATION

Objectives and Methods of Instruction

The School of Law has the following objectives: To familiarize the student with the history of our laws and institutions; to study the rules of law, their development, and the reasons for their existence; to teach the student the fundamental rules and principles of law and to apply them to actual cases; to develop the ability for legal research; to inculcate the legal ethics and professional point of view; and to prepare the student for the practice of law.

The system of instruction is the case method. Selected cases that have actually been decided are used as texts. Thus, from an analytical study of each case the student determines the operative facts and the rule of law upon which the decision has been based and finds the governing principles of law by the inductive method of reasoning.

By such process the student learns to discriminate between the material and the immaterial; to weigh and estimate relative legal values; to discover fallacies in reasoning; and to express his own conclusions clearly and concisely.

The College Year

The School of Law operates on the quarter plan. The quarters are designated as summer, fall, winter, and spring. Four quarters constitute the year's work. New students are normally admitted at the beginning of the fall quarter only.

Library

The law library contains more than 7,500 books and during the past year more than seven hundred volumes have been added. In addition to the college law library the Mahoning County Law Library is available to students.

Tuition and Fees

See Fees and Expenses, School of Law, page 44.

Requirements for Admission

The policy has been to admit approximately twenty-five to thirty-five students to the first year class.

Graduates of accredited colleges are given preference.

Applicants are next given preference who qualify under the combined course leading to the degrees of Bachelor of Arts and Bachelor of Laws. (See page 56). Such applicants presenting less than 95 semester hours may be admitted providing the deficiency can be made up by the end of the first year of law school by continued work in the undergraduate college. No student enrolled in the law school may carry more than nine semester hours of credit in the undergraduate college. The student planning to enter the law school under the combined course plan should select his undergraduate subjects to meet the requirements of the bachelor's degree.

Other applicants of high scholastic standing presenting not less than 60 semester hours will be given consideration, but are not assured of admission. It is recommended that if possible they qualify under one of the above two categories.

In partial satisfaction of admission requirements each applicant must also take the Law Aptitude Test, results of which will be used for guidance purposes. The applicant is to make his own individual arrangements with the testing office for taking this test after his application has been approved by the dean or assistant dean.

Applicants for admission to the law school must make written application upon a form obtainable at the registrar's office. These applications should be submitted by August 10 for the ensuing school year. The application must be approved by the dean for reference to the Committee on Admissions, and the applicant must appear personally before the Committee which has final authority over admissions.

Admission to Advanced Standing

Advanced standing will be given only to those students who have earned credits in residence in Ohio schools which are members in good standing of the Ohio League of Law Col-

leges, or in schools outside of Ohio which are approved by the American Bar Association or are members of the American Association of Law Schools.

A student entering from another law school will be admitted only upon presentation of a letter of recommendation from the dean of the school from which he is transferring.

Examinations and Grade Requirements

Attendance—The right to take examinations is conditioned upon regular attendance in classes.

Examinations—Written examinations will be held at the conclusion of each subject. A student who is frequently unprepared or absent in any course or whose work is otherwise of low grade, may be denied the privilege of taking the examination in that course.

Grade Requirements—The School of Law follows the same grading system that is used in the College of Arts and Sciences.

For detailed information concerning scholastic point system and grading system, see pages 63-64. A student must have a point average of 1.0 or better to be eligible for graduation.

The law student normally enrolls for two subjects each quarter. Failure in one subject places the student on probation. Failure in both subjects will result in exclusion of the student from the law school. A student whose scholastic point average for any quarter falls below 1.0 may be excluded from the school by action of the Dean in consultation with the faculty. A student whose scholastic point average falls below 1.0 for any school year will automatically be excluded from the school. No reexamination will be given for subjects failed; the subjects must be repeated, if the student is eligible to continue in school.

Incomplete Work—When a student is unable to take the examination with his class because of illness or other unavoidable reason, the examination must be completed within the first quarter after his return or the course must be repeated.

SCHOOL OF LAW

The Student Load

Two subjects, or four semester hours, is the normal schedule for all students. Students who have satisfactorily completed two full years of work may thereafter schedule three classes, subject to the approval of the faculty.

Time of Classes

Students carrying a normal load of work will attend classes two evenings a week, usually Monday and Thursday, from seven to ten o'clock.

Requirements for the Bar Examination

All persons registering for the Bar Examination must have completed at least two years of work in liberal arts.

Every law student upon entering the School of Law should ask at the office for an instruction sheet regarding admission to the bar. Students living outside the State of Ohio must establish a residence in the state for one year before they are permitted to take the Bar Examination. Other important information is included on the instruction sheet, and each student should study it carefully upon entering law school to be sure that he has fulfilled all requirements.

Suggested Pre-Law Curriculum

First Year	Hrs.	Second Year	Hrs.														
Engl. 105-104 Oral and Written		Pol. Sci. 201, 202, or															
Composition	9	Hist. 105, 106 Europe Since the Fall															
Chemistry or Biology	8	of Rome	6														
Social Science 101 and 102	6	Social Science 201 and 202	6														
Modern Language	6	Psych. 201 General	3														
Orientation	1	Phil. 205 Logic	3														
Hygiene	2	Phil. 305 Ethics	3														
Physical Education	1	Modern Language	6														
	33	Hist. 215, 216 English Con-															
		stitutional History	6														
		Physical Education	1														
			34														
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Third Year</th> <th style="text-align: right;">Hrs.</th> </tr> </thead> <tbody> <tr> <td>English or American Literature</td> <td style="text-align: right;">3</td> </tr> <tr> <td>Geology or other non-laboratory</td> <td></td> </tr> <tr> <td>science** or Mathematics</td> <td style="text-align: right;">3</td> </tr> <tr> <td>History, Political Science, Sociology,</td> <td></td> </tr> <tr> <td>Economics, or Accounting</td> <td style="text-align: right; border-top: 1px solid black;">24</td> </tr> <tr> <td></td> <td style="text-align: right; border-top: 1px solid black;">30</td> </tr> </tbody> </table>				Third Year	Hrs.	English or American Literature	3	Geology or other non-laboratory		science** or Mathematics	3	History, Political Science, Sociology,		Economics, or Accounting	24		30
Third Year	Hrs.																
English or American Literature	3																
Geology or other non-laboratory																	
science** or Mathematics	3																
History, Political Science, Sociology,																	
Economics, or Accounting	24																
	30																

* The student should note that the above is a suggested curriculum and should consult with his adviser. Many law schools are now emphasizing accounting as a pre-law subject.

** General Science.

Curriculum for the Degree of Bachelor of Laws

The degree of Bachelor of Laws will be granted to students who have received credit for 78 semester hours of work with a point average (see pages 63-64) of not less than 1.0 in the following courses:

First Year

Civil Procedure	4 hrs.	Torts	4 hrs.
Contracts	6 hrs.	Legal Bibliography	2 hrs.
Personal Property	2 hrs.		
			189

Second Year

Torts	2 hrs.	Real Property II	2 hrs.
Criminal Law	2 hrs.	Sales	2 hrs.
Real Property I	2 hrs.	Real Property III	2 hrs.
Negotiable Instruments	2 hrs.	Agency	2 hrs.
		*Jurisprudence	2 hrs.

Third Year

Equity	5 hrs.	Trusts	2 hrs.
Private Corporations	2 hrs.	Insurance	2 hrs.
Evidence	4 hrs.	Legal Ethics	1 hr.
*Taxation	2 hrs.		
Partnership	2 hrs.		

Fourth Year

Wills	4 hrs.	Pleading and Practice	4 hrs.
Constitutional Law	4 hrs.	Trusts	2 hrs.
*Labor Law	2 hrs.	Conflict of Laws	2 hrs.

Fifth Year

*Municipal Corporations	2 hrs.	Mortgages	2 hrs.
Quasi Contracts	2 hrs.	*Administration of	
Domestic Relations	2 hrs.	Debtors' Estates	2 hrs.
*Suretyship	2 hrs.		

* Electives—Of the 78 semester hours required for graduation, the student may elect courses totaling twelve semester hours from the following elective courses: Jurisprudence, Insurance, Municipal Corporations, Suretyship, Administration of Debtors' Estates, Mortgages, Labor Law, Taxation. All other courses are required.

Lectures

The Gessner Law Club is a voluntary organization, the membership of which consists of students and alumni. Its program includes a regular monthly meeting and a series of lectures by visiting speakers and specialists in various fields of law. Attendance at the lectures is required of all students but no credit is given toward a degree. These lectures pertain to the following subjects:

- Probate Practice and Procedure
- Taxation Practice and Procedure
- Brief Making and Preparation of Cases

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Federal Jurisdiction and Procedure
Jurisprudence
Drafting and Construction of Statutes
Trial Practice
Administrative Law
Labor Law
Problems of the Practice of Law

COURSES OF INSTRUCTION

Courses are normally offered once in each year. However, as a result of abnormal enrollment following the war, courses will be offered as and when justified by enrollment and registration. The courses currently offered in the Law School and required for a degree are as follows:

AGENCY—Distinction between law of principal and agent, and law of master and servant; formation of relation of principal and agent; by agreement, by ratification, by estoppel, and by necessity; termination of the relation by act of the parties and by operation of law; irrevocable agencies; obligations and duties of agent; torts and frauds of agents; admission and notice; contracts made by agent on behalf of his principal, and torts between agent and third parties. *Two hours credit.*

CIVIL PROCEDURE—An introduction to the procedures involved in litigation, giving the beginning student an understanding of the judicial process and of the relationship between the adjective and the substantive law; organization of the courts in England and in the United States; the relationship between the state and federal courts; the forms of action at common law, and the effect of the abolition of the forms of action; the purposes and functions of pleadings, at common law and under codes, practice acts and rules of court; the trial of an action at law, with especial reference to the constitutional guaranties of trial by jury; the functions of the jury and the extent of the control of the jury exercised by the court; the validity and effect of judgments, with especial reference to the requirements of due process of law as to the exercise of jurisdiction over person or property; the enforcement of judgments; the history of equity, and the outline of the proceedings in suits in equity; the enforcement and effect of decrees; the effect of merger of law and equity. Emphasis is laid throughout upon the fundamentals of procedure in the courts today, resulting from the evolution of judicial remedies from the common law procedure in law and equity, through the procedural changes effected by codes and practice acts. *Four hours credit.*

CONFLICT OF LAW—The legal principles governing the application of laws of different jurisdictions to cause of action arising in one jurisdiction and enforced in another. Judgments; obligations; personal rights; property rights; and a general study of the subject. *Two hours credit.*

CONSTITUTIONAL LAW—A study of the matters underlying the general principles of delegation of governmental powers, due process, police power, taxation powers of state and federal governments, interstate commerce, and unconstitutional laws generally. *Four hours credit.*

CONTRACTS—Place of contract in our law; essentials of a valid contract; void, voidable, and unenforceable contract; offer and acceptance;

YOUNGSTOWN COLLEGE

Statute of Frauds; consideration; capacity to contract; mistake, misrepresentation, fraud, duress, and undue influence; legality of object; contracts for benefit of third person; assignment in the law of contract; impossibility as affecting contracts; breach of contract and its legal effect; and discharge of contract.
Six hours credit.

CRIMINAL LAW—A study of the general principles relating to crimes, with a study of some of the essentials in criminal procedure.
Two hours credit.

DEBTORS' ESTATES, ADMINISTRATION OF—Composition agreements, receiverships, assignments for benefit of creditors, and proceedings in bankruptcy.
Two hours credit.

DOMESTIC RELATIONS—Statutes and cases embracing the law of marriage, divorce and alimony; property and contract rights of husband and wife; antenuptial and postnuptial agreements; actions by one spouse against the other; parent and child; guardian and ward; rights and liabilities of infants; and care, custody and control of infants.
Two hours credit.

EQUITY—This course consists of two parts. Equity I embraces the origin, history, general principles and scope of equity jurisprudence. Equity II deals with maxims and special heads of equity jurisprudence, such as rescission, reformation and cancellation; specific performance; injunction; receivers; estoppel; election; subrogation. The conclusion of this course consists of a study of equitable remedies.
Five hours credit.

EVIDENCE—Reasons for and the rules of admission and exclusion of proffered evidence; development of rules of evidence; introduction of evidence; objections to evidence; rulings upon evidence; exceptions to rulings and the making or protecting a record in the Trial Court for reviewing courts, and courts of last resort.
Four hours credit.

INSURANCE—Fire, life, and accident insurance, with respect to: insurable interests; concealment; misrepresentation; warranties; other causes of invalidity of contract; amount of recovery; subrogation; conditions; waiver; estoppel; election and powers of agents; assignees and beneficiaries.
Two hours credit.

JURISPRUDENCE—Discussion of some of the basic problems of classical and contemporary juristic theory, with applications to cases and statutes.
Two hours credit.

LABOR LAW—Study of the historic background of the law relating to labor relations; the development and modern legal status of labor contracts; legality of strikes, lockouts and boycotts; injunctions and damage suits; and federal and state statutes.
Two hours credit.

LEGAL BIBLIOGRAPHY—A study of the various types of law books, including statutes, decisions of courts, textbooks, encyclopedias, digests, etc. Methods of search will be outlined and problems in legal research will be assigned.
Two hours credit.

LEGAL ETHICS—A study of the canons of legal ethics and cases demonstrating the application thereof.
One hour credit.

MORTGAGES—Theory of mortgages in various jurisdictions, forms, debts, foreclosure, redemption, sales, writ of restitution, and recording requirements.
Two hours credit.

MUNICIPAL CORPORATIONS—Creation, control, powers, liabilities, and dissolution of municipal corporations; their charters, proceedings, officers, and agents; powers of agents; assignees and beneficiaries.
Two hours credit.

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NEGOTIABLE INSTRUMENTS—Drawing forms of negotiable papers, forms and formal requisites; acceptance, transfer, and extinguishment; obligation of parties; effect of delay and diligence; bills of exchange; notice and protest; forgery and alteration. Special attention is given to the uniform negotiable instrument law and the judicial construction thereof.

Two hours credit.

PARTNERSHIP—The creation of partnership; the purpose for which a partnership may be formed; the advantages and disadvantages of a partnership; the incidents of partnership; the rights and duties of partners toward each other; partnership property and the interest of partners and creditors therein; of actions by and against the firm; dissolution of partnership; final accounting; limited partnerships and partnership associations.

Two hours credit.

PERSONAL PROPERTY—Distinction between real and personal property; gifts, bailments, common law and statutory liens; chattel mortgages and conditional sales contracts; pledges; fixtures and emblements.

Two hours credit.

PLEADING AND PRACTICE—This course prepares the student to state accurately and concisely a cause of action or defense. This course affords a general review of most of the substantive law preceding. Particular attention is given to forms of action and all pleadings. This is followed by a history of procedure and a careful study of the codes as exemplified by the statutes of New York and Ohio. These codes are illustrated and clarified by the study of cases. This course is sound in theory and sufficiently practical to enable the student to feel at home in the office or court room. To this end considerable attention is directed to trial procedure from the filing of a petition and issuing of summons to the final determination of a case in an appellate court.

Four hours credit.

PRIVATE CORPORATIONS—Forms of business organizations; formation of corporations; the separate corporate entity; criminal and tort liability; directors and management; rights and liability on contracts; rights and powers of shareholders; issue of shares and subscriptions; underwriting and marketing of securities; stock structure; capital requirements and dividends; liability of shareholders, directors and promoters; transfer of shares; fundamental changes in corporate organization; shareholders actions.

Two hours credit.

QUASI CONTRACTS—Nature of obligation; restitution at law for benefits conferred under mistake of fact or mistake of law; benefits conferred in misteliance upon contract invalid, illegal, unenforceable, or impossible of performance; benefits conferred through intervention in another's affairs; benefits conferred under constraint; restitution as alternative remedy or breach of contract and for tort.

Two hours credit.

REAL PROPERTY I—Introduction to the law of real property; the feudal system, theory of estates, non-possessory interests in land, joint ownership, disavain, history of uses. Rights incidental to possession, including water rights in the land of another, including profit, easements, and licenses.

Two hours credit.

REAL PROPERTY II—Covenants running with the land, including enforcement at law or in equity, and between landlord and tenant and fee owners; rents; waste; public rights in streams and highways.

Two hours credit.

REAL PROPERTY III—Future Interests in Land—Future interests; conditions, reversions, remainders and conditional limitations; Rule in Shelley's Case; future interests in personality; powers, rules against perpetuities.

Two hours credit.

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SALES—Subject matter of sales, executory and executed sales, stoppage in transit, fraud, warranties and remedies for breach of warranties, statute of frauds, and the uniform commercial acts. *Two hours credit.*

SURETYSHIP—Guaranty and suretyship defined and distinguished; application of the Statute of Frauds; commercial guarantee bonds to secure private obligations; bonds of public officers; subrogation, contribution, and indemnity; surety defenses. *Two hours credit.*

TAXATION—A study of the legal principles of taxation; jurisdiction and constitutional limitations on the power to tax; the major types of modern taxation. *Two hours credit.*

TORTS—Assault, battery, malicious prosecution, false imprisonment, negligence, deceit, slander, libel, and other disputes. *Six hours credit.*

TRUSTS—Voluntary trusts, language and formalities necessary to the creation of a trust, resulting trusts, oral trusts, constructive trusts, executed and executory interests of trustees. *Two hours credit.*

WILLS—Testamentary capacity; dispositions in contemplation of death; execution, revocation, republication, and revival of wills; descent; liability of heirs for debt; probate and administration; title and powers of executors and administrators; payment of debts; legacies and distributive shares. *Four hours credit.*

NOTE—Subjects taught, hours of instruction, tuition charges, case books, admission requirements, grading system, and all matters of a similar character are subject to change any time by the dean and president.

DEGREES CONFERRED

August 21, 1948

Bachelor of Engineering

Klingensmith, John AllanNew Castle, Pa.

Bachelor of Science

Aitler, Vincent Anthony ..Youngstown
Avner, Hersh N.Warren
Baker, Richard H.Youngstown

Ray, Eugene Miller.....Youngstown
Rozich, Rose R.Farrell, Pa.
Salandra, Helen EstherNiles

Bachelor of Arts

Boyle, James FrancisSharon, Pa.
Brockway, Frederic W.Sharon, Pa.
Chance, Daniel L.Niles
Darsky, Benjamin J.Youngstown
Davis, Oliver, Jr.Youngstown
Gardner, John E.Struthers
Goodrich, May EileenYoungstown
Hagman, Roland Philip ..Youngstown
Haynes, Lloyd R.Youngstown
Bom, Willie LeeYoungstown
Joachim, Arthur Cameron .Youngstown
LaRoeca, John WilliamCampbell
Loney, John AnthonyYoungstown
Lynch, Mary PatriciaYoungstown

Mantle, Melva L.Youngstown
Miller, Edward AllenYoungstown
Mills, Jack A.Youngstown
Naughton, Cathleen AnnStruthers
O'Connor, Fredric T.Youngstown
Quinn, James PatrickYoungstown
Redford, Thelma Malkoff .Youngstown
Rotar, John A.Campbell
Schiau, Nick, Jr.Farrell, Pa.
Shutrum, Ruth DuffYoungstown
Uhlar, John A.Campbell
Vaporis, Nomikos MikeCampbell
Wymer, Helen IsabelPoland

Bachelor of Science in Education

Armstrong, Pauline N.Warren
Bettis, William W.Girard
Booth, OlgaYoungstown
Brown, Anna L.North Lima
Brown, James JohnCampbell
Buenpane, Josephine S. ...Youngstown
Burnett, Mildred L.Hubbard
Cipriano, Clara PetersNiles
Crumb, John, Jr.Youngstown
DaCunto, MarylouiseHubbard
Dillase, Lois JeanYoungstown
Dorley, Margaret D.Youngstown
Ewens, Dorothy V.Niles
Feiger, Katherine Stewart
New Springfield
Fink, Margaret C.Youngstown
Gamma, Gloria MarieYoungstown
Hamilton, W. VernonYoungstown

Henderson, John LairdYoungstown
Knezeak, Margett E.Niles
Lanzi, Peter CharlesYoungstown
Meinzen, Pauline M.Mineral Ridge
Minor, BerthaWarren
Montasana, James Fusco
Youngstown
Ogan, Laura FrancesYoungstown
Pitchford, Jessie YerianPoland
Rodgers, Duane O.Youngstown
Shelhammer, Paul Edward ...Warren
Smith, Edward EarlYoungstown
Snyder, Allen T.Berlin Center
Timko, John, Jr.New Castle, Pa.
Velker, Polly L.Youngstown
Wells, Florence EmmaBurghill
Wilcox, Ruth Tavender ...Youngstown
Woodside, Mary Althea ...Youngstown

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Bachelor of Science in Business Administration

Amedia, Chester A.	Girard	Lake, Mathew B.	Warren
Baxevandes, Theodore	Youngstown	Lenhardt, Arthur H.	Lowellville
Bergman, Kenneth L.	Youngstown	Mavrigian, Angelo	Youngstown
Casey, Leo Thomas, Jr. ...	Youngstown	Moore, Howard L.	East Palestine
Costa, Louis A.	Youngstown	Nipps, John P.	Youngstown
Crisafi, Dominic Anthony .	Youngstown	Novicky, John T.	Youngstown
Finn, Donald F.	Youngstown	Nye, James Donald	Youngstown
Goddard, William Malcolm, Jr.	Youngstown	Reiley, Miles Paul	Youngstown
Hanni, Curtis Leroy	Youngstown	Schneider, Eugene Edward .	Youngstown
Jones, John David	Youngstown	Skrinyer, Edward	Youngstown
Kirkland, Robert Johnson .	Youngstown	Snelbaker, Betty Hale	Warren
Kroko, Joseph	Sharpsville, Pa.	Walters, Abraham, Jr. ...	Youngstown
		Weaver, Melvin Eslie	Youngstown

Bachelor of Music

D'Orsi, Phyllis	Youngstown	Ehrhart, Leona Anne	Columbiana
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Title of Associate in Business Administration

Johnson, Ambrose R.	Youngstown	Novotny, Joseph C.	Youngstown
Lowry, Harold O.	Warren	Witherow, William F. ..	East Liverpool

DEGREES CONFERRED

June 10, 1949

Bachelor of Laws

Daff, Leo W. Youngstown
Greenmyer, Edward Carey ... Leetonia
Groves, Myron Benn Poland
Hugli, Dorothy Diamond
Jenkins, Elwyn Vernon ... Youngstown
LaPolla, Ruth Marguerite Warren

Nelson, C. H. Youngstown
Osborne, Clyde Wayne Youngstown
Thorne, John Clarence Youngstown
VanBrocklin, Loren E. Youngstown
Vouros, Joseph E. Youngstown

Bachelor of Engineering

Atks, Eugene A. Struthers
Aldiere, Fred Joseph Youngstown
Haldwin, Clarence H. Struthers
Hebb, Wayne Arthur Diamond
Berger, Leroy C. Youngstown
Cooper, Robert Fred Youngstown
deMaille, Kenneth John .. Bronx, N. Y.
Dragos, John Sharon, Pa.
Evans, William Charles ... Youngstown
Ferry, Oliver Hooley Youngstown
Fleack, Albert R. Warren
Gayetaky, Elmer John Campbell
Hargax, Yossef Youngstown

McKay, James Daniel Mercer, Pa.
Mariner, Wilbert J., Jr. ... Youngstown
Nanes, George Youngstown
Orchard, Norman M. Youngstown
Quatrano, Raymond Louis . Youngstown
Quirk, Edward Hershall ... Youngstown
Ross, Joseph L. New Castle, Pa.
Stevens, Robert Charles Niles
Talkowski, John Paul Warren
Thanos, Daniel L. Sharon, Pa.
Watson, Frank Charles ... Youngstown
White, Philip K. Salem

Bachelor of Science

Bulgosdy, Eugene Lealie .. Youngstown
Cibulka, Zoltan Joseph Campbell
Cotro, Evelyn Helen ... New Castle, Pa.
DeLuca, Jennie Louise McDonald
Donnelly, Mary Wilma Youngstown
Demovan, Ellen Rose Youngstown
Durno, Isabelle Youngstown
Edmonds, Harris W. Youngstown
Gambrel, Anthony Alfonso . Youngstown
Jayne, Frank J. Warren
Jones, Raymond C. Warren

Kostyk, Ellen M. Campbell
Lewis, Margaret Daugherty Niles
Llewellyn, Dorothy Youngstown
Lunn, Eugene Edward Struthers
McIntosh, Harold Bruce, Jr.
Youngstown
Orlando, Alexander Anthony
New Castle, Pa.
Pesa, Henry S. Youngstown
Smiley, Raymond Bliss Youngstown
Somple, John R. Girard

Bachelor of Arts

Abbas, Josephine Veronica . Youngstown
Amaduri, George J. Youngstown
Baker, Ward Howe, Jr. ... Youngstown
Bilchik, Anthony Youngstown
Boyd, Robert James Niles
Bremer, Raymond Michael . Youngstown
Burke, George Francis ... Youngstown
Callahan, Mary Florence .. Youngstown
Campbell, James Marshall, Jr.
Youngstown
Gerslitz, Carl J. Youngstown

Crino, Phillip A. Campbell
Dankovich, Louis Joseph .. Youngstown
DeCola, Thomas Guido Niles
Deifs, Karen W. Canfield
Dunker, Sarah Ann Youngstown
Dusza, Bernard T. Warren
Dykens, William George ... Youngstown
Ellis, Robert Francis Youngstown
Evan, Michael Campbell
Ezzo, Joseph Anthony Girard
Furdas, Olga Jayne Youngstown

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Fuscoe, Jack Patrick Youngstown
 Gnagy, Robert Harvey Poland
 Greevich, Stephen John ... Youngstown
 Halferty, William J. Youngstown
 Hanni, Don Lamar Youngstown
 Haverland, Harry William
Mineral Ridge
 Hengen, Barbara Jane ... Youngstown
 Hoover, Mary Jane Youngstown
 Howells, Myron Thomas Girard
 Humbert, John O. Niles
 Jevnaugh, William Joseph ... Youngstown
 Kale, Nancy Lorraine Youngstown
 Kapp, Joseph Robert Youngstown
 Kenney, Mary Louise Youngstown
 Kitko, Joseph Donald Lockwood
 Muggiano, Lawrence Louis ... Warren
 Maluso, John Joseph Youngstown
 Martin, Nicholas Thomas ... Youngstown
 Melnick, Arseny Antony ... Youngstown
 Metcalf, Beverly June Youngstown
 Miller, Earl Robert Salem
 Mills, Bruce Ernest Youngstown

Morgante, Philip Alfred ... Youngstown
 Muehlbauer, Paul Joseph ... Youngstown
 Phillips, Adele Rose ... New Springfield
 Pizzola, John A. Niles
 Rosapepe, Carl John Youngstown
 Rosapepe, Vincent A. Youngstown
 Ruff, William E. Youngstown
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Bachelor of Science in Business Administration

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 Daganzo, Anthony C. Youngstown
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