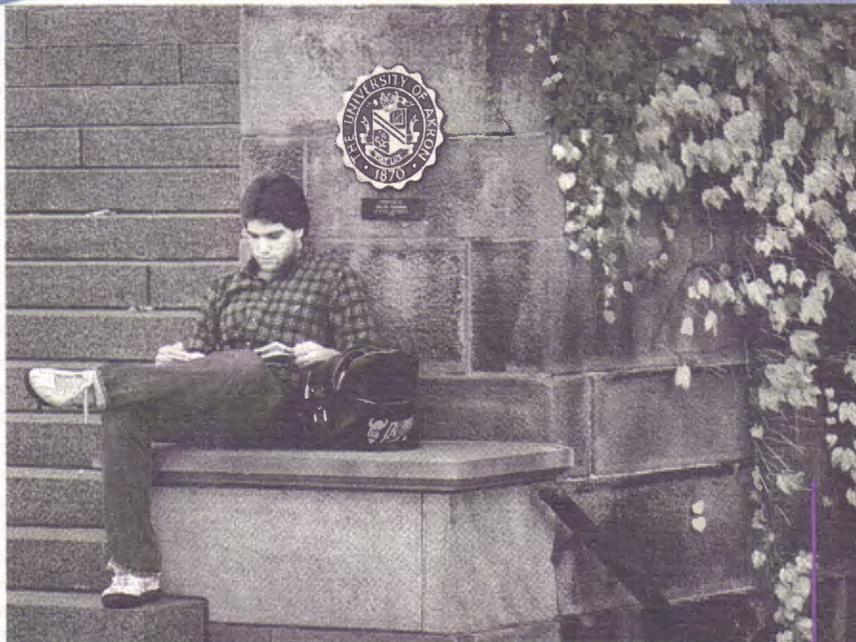


# Bulletin



General Edition

1983-84

T H E U N I V E R S I T Y O F A K R O N

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# Calendar 1983-85

## Fall Semester 1983

Day and Evening Classes Begin Mon., Aug. 29  
 \*Labor Day Mon., Sept. 5  
 Veterans Day (classes held) Fri., Nov. 11  
 \*\*Thanksgiving Recess Thurs.-Sat., Nov. 24-26  
 Classes Resume Mon., Nov. 28  
 Final Examination Period Mon.-Sat., Dec. 12-17

## Spring Semester 1984

Day and Evening Classes Begin Mon., Jan. 16  
 Founders Day (classes held) Tues., Feb. 14  
 Spring Recess Mon.-Sat., March 26-31  
 †May Day To be announced  
 Final Examination Period Mon.-Sat., May 7-12  
 Commencement Sun., May 20

## Summer 1984

First 5- and 8-Week Sessions Begin Mon., June 11  
 \*Independence Day Wed., July 4  
 First 5-Week Session Ends Fri., July 13  
 Second 5-Week Session Begins Mon., July 16  
 Eight-Week Session Ends Fri., Aug. 3  
 Second 5-Week Session Ends Fri., Aug. 17

## Fall Semester 1984

\*Labor Day Mon., Sept. 3  
 Day and Evening Classes Begin Tues., Sept. 4  
 Veterans Day (classes held) Mon., Nov. 12  
 ††Thanksgiving Recess Thurs.-Sat.,  
 Nov. 29-Dec. 1  
 Classes Resume Mon., Dec. 3  
 Final Examination Period Mon.-Sat., Dec. 17-22

## Spring Semester 1985

Day and Evening Classes Begin Mon., Jan. 21  
 Founders Day (classes held) Tues., Feb. 12  
 Spring Recess Mon.-Sat., March 25-30  
 †May Day To be announced  
 Final Examination Period Mon.-Sat., May 13-18  
 Commencement Sun., May 26

## Summer 1985

First 5- and 8-Week Sessions Begin Mon., June 10  
 \*Independence Day Thurs., July 4  
 First 5-Week Session Ends Fri., July 12  
 Second 5-Week Session Begins Mon., July 16  
 Eight-Week Session Ends Fri., Aug. 2  
 Second 5-Week Session Ends Fri., Aug. 16

\*University Closed

\*\*University closed from Wednesday, November 23, at 5 p.m. until Monday, Nov. 28 at 7 a.m.

†Classes suspended Noon to 4:00 p.m.

††University closed from Wednesday, November 28 at 5 p.m. until Monday, December 3 at 7 a.m.

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**1**

About The University of Akron

# Background

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## History

Established by the Ohio Universalist Convention on May 31, 1870, Buchtel College was built on a hill overlooking Akron, a thriving industrial city of 10,000 situated at the summit of the Ohio Canal. The college was named in honor of John R. Buchtel, a farm machinery manufacturer, whose money and spirit sustained the enterprise in higher education. Support also came from local men who pioneered such industries as cereals, clay products, matches, farm implements and rubber.

By 1913 it was apparent that Buchtel College had stronger allegiances with the city of Akron than Universalism, and in that year its assets were transferred to the city as the nucleus of the Municipal University of Akron. The Buchtel name was perpetuated in the Buchtel College of Liberal Arts, and on July 1, 1970, in the Buchtel College of Arts and Sciences.

From 1910 to 1920, Akron was America's fastest-growing city, blossoming from 70,000 to 208,000 persons within that decade, and the University grew similarly. In 1914 a College of Engineering was established. Other professional colleges followed: Education (1921), Business Administration (1953), Law (1959), Community and Technical College (1964), Fine and Applied Arts (1967) and Nursing (1967). To make courses available to a broad cross-section of citizens, a comprehensive evening session was established in 1915. Today over 7,800 Evening College students pursue undergraduate and graduate education in every degree program offered by the University.

In undergraduate education, Akron was an early supporter of the free elective idea (1880s) and general education (1935), the latter program being developed into one of the most fully rationalized in the country. Graduate work evolved from awarding of the first master's degree (1882) to the beginning of doctoral work in 1956. Currently, doctoral programs are offered in 14 fields.

Since Buchtel College initiated college courses in rubber chemistry (1908), it is appropriate that the University's first Ph.D. program was offered in polymer chemistry. However, UA's first major research effort was the Guggenheim Airship Institute which flourished in the 1930s and 1940s.

University of Akron scientists participated in the critical development of synthetic rubber during World War II, and today the University's Institute of Polymer Science is now a world leader in polymer research and education. Currently the University's research efforts, totaling approximately \$3 million, reach into many phases of research and creative projects.

The 150-acre campus with 70 modern buildings is located in a metropolitan area of 1.5 million persons. The University of Akron now enrolls more than 26,000 day and evening students in credit courses and an additional 7,000 in "informal" non-credit education courses. Its students come from 32 states and 60 foreign countries, and its over 50,000 alumni are situated around the globe in positions of responsibility. The University's long-time leadership in continuing adult education and cooperative town and gown activities has been supplemented by the cultural leadership it has provided in the renaissance of artistic endeavor in Akron.

On July 1, 1967, The University of Akron became a state

university. Thus, it secured a base that enabled it to extend its influence far beyond local boundaries. Its first 111 years of service prepared it for a widening role in the future.

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## Mission and Goals

The major forces influencing The University of Akron's mission are teaching and research goals, location and heritage, and service responsibilities to the local, national and international communities served.

These forces, coupled with the sharing of the national commitment to provide the highest quality educational opportunity to each person regardless of race, creed, color, sex, age, national origin or handicapping condition, form the distinctive character of this institution.

The foremost goals of The University of Akron are to foster and maintain high standards of quality in program offerings, teaching methods, research projects and public service. The validity of all existing programs, as well as the need for additional ones, is to be evaluated regularly in light of the University's goals and performance; and achievement standards are to be reviewed carefully to ensure excellence.

As an urban institution, The University of Akron strives to encourage a mutually beneficial relationship between the University and its environment by encouraging the use of the surrounding community as a laboratory for teaching and by structuring courses and research to meet the community's particular needs. In terms of educational needs, the University will continue to build on its long heritage of serving those seeking either career changes, professional development or self-enrichment in daytime, evening and weekend courses, through off-campus instruction, cooperative education and workshops. The University, once a small, denominational college, has evolved into an urban multiuniversity with an international responsibility. At The University of Akron the concept of an urban university has broadened from a demographic definition to a philosophical commitment that encompasses educational needs, social goals and community responsibilities.

These forces mold the philosophy that shape the Mission and Goals of The University of Akron.

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## Mission

The University of Akron is a comprehensive state-assisted urban university with national and international influence, sharing the same general mission as the other state universities to:

- Provide learning opportunities for a broad spectrum of students.
- Discover new knowledge through basic and applied research.
- Provide a forum for the examination of ideas and concepts and the generation of scholarly dialogue within the established principles of academic freedom.
- Develop necessary educational services throughout the state of Ohio.
- Plan for continued improvement of the teaching and learning environment.
- Prepare career-oriented persons for professional leadership roles in regional, national and international organizations and institutions.

In addition, The University of Akron's mission has certain distinctive characteristics determined by its location in the service

areas of three major urban centers and the Northeastern Ohio regional area. The University's specific mission is to meet the educational needs and develop the cultural interests of students who work in and manage the industries, multinational firms, hospitals, businesses, government and other institutions and agencies in this area by providing:

- Academic programs leading to associate, baccalaureate, master's and doctoral degrees.
- Educational programs which may lead to the awarding of a certificate, continuing education credits or other evidence of personal and professional improvement.
- Consortia with other universities which establish programs such as educational television, the medical school and joint doctoral programs.
- Community and regional commitments and public service which expand educational opportunities.

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## Goals

The following goals provide further definition of the University's mission and serve as the basis upon which individual colleges, departments, and service units of the University establish program objectives.

### Goal I

The University will plan, develop, implement, and measure all of its efforts in light of its primary goal of teaching: to provide optimum learning opportunities for students of varying ages, diverse backgrounds and different needs.

### Goal II

The University will continue to develop its faculty resources by emphasizing professional growth through research, publication and creative activities; by encouraging the search for new knowledge; by providing opportunities for faculty to increase their leadership within their academic areas; by fostering faculty awareness of the influence of other disciplines on their own; and by encouraging the integration of public service and appropriate faculty activities.

### Goal III

The University programs and the teaching/learning process will be designed to fulfill the students' varied academic needs, to emphasize quality and to reflect the comprehensive role of the urban university in modern society, so as to develop thinking individuals capable of confronting local, national and international problems and thus making a positive contribution to society.

### Goal IV

The University will provide public service to the urban community through its programs, faculty, students and graduates.

### Goal V

The University will coordinate the growth and emphasis of its programs with long-range plans and needs of the community.

### Goal VI

The University will contribute as much as possible within its resources to the development of quality of life for the future of the nation and the world of which the Akron community is a part and upon which its people and economy are dependent.

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## Accreditation

Accreditation assures that degrees are recognized and approved by select regional and national education associa-

tions, societies and councils. The University of Akron has been approved by the North Central Association of Colleges and Schools since 1914 and was recently reaccredited at the highest level as a comprehensive doctoral degree-granting institution. This recognition illustrates the high academic standards maintained at the University. For a student taking pre-professional courses in order to eventually study advanced fields such as medicine, dentistry, law and theology, there is an assurance of sound preparation for acceptance at other graduate and professional schools. There is also security in knowing that the University will honor most credits earned at a similarly accredited college or university. Degrees earned at the University are respected and sought after by prospective employers.

In addition to the recognized regional accreditations, special accreditation for particular programs has been awarded as follows:

Accreditation Board for Engineering and Technology  
American Assembly of Collegiate Schools of Business  
American Chemical Society  
American Dietetic Association  
The American Speech-Language-Hearing Association  
Committee on Allied Health Education and Accreditation of American Medical Association  
Council on Social Work Education (candidacy status)  
National Accrediting Agency for Clinical Laboratory Sciences  
National Association of Schools of Art  
National Association of Schools of Music  
National Council for Accreditation of Teacher Education  
National League for Nursing  
Ohio Board of Nursing Education and Nurse Registration  
Ohio State Department of Public Instruction

The University also holds membership in the following educational organizations:

American Association of Colleges for Teacher Education  
American Association of Community and Junior Colleges  
American Association of State Colleges and Universities  
American Council on Education  
American Society for Engineering Education  
American Society for Training and Development  
Association for Continuing Higher Education  
Department of Baccalaureate and Higher Degree Programs (National League for Nursing)  
International Council on Education for Teaching (associate)  
National Association of Summer Sessions  
Ohio College Association  
Ohio Council on Continuing Higher Education  
United States Association of Evening Students  
University Council on Education for Public Responsibility

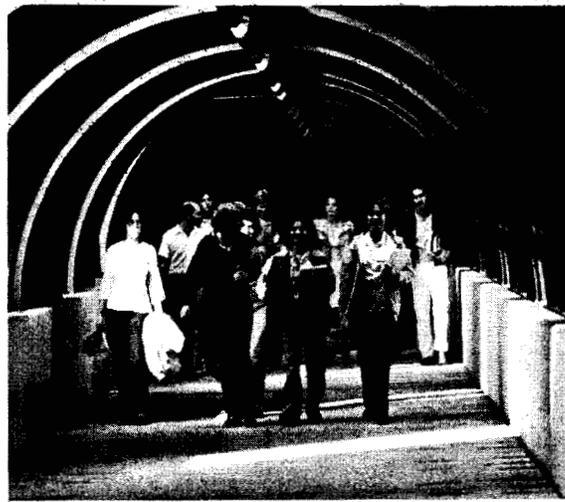
The School of Law is accredited by:

American Bar Association  
Association of American Law Schools  
League of Ohio Law Schools  
Council of the North Carolina State Bar  
State of New York Court of Appeals

The American Association of University Women grants membership to women graduates with approved baccalaureate degrees from The University of Akron.

# Academics

The University of Akron covers a broad educational spectrum academically. Programs are available leading to the associate (two-year), bachelor's (four-year), master's (graduate) and doctoral (graduate or professional) degrees. A student can study in the College of Business Administration, Buchtel College of Arts and Sciences, Community and Technical College, College of Education, College of Engineering, College of Fine and Applied Arts, University College, School of Law or College of Nursing.



Medical Assisting Technology	Surgical Assisting Technology
Office Services Technology	<i>Surgeon's Assistant</i>
Radiologic Technology	<i>Surgical Technologist</i>
Real Estate	Surveying and Construction
Respiratory Therapy Technology	Technology
Secretarial Science	Construction
<i>Executive</i>	Surveying
<i>International</i>	Transportation
<i>Legal</i>	<i>Airline/Travel Industry</i>

## Associate Programs

In this fast-paced age of technological development, a need has grown for a person trained specifically for work in the semi-professional, technical and highly-skilled professions. Most critically needed are laboratory technicians, health technicians, engineering assistants, sales people, supervisors, secretaries and management assistants. The following is a list of our associate degree programs.

Arts	Drafting Technology
Business Management	Educational Technology
Technology	<i>Child Development Aide</i>
Banking	<i>Elementary Aide</i>
Credit Union	<i>Library Aide</i>
Data Administration	Electronic Technology (2 + 2)
Small Business Management	Fire Science Technology
Chemical Technology	Handicapped Services
Environmental	(Interpreting for the Deaf)
Forensic	Hospitality Management
Geology	Culinary Arts
Industrial	Hotel/Motel Management
Rubber and Plastic	Marketing and Sales
Commercial Art	Individualized Study
Community Services Technology	Labor Studies
Alcohol	Manufacturing Technology
Gerontology	Industrial Supervision
Volunteer Programming	Marketing and Sales Technology
Criminal Justice Technology	Fashion
Corrections	Industrial
Security Administration	Retailing
Data Processing (2 + 2)	Mechanical Technology (2 + 2)

## Baccalaureate Programs

The University of Akron believes that the student should master basic courses in the humanities, social sciences and physical sciences and thus supports the idea of the University College concept. A student seeking a baccalaureate degree and having attained less than 30 college semester credits, studies in the University College before transferring to a degree-granting college. The University College develops the ability to understand and express ideas effectively and to comprehend the processes involved in accurate thinking. After completing the general studies phase, entrance is granted to a degree-granting college, where studies are concentrated around the student's specific academic interest:

Accounting	<i>Pre-Professional</i>
Art	<i>Pre-Dental</i>
Art History	<i>Pre-Medicine</i>
Ceramics	<i>Pre-Veterinary</i>
Crafts	Zoology
Drawing	Business Administration
Graphic Design	Accounting
Metalsmithing	Finance
Painting	Management
Photography	Marketing
Printmaking	Chemical Engineering
Sculpture	Chemistry
Studio Art	Civil Engineering
Arts	Construction
Biology	Design
Botany	Classics
Cytotechnology	Greek
Ecology	Latin
Medical Technology	Communication
Microbiology	Business and Organizational
Physiology	Communication and Rhetoric

*General Speech*  
*Mass Media*  
 Communication Disorders  
 (Speech Pathology and  
 Audiology)  
 Computer Science  
*Business*  
*Mathematics*  
 Construction Technology (2 + 3)  
 Cytotechnology  
 Economics  
*Labor Economics*  
 Electrical Engineering  
*Computer Engineering*  
 Elementary Education  
*Dual Certification*  
*Kindergarten-Primary*  
*Nursery School*  
*Retraining*  
 Engineering  
*Chemical*  
*Civil*  
*Electrical*  
*Interdisciplinary BSE*  
*Mechanical*  
 English  
 Finance  
 Geography  
 Geology  
*Geophysics*  
 History  
 Home Economics and Family  
*Ecology*  
*Child Development*  
*Dietetics*  
*CUP*  
*Traditional*  
*Family and Child Development*  
*Child Life Specialist*  
*Foods and Nutrition*  
*Home Economics Education*  
*Textiles and Clothing*  
*Business*  
*Communication*  
 Humanities  
 Management  
*Industrial Accounting*  
 Marketing  
*Industrial*  
*International*  
*Marketing Communications*  
*Physical Distribution*  
*Retail Marketing*  
 Mathematical Sciences  
*Applied Mathematics*  
*Computer Science*  
*Mathematics*  
*Statistics*

Mechanical Engineering  
 Medical Technology  
 Modern Languages  
*French*  
*German*  
*Russian*  
*Spanish*  
 Music  
*Accompanying*  
*History and Literature*  
*Jazz Studies*  
*Music Education*  
*Performance*  
*Theory-Composition*  
 Natural Sciences  
*Combined BS/ MD*  
 Nursing  
 Philosophy  
 Physical Education 1-12  
*Outdoor Education*  
*Athletic Training*  
 Physics  
*Applied Physics/ Engineering*  
*Biophysics*  
*Chemical*  
*Computer*  
*Geophysics*  
*Physics/ Astrophysics/*  
*Astronomy*  
*Polymer*  
 Political Science  
*Criminal Justice*  
*Government Service*  
*International Service*  
*Pre-Law*  
*Public Policy*  
 Psychology  
 Secondary Education (all fields)  
 Social Sciences  
 Social Work  
 Sociology  
*Anthropology*  
 Special Education  
*ER and OH*  
*ER and MSPR*  
*LD and ER*  
 Speech Pathology and Audiology  
 Technical and Vocational  
 Education  
 Theatre Arts and Dance  
*Acting*  
*Dance*  
*Design/ Technology*  
*Musical Theatre*  
*Theatre Arts*



## Cooperative Education

This office combines classroom learning with paid practical work experience. Qualified students are placed in career related pre-professional work assignments in industrial, commercial, professional, governmental or service organizations. The program is structured to enhance a student's education and career preparation by: integrating classroom theory with on-the-job performance; developing an understanding of work environments and professional requirements; testing career and professional goals; developing confidence, maturity and skills in human relations; and establishing professional contacts and interests.

Students are typically eligible for work assignments if they are in good academic standing, have completed half of their academic requirements, attend an orientation program and are accepted by the Cooperative Education coordinator in their respective fields. Additional standards may be required by some departments or employers. Final hiring decisions are made by the employers.

Students and employers participating in Cooperative Education are subject to all federal, state and local labor laws. Additionally, students on a work assignment must abide by all the rules and regulations of the participating employer and of Cooperative Education.

## Certificate Programs

In order to add to the dimensions of the traditional disciplines, the University has established interdisciplinary and interdepartmental programs of study. In addition to a student's major, pursuit of one of these programs will add a dimension of depth through concentrated work focusing on one of the following:

Afro-American Studies	Gender Identity Roles
Cartographic Specialization	Linguistic Studies
Computer Physics	Manual Communication
Computer Science	Mid-Careers in Urban Studies
Environmental Studies	Peace Studies
Higher Education	Planning
Interior Design	Professional Communication
Latin American Studies	Public Policy
Life Span Development: Adulthood and Aging	Real Estate
Life Span Development:	Secretarial Science
	Soviet Area Studies

## University Honors Program

The University of Akron's Honors Program has been designed to recognize and to support the highly motivated and achievement-oriented student in any major program. Participants are eligible for substantial honors scholarships. An honors student completes all requirements for a departmental or divisional major and attends interdisciplinary colloquia in the humanities, social sciences and the natural sciences. These focus on the interrelations of academic studies while exploring significant issues of our contemporary society. An honors student is expected to complete a senior honors project reflecting an interest in the student's major field of study.

## Graduate School

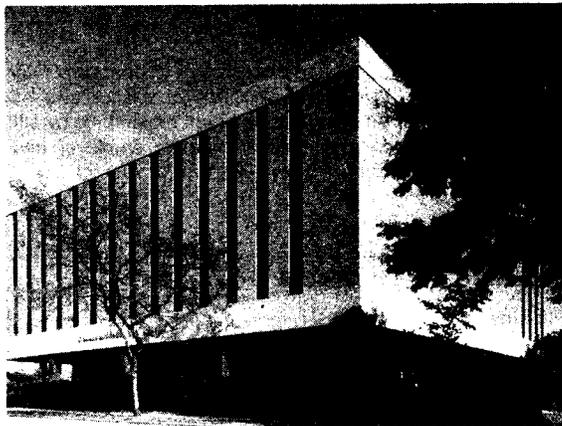
The Graduate School exists to serve the student who wishes to further education beyond the baccalaureate degree. The following is a list of graduate master's degree programs:

- Accounting
- Biology
- Business/Law Joint Program
- \*Chemical Engineering
- \*Chemistry
- \*Civil Engineering
- Communicative Disorders
- Economics
  - Labor and Industrial Relations*
- \*Electrical Engineering
- \*Elementary Education
  - Reading Specialist or Consultant*
- Engineering
  - Polymer Engineering*
- English
- Family Ecology
  - Child Development*
  - Family and Child Development*
- Finance
- Geography
- Geology
- \*Guidance and Counseling
- \*History
- International Business Management
- Marketing
- Mass Media-Communication
  - Communication and Rhetoric*
  - Mass Media-Communication*
  - Speech (General)*
- Mathematical Sciences
  - Mathematics*
  - Statistics*
  - Applied Mathematics*
- \*Mechanical Engineering
- Modern Languages
  - French*
  - Spanish*
- Music
  - Accompanying*
  - Composition*
  - Music Education*
  - Music History and Literature*
  - Performance*
  - Theory*
- Nursing
- Philosophy
- Physical Education 1-12
  - Outdoor Education*
- Physics
- Political Science
- \*Polymer Science
- \*Psychology
- \*Educational Administration and Supervision
  - †*Higher Education*
  - School Psychology*
- \*Secondary/ All Fields
  - Teaching Culturally Disadvantaged*
- \*Sociology
- Special Education
- Taxation
- Technical and Vocational Education
- Theatre Arts and Dance
  - Arts Management*
  - Theatre Arts*
- Urban Studies
  - Public Administration*
  - Urban Planning*



## Evening College and Summer Sessions

The University Evening College and Summer Sessions provide educational opportunities for the student who wishes to attend college classes during the evening or during summer hours. The courses offered are fully accredited. The Evening College and Summer Sessions enrollment includes students working toward associate, baccalaureate and advanced degrees or are attending for additional education in their chosen profession. The Evening Program is a year-long educational endeavor.



## School of Law

The School of Law provides legal education through day and evening classes leading to the Juris Doctor degree. An applicant must have an undergraduate degree from an accredited college or university in an appropriate field of study.

\*Masters and Doctoral programs.

†Doctoral program only.

## Off-Campus Programs

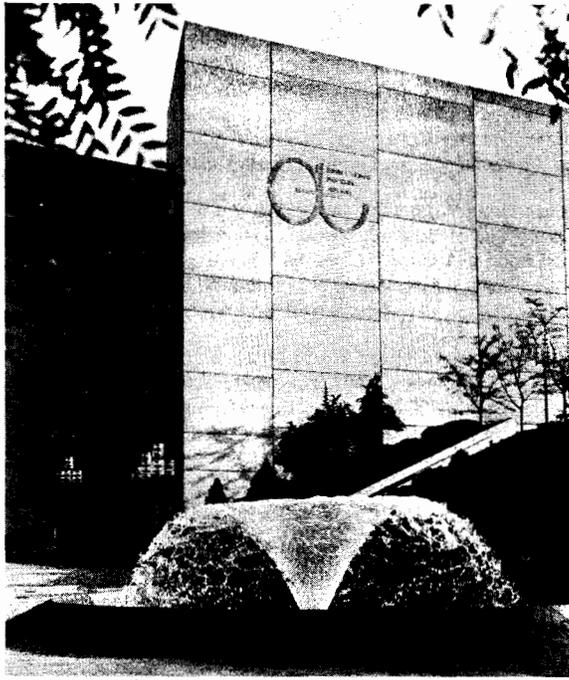
As a metropolitan institution of higher learning, the University clearly identifies and supports its public service role through a variety of off-campus programs. The University offers special institutes, workshops and courses to professional groups through the academic departments, Institute for Civic Education, Department of Special Programs and Developmental Programs.

## Wayne General and Technical College

In order to better meet the needs of citizens in Wayne, Holmes and Medina counties, the Wayne General and Technical College opened its doors in 1972 as a branch campus of The University of Akron. Six technical programs as well as the first two years of a traditional four-year liberal arts program are offered leading to one of the following degrees: Associate in Applied Science in business management technology, electronic technology, mechanical technology, retail management technology, secretarial science or social services technology.

# The Campus

During recent years, the University campus has undergone many major changes. In 1951, the University's 13 acres encompassed but 10 buildings. Presently, the campus covers 150 acres, and includes 70 buildings with plans to renovate and build additional academic, recreational and parking facilities. The campus is illuminated at night and security personnel patrol the area hourly.



## Location

The University is located in a large metropolitan area. Although the campus is centrally located within the city, the 150-acre plot is set apart from the downtown area. Students have easy access to retail outlets, transportation and churches. Automobile travelers find Akron only a short drive south of the Ohio Turnpike which ties together the whole eastern half of the nation. The city's suburbs touch on Interstate 71 that stretches from Lake Erie to the gulf coast, Interstate 76 and 80 which link the nation from the east to the west coast, Interstate 77 that links the area with the southeastern coast and Interstate 90 that ties in with the New York Thruway. Bus travelers will find the Greyhound station a short walk from the campus. Airline passengers will find Akron abundant in limousine service from the Cleveland-Hopkins International Airport, which is located in Cleveland, Ohio, and the Akron-Canton Airport located south of Akron.

## Buildings

Most of the buildings on campus bear the names of prominent persons from the area who are recognized for their contributions in administration, education, business, science or University service. Major buildings are listed below.

**Admissions Building:** This office is located at 166 Fir Hill and East Buchtel Avenue. The Office of Admissions assists students with applications, requirements and procedures for undergraduate, postbaccalaureate, graduate, professional, transient, transfer, auditing or special student. The Institute for Futures Studies and Research is located on the second floor.

**Auburn Science and Engineering Center:** Named for Norman P. Auburn, 10th president of the University, this complex is one of the largest academic buildings under one roof in the State of Ohio. The center houses the College of Engineering, the Department of Biology, the Institute of Polymer Science (research activities), the Institute for Biomedical Engineering Research, the scientific and engineering holdings of the University Library and the Library for the Division of Rubber Chemistry-American Chemical Society.

**Ayer Hall:** Named for the first dean of the College of Engineering, Frederic E. Ayer, Ayer Hall provides classrooms and offices for the mathematics and physics departments.

**Ballet Center:** This center, located at 354 East Market Street, houses dance studios, a choreography laboratory, faculty offices, the Ohio Ballet studios and offices and the Dance Institute's offices.

**Bierce Library:** Named for Gen. Lucius V. Bierce, a former Akron mayor, lawyer, historian, state senator, philosopher, investor, philanthropist and soldier, the building was constructed at a cost of \$8 million. Opened in spring, 1973, the University Library has total holdings here and at several other locations of over 1,800,000. The facility also houses the University Archives, an audio-visual center, Instructional Media Distribution Center, a microfilm department, a map room, the Archives of the History of American Psychology and the American History Research Center.

**Buchtel Hall:** Originally built in 1870, this structure was destroyed by fire in 1899 and rebuilt in 1901 (Buchtel Hall II). The administrative center of the campus, Buchtel Hall (III) was completely restored in 1973 following a devastating fire in 1971. It is the University's last remaining link with its predecessor, Buchtel College. It provides office space for numerous administrative officials of the University.

**Carroll Hall:** Adjacent to the Gardner Student Center, Carroll Hall houses classrooms, laboratories and offices for the Departments of Counseling and Special Education, Geography, Developmental Programs and Computer Based Education as well as the University's Planning Department, audio-visual services, electronic systems engineering and the Learning Resources Center.

**Central Services Building:** This building, located at 185 South Forge Street, houses the administrative service departments of central stores, duplicating and the mail room.

**Computer Center:** Purchased and renovated in 1981 for \$1,300,000, this building is located at 185 Carroll Street and houses the University's computer center offices, main computer and workrooms, as well as student and faculty keypunch areas and time-sharing terminals.

**Continuing Education Center:** The Lisle Buckingham center was renovated in 1979 at a cost of \$2.8 million. The building houses offices for the executive dean of Continuing Education and Public Services, Adult Resources Center, Equal Employment Opportunity office, Department of Special Programs, Institute for Civic Education, Nursing Home Training Center, Law School Clinical Program, as well as a lecture hall and general classrooms.

**Crouse Hall:** Crouse Hall houses the Department of Geology, classrooms and some offices for the College of Education.

**Davis Gallery:** Named in honor of Professor Emeritus of Art Emily H. Davis, the gallery opened in November, 1974, at 181 East Exchange Street, to provide cultural programs in the visual arts, a showcase for the artistic achievements of students and faculty and the finest exhibitions available of professional artwork.

**East Hall:** Located on South Union Street, the hall houses the University nursery school, International Students Center, Black Cultural Center and University Honors Program.

**Firestone Conservatory:** Located on the first floor of Guzzetta Hall, this facility provides classrooms, practice rooms and offices for music.

**Gardner Student Center:** This complex was named for Donfred H. Gardner who was appointed dean of men in 1926, named the University's first dean of students in 1937, in 1955 named the University's first dean of administration and later, in 1959, promoted to vice president. He retired in 1962. This facility, which serves as a unifying force in the life of the institution, houses nearly 80 percent of all nonacademic activities on campus. It provides space for bowling alleys, meeting rooms, lounges, student activity and publication offices and work-rooms, game and billiard room, University Bookstore, bank facilities, the Gardner Theatre and cafeteria and dining facilities.

**Gladwin Hall:** Housing the College of Nursing, allied health and biology laboratories, this newly constructed building was named in honor of distinguished alumna, Mary E. Gladwin (1887), who rendered unparalleled service as a war nurse. A \$10 million complex opened in 1979, adjacent to Knight Chemical Laboratory, the facility includes a multi-purpose nursing laboratory, simulated six-bed hospital containing surgical-labor delivery suite, nursery suite and a well-patient clinic.



**Guzzetta Hall:** Complementing the Edwin J. Thomas Performing Arts Hall, this facility was constructed directly across from Thomas Hall on Hill Street. The \$5.5 million structure dedicated in October, 1976, houses the dean of the College of Fine and Applied Arts, and the Departments of Communication, Music and Theatre Arts and Dance. In addition to providing more than 40 student practice rooms, the complex houses an impressive multi-media center, a small experimental theatre and a 300-seat recital hall.

**Hower House:** Located on Fir Hill, the 112-year-old mansion has been designated as an Historic Place by the National Park Service.

**Knight Chemical Laboratory:** This new \$10 million complex is named in honor of Dr. Charles M. Knight who taught the first courses in rubber chemistry in Buchtel College as early as 1908. Opened in 1979, the building features numerous innovative laboratories with the latest, most sophisticated, safety equipment along with classrooms and faculty and administrative offices.

**Kolbe Hall:** Recognized by its colonnade arch, this complex was named for the first president of the Municipal University of Akron, Parke R. Kolbe. It houses the University Theatre, instructional media offices and studios, as well as classrooms and offices for the College of Business Administration and the Departments of Environmental Studies and Social Work.

**Leigh Hall:** Named in honor of Warren W. Leigh, first dean of the College of Business Administration, the facility located on East Buchtel Avenue houses the College of Business Administration. *John S. Knight Auditorium*, located on the street level, is the site of many programs open to both campus and community.

**McDowell Law Center:** Named for C. Blake McDowell, prominent local attorney, alumnus and benefactor of the University, the center houses the School of Law. Opened in 1973 at a cost of \$2.5 million, it provides space for the 130,000-volume law library, classrooms, moot courtroom, appellate-review office, seminar rooms and faculty offices. The center is located at the corner of East Center Street and Grant Street.

**Memorial Hall:** Dedicated to the memory of Summit County men and women who died in World War II, this is the center of men's and women's physical education activities. It contains offices of the Departments of Athletics and Physical Education, the ticket sales office, two large gymnasiums, a swimming pool, Office of Sports Information and related training and classrooms.

**New South Hall:** Owned by the University of Akron's Development Foundation, this building located at 200 East Exchange Street was the Holiday Inn. Primarily a men's dormitory, the north wing houses the Department of Urban Studies, the Center for Urban Studies and the Department of Hospitality Management.

**North Hall:** Located on South Forge Street, this facility houses the administrative service departments of publications, purchasing, internal communications, public information and staff personnel.

**Olin Hall:** Named in honor of Professor Oscar E. Olin and Mr. Charles Olin. This facility was completed in May, 1975. The hall houses the dean of Buchtel College of Arts and Sciences and the following departments and institutes: Classics, Economics, English, General Studies, History, Modern Languages, Political Science, Philosophy, Sociology, Center for Peace Studies and Afro-American Studies and English Language Institute. The complex is located at the corner of East Buchtel Avenue and South Union Street.

**Edwin J. Thomas Performing Arts Hall:** Named for Edwin J. Thomas, prominent industrialist and dedicated member of the University Board of Trustees from 1952 to 1975, this unique cultural center was formally opened in 1973, costing more than \$13.9 million. Designed to accommodate concerts, opera, ballet and theatre productions, the hall is a masterpiece in

terms of architecture, acoustics and creative mechanisms. It is located at the corner of East Center and Hill Streets.

**Physical Plant Operations Center:** This building is located at 146 Hill Street adjacent to E. J. Thomas Hall and houses physical plant operations, as well as security, safety, custodial, building and equipment repair and heat and energy distribution.

**Robertson Dining Hall:** This building, located at 248 James Street, features a cafeteria and dining room for dormitory students as well as the campus infirmary, which provides health services for the University.

**Rubber Bowl:** This off-campus stadium located at 800 George Washington Boulevard, just four miles from the campus, provides the University with an artificial turf playing field, seating for 35,000, locker rooms, concessions and a press box for athletic events.



**Schrank Hall:** Named for Harry P. Schrank, long-time member and chairman of the Board of Trustees, this complex which adjoins Auburn Science and Engineering Center is composed of two academic structures and a parking deck. *Schrank Hall North* provides offices, classroom space and career placement service for the Community and Technical College. *Schrank Hall South* contains facilities for the Department of Home Economics and Family Ecology, the Department of Art and the Army and Air Force ROTC units.

**Service Building #1:** This building, at 194 East Center Street, provides commercial art studios for the Department of Art.

**Simmons Hall:** Named for Hezleton Simmons, University president from 1933 to 1951, this hall houses The University Counseling and Testing Center, the Department of Psychology, the Division of Sciences and Engineering Technology and Public Services Technology offices and laboratories. The Institute for Life-Span Development and Gerontology and the History of American Psychology Archives also occupy a portion of the building. A student interested in employment counseling and assistance will find the Office of Career Planning and Placement conveniently located in this facility.

**South Hall:** This facility provides additional studios for the Department of Art.

**Spicer Hall:** This major student contact building had renovations completed in 1975. It houses the Registrar's Office, Academic Advising Services, the Office of Student Financial Aids and Employment, University College, the Evening College and Summer Sessions, the Parking Systems Office and offices for the University auditor, controller, cashier, accounts payable and receivable and the state examiner.

**Student Mallroom:** Located on central campus, adjacent to the Gardner Student Center, this building contains mailboxes for all students.

**The University Club:** Property of The University of Akron's Development Foundation, the club at 105 Fir Hill is operated by a private corporation for the use of its members and guests. Two dining rooms and four meeting rooms make the club an ideal location for social, cultural and intellectual activities. The Office of Alumni Relations and the Department of Development are located on the second floor of the building.

**West Hall:** A renovated structure, located on the corner of East Buchtel Avenue and Grant Street, houses the Department of Communicative Disorders and the outpatient Speech and Hearing Clinic as well as classrooms and law school offices.

**Whitby Hall:** Named for G. Stafford Whitby, a pioneer in the development of polymer science, this addition to the Institute of Polymer Science (IPS) was opened in fall, 1975. Housing the academic portion of IPS, the hall was purchased, renovated and equipped at a cost of \$3.2 million. The institute's research activities continue in Auburn Science and Engineering Center.

**Zook Hall:** Named to honor George F. Zook, president of the University from 1925 to 1933. This Buchtel Avenue facility houses the College of Education and provides a lecture room that seats 260, general classrooms, a handicrafts room, a teaching demonstration classroom, a microteaching laboratory, Center for Economic Education and the Student Teaching Office.

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## Facilities and Equipment

The growth of technology has produced a need for advanced instructional facilities and equipment. In order to provide the most effective and efficient program of study the University relies upon these modern teaching aids.

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## Buchtel College of Arts and Sciences

The **Department of Biology** houses modern laboratories and equipment including advanced light microscopes (phase interference contrast, fluorescence), electron microscope (scanning and transmission), scintillation counters and physiographs; vehicles and boats are available for field work.

The **Department of Chemistry** is located in Knight Chemical Laboratories. The department offers outstanding instrumentation, such as nuclear magnetic resonance spectrometers, research grade gas chromatographs, infrared and ultraviolet spectrophotometers and other modern research tools for identification and characterization of their compounds. The University's Chemical Stores facility is located in the Department of Chemistry and maintains an inventory of more than 2,500 items including chemicals, glassware and apparatus.

The **Department of Geography** houses a modern cartographic drawing laboratory, with adjoining darkroom and major equipment rooms, a remote sensing laboratory and a selected map, air photo and periodicals research collection. Major equipment includes stereo and digital plotters, ERTS satellite transmitterscope, overhead map enlarger, field plotters, three-dimensional Perspektomat, headliner and varityper, industrial

camera, vacuum frame and map scale changer. A laboratory for cartographic and spatial analysis equipped with a remote computer terminal operates as a part of the department.

The **Department of Geology** has excellent field and laboratory equipment as well as seven laboratories. Among the equipment are: coal and sulfur analyzers, an oxygen bomb calorimeter, a gravimeter, refraction seismograph, magnetometers, electron microprobe with scanning electron microscope, an x-ray diffractometer, an atomic absorption spectrophotometer and a nuclide luminoscope. The department also has a darkroom, research microscopes, rock saws, thin section equipment and two four-wheel drive field vehicles.

The **Department of Mathematical Sciences** in Ayer Hall houses a microcomputer laboratory, equipped with 14 Apple II Plus microcomputers and associated peripheral equipment. The lab functions both as a teaching and service facility. Three additional microcomputer systems, two Apple II's and one Apple III, five portable terminals and a teleray terminal are also available in the department for faculty and student research.

The **Department of Physics** has instrumentation for experimental research in both high resolution and broadline nuclear magnetic resonance spectroscopy. Laboratories house experimental facilities for low-temperature solid state and polymer physics research. Studies currently in progress use or measure quantum size effects, the Shubnikov-de Hass effect, elastic and inelastic electron tunneling spectroscopy and self-diffusion in polymer systems. Other investigations use nuclear quadrupole resonance, Mössbauer effect and magnetic susceptibility measurements. Measurements of the physical properties of polymeric materials utilize the extensive facilities of the Department of Polymer Science.

The **Department of Psychology** laboratory resources include undergraduate laboratories in statistics and experimental psychology and advanced laboratories for the study of human signal detection, automobile driving, motion sickness, attention, concept formation, perceptual style, laterality differences and memory. Research areas for the study of small group behavior and a psychology clinic complete with videotape capabilities are available. The equipment and apparatus inventory currently includes a PDP minicomputer, Beckman and Grass physiographs and computerized eye movement monitors. The department also houses the Institute for Life-Span Development and Gerontology devoted to the study and assistance of the aged.

The **Department of Sociology** facilities include a five-room research and teaching laboratory equipped with audio and video equipment used for teaching demonstrations and small group research projects. The department houses a number of computer terminals and printers. The archaeology laboratories contain a variety of equipment necessary for cleaning and analyzing artifacts.

The **Department of Urban Studies** has two computer terminals interactive with the main frame in its statistics laboratory along with a number of calculators. It also has a microcomputer/word processor with its own printer.

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## Community and Technical College

The **Medical Technology** program and **Allied Health** division use facilities in Gladwin Hall. See College of Nursing in this section for a full description of facilities and equipment.

The **Business Technology** program has extensive laboratory facilities. These include four typing laboratories, a shorthand laboratory equipped with a tape dictation system, a business machines laboratory, a data management laboratory and a word processing laboratory in the Secretarial Science program. A new computer laboratory with an IBM System I computer with 16 terminals is maintained for the Data Processing program.

The **Hospitality Management** program has excellent facilities in New South Hall, a complete restaurant kitchen and dining room seating 120 people provide facilities for food service management and culinary arts and a block of hotel rooms operated by students to acquire experience in hotel/motel management.

The **Electronic Technology** program provides a circuits laboratory, electronics laboratory, control system laboratory, digital circuits and system laboratory and a facility for fabricating printed circuit boards.

The **Mechanical Technology** program maintains four drafting laboratories, a fluids and thermal laboratory, a machine shop for machine tool fabrication and a numerically controlled milling machine.

A **Manufacturing Technology** laboratory includes equipment for precision inspection and the study of robotics. A variety of surveying instruments including new electronic instruments is available for use in the Surveying program. In addition, the division has laboratories for physics courses in mechanics, electricity and heat, light and sound. A specialized laboratory for the study of chemical analysis and instrumentation methods is also available.

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## College of Education

The special education complex is located in Carroll Hall. This facility contains eight clinic rooms with provisions for observation and a demonstration classroom.

The **Department of Counseling and Special Education** operates a well-equipped instructional resource center which is directed by a full-time faculty member. This facility is affiliated with the National Media Center for the Handicapped.

The **Department of Health and Physical Education** makes use of locker rooms, gymnasiums, a swimming pool, weight room, physiology stress-testing laboratory, trainer's room, baseball and softball diamonds, soccer field, tracks, tennis courts and outdoor basketball courts.

The microteaching laboratory facilitates a program designed to provide students with clinical teaching experience. The college also operates the educational media lab directed by a full-time faculty member.

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## College of Engineering

The **Department of Chemical Engineering** not only features the usual assortment of sophisticated analytical instruments, but also a Weissenberg Rheogoniometer, analog computers and a high pressure pilot plant that complements the all-glass distillation absorption unit which is about 30-feet tall.

The **Department of Civil Engineering** staffs four major laboratories. In the environmental engineering laboratory, a student learns to analyze water and wastewater and assess its quality.

Laboratory equipment includes analytical balances, incubators, UV-visible spectrophotometers, and a total organic carbon analyzer as well as meters to determine pH, dissolved oxygen, conductivity and turbidity. Water/wastewater analytical kits and pH and dissolved oxygen meters are also available for field studies.

In the hydraulics laboratory a tilting flume enables the student to visualize water flow in streams and rivers. Models of bridges and dams can be studied; the wave tank enables a student to study the effect of waves on lakeshore erosion, harbors, marinas, breakwaters and off-shore structures; the mobile bed tank is used to demonstrate erosion and sediment deposition patterns around bridges, piers and culvert and storm drain outlets; with the flow visualization tank, a student can observe velocity profiles within the channels and around models by observing the hydrogen bubbles generated by the system.

In the soil mechanics and foundation engineering laboratory a student learns how to make various soil analyses by using triaxial cells, direct shear machines and compression machines to determine shear strength characteristics, a nuclear moisture-density device which is used in quality control during embankment construction and seismic and electrical resistivity equipment for geophysical exploration of soil and rock deposits.

In the structural materials laboratory the opportunity to observe experimental verifications of earlier training on the behavior of structural members subjected to tension, compression, bending and torsion is accomplished with the use of three universal testing machines, an MTS closed-loop system which has a loading capacity to 300,000 pounds and two Instron dynamic testing machines which can be used in either uniaxial or torsional loading. The laboratory also features a specially stiffened floor which is used for conducting bending tests of large steel and reinforced concrete beams as well as large size wall panels used in prefabricated construction. A student also has the opportunity to utilize multichannel strain indicators, oscilloscopes, x-y plotters and magnetic amplifier systems.

Facilities in the **Department of Electrical Engineering** include: laboratories and equipment for the study of propagation, lasers, antennas, microwaves, digital and analog controls, basic electronics and electrical machinery.

The **Department of Mechanical Engineering** laboratories feature a stress analysis laboratory equipped with polariscopes, strain gauges, instrumentation for dynamic and static strain measurement and photographic darkroom facilities; a vibration and acoustics laboratory equipped with sound pressure level meters, dynamic shakers, frequency analyzers and an anechoic chamber; a system and control laboratory equipped with fluidic control systems and various other instrument simulation and control devices; a heat transfer laboratory equipped with a Scott Thermal Conduction System, radiation and temperature measurement system and various heat exchangers; a thermal and fluid sciences laboratory equipped with subsonic and supersonic wind tunnels, internal combustion engines, compressors, gas turbine engine and various other devices.

Equipment within the department includes a two-channel constant temperature anemometer (Thermo Systems), a SAICOR correlation and probability analyzer, a high-speed movie camera, a nitrogen laser, an Ampex FM tape recorder, several chart recorders and two EAI analog computers.

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## College of Fine and Applied Arts

The **Department of Art** provides a complete studio environment which includes easels and drawing boards; a ceramics studio with pottery wheels and kilns; a metalsmithing/jewelry laboratory offering casting and fabricating equipment; photographic lights; tools and darkroom facilities; weaving looms; a printmaking workshop and a sculpture shop with equipment for construction with wood, metal, clay, plaster, stone and foundry work including bronze and aluminum. The Graphic Design/Commercial Art studio is a complete visual communications facility with typesetters, plate makers, typesetters, stat cameras, enlargers, laminators, a Diazo machine, Colorease proofing system and an offset lithographic press. The department's Apple II computers are used to further develop student potential and keep current with new trends in the art field. Continuous visual exhibitions are housed in the Emily Davis Gallery and the Guzzetta Hall Atrium Gallery.

The **Department of Communication** features a classroom/studio equipped with color cameras, lights, monitoring and control boards, slide and film chain and audio studio and video tape recorders. Radio facilities, located within WAUP-FM, include audio control boards, turntables, studios and a newsroom. In addition, the department now maintains a media editing/production laboratory/classroom.

The **Department of Home Economics and Family Ecology** has food and nutrition laboratories, an executive dining room and textile conservation and clothing laboratories and a human resource center. Within the department is a multi-purpose lecture/laboratory area designed for demonstration and study in the areas of home management, equipment, home computers, home nursing, consumer education, housing, interiors, home furnishings and community involvement.

The **Department of Music** utilizes the recital hall which houses a 45-stop Mohler pipe organ. The University has available for student use a number of wind, string and percussion instruments. \$50,000 worth of equipment is available to complement instrumentation for the marching and symphony bands and the University Orchestra. The department also owns a Neupert harpsichord, a harp, a nine-stop tracker organ, a Mohler practice organ, a computer-based instructional laboratory of 10 Apple computers with sound synthesizers, an electrophonic piano laboratory and 11 Baldwin concert grand pianos for the recital hall, classrooms, teaching studios and 40 practice rooms (acoustical sound modules).

The **Department of Social Work** offers professional training to social work students by linking them to a variety of health and human services community agencies and organizations in this area. The strong commitment and interaction with a network of agencies in the community serves as a laboratory for our students.

The **Speech and Hearing Center**, the practicum training arm of the Department of Communicative Disorders, functions as a service agency for persons in the Akron community who have speech, language, or hearing problems.

The **Department of Theatre Arts and Dance** utilizes three uniquely different performing spaces to present its annual season of eight to ten productions. Home base is in Guzzetta Hall, which houses the versatile "black box" experimental theatre as well as rehearsal, teaching and shop facilities. Kolbe Hall is the site of the 244-seat University Theatre, complete with support facilities. This conventional proscenium theatre is the home of both theatre productions and dance recitals, as is the multi-

purpose E.J. Thomas Performing Arts Hall where two departmental productions are presented each year. The newly renovated Firestone Conservatory houses extensive studios for the dance program.

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## College of Nursing

The **College of Nursing**, housed in Gladwin Hall, has a multi-purpose nursing laboratory (a simulated six-bed hospital) containing a surgical-labor delivery and nursery suite. Additional equipment includes a complex cardiac monitoring system with wall oxygen and suction equipment. The clinical assessment laboratory permits a student to examine well clients in a clinic-like atmosphere. Support facilities feature an independent study laboratory with 35 carrels, a graduate research room, media viewing room and a psychiatric nursing laboratory.

This complex also has two microbiology laboratories connected to an inoculation room, media-prep room, autoclave and labware washroom. There is also a standard anatomy and physiology laboratory and an audio-tutorial laboratory with 60 audio-visually-equipped carrels.

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## Computer Center

The **Computer Center** is centrally located on campus and provides computational support to those academic efforts of research and instruction where such support is feasible, and administrative data processing to assist in the conduct of the business of the University.

The center is equipped with two IBM computers, a 3033 U and a 370/158, for general computing. A variety of peripheral equipment is attached to these computers including magnetic tape drives, disk drives and remote terminals. There is also a PRIME 850 computer which is dedicated for support of the College of Engineering Graphics Laboratory. An IBM 3881 Mark Sense Reader creates computer-readable tapes from specially marked forms providing fast and reliable data entry for test scoring services and surveys.

The center also has widely used computer languages, e.g., FORTRAN, COBOL, PL/1, RPG, BAL, BASIC, PASCAL, GPSS, SAS, SPSS, APL, ADEPT, as well as some lesser known, e.g., SNOBOL, FORMAC, WATFIV, ASSIST, XPL, ALGOL, PHOENIX, SIMSCRIPT, etc.

Plotting may be done using either a Gould electrostatic plotter or a 30-inch CalComp plotting machine. Other types of equipment available for general use by qualified faculty and students include a digitizer, tektronics graphics terminal, keypunch machines and a variety of general purpose terminals which interact with the computer under the VSPC online system.

The academic systems section assists the student and faculty in making effective use of the Computer Center. It provides consultation and help in preparing usable computer programs and in analysis and solution of problems where the use of the computer is indicated. It will also acquire and install pre-packaged programs for specific departments.

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## Learning Resources

The **Center for Computer Based Education (CBE)** is located in Carroll Hall 325B and offers coursework in English, chemistry, mathematics and foreign languages and conducts seminars for faculty to orient them towards and encourage them to use CBE and the emerging technology. It also provides those faculty who wish to integrate instructional computing into their curriculum with assistance in designing, developing, implementing and evaluating CBE courseware.

**Instructional Media** incorporates the departments of Audio-Visual Services, Electronic Systems and the Instructional Television Center.

Audio-Visual Services contains a centralized collection of instructional materials (filmstrips, slides, etc.) for the purposes of supplementing University professors' lectures. An extensive collection of moveable media-hardware and mediated-software is housed in the audio-visual area for faculty and student use. Audio-Visual Services also prepares original artwork and photographic materials used by instructors for reinforcement of classroom learning principles. Electronic Systems complements the sophistication required by the Audio-Visual Services and the Instructional Television Center in the areas of facilities planning, installation of satellite learning resource areas and the maintenance of electronics equipment.

The Instructional Television Center functions as an effective teaching tool through continuous production of lectures originating from the center's studio. These are transmitted via 24 video channels and 15 audio channels to most classroom buildings on the University campus from the Instructional Media Distribution Center.

The **Learning Resources Center (LRC)** is located in Carroll Hall 200. The LRC is equipped with 36 active learning carrels and 24 table study stations. The center is under supervised operations for an average of 50 hours weekly for the student to meet the natural sciences requirement.

Equipment available includes a wide assortment of slide, film and film-strip projectors; audio-cassette-headphone equipped playback units; two- and three-dimensional biological and geological models; maps, charts, etc.; and mineralogical specimens available for "hands-on" experiences. Study units are also available in elementary statistics for mathematics, phonetics for speech pathology; financial management for the Community and Technical College student and calculus of functions of a single variable and partial derivatives.

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Student Services  
and Activities

# Student Services

The Office of Student Services is a major division of the University, the purpose of which is to provide the help needed for the student to develop academically, personally and socially. Special services are also available to the non-traditional adult student who wishes to continue studies in higher education. There are several facilities which help to accomplish this objective.



## Student Development

Concerned with each student's University experience, this office provides a wide range of resources, programs and professional counseling to assist the student with individual growth and to aid the student in becoming involved and accepting responsibility within campus organizations. The office provides leadership and skill-building workshops for all students throughout the year. These workshops aid in enhancing the ability of each student to participate effectively.

The office has current information about all campus organizations and their activities. It will provide assistance to a student wishing to explore the range of opportunities existing at the University which will enrich the person's individual development and, in turn, University experience.

## Student Financial Aid and Employment

This office, a part of the Division of Student Services, provides assistance to people who, without financial aid, might not be able to attend the University. Six professional staff members are available to provide such assistance.

A detailed statement regarding all financial assistance programs can be found in **Section 3** of this *Bulletin*.

## Career Planning and Placement

Career placement assistance is available to the student in business, industry, government, private agencies and education. The office is located in Simmons Hall.

For the graduating student, opportunities are provided for interviews with on-campus representatives of prominent businesses, industries and branches of government, including the military services and education at the primary, elementary and secondary levels. Information on careers in both administration or teaching at the college and university level is available. In addition, direct job referrals are made to registrants; credential files are maintained and mailed upon request; company literature is available and career planning is provided.

The facilities and services of this office are for students as well as alumni. More than 400 interviewers come to the University each fall and spring to interview degree candidates.

## Student Health Services

Due to increased numbers of University students, expanded health service facilities immediately adjacent to the residence halls are provided. First aid services and limited medical care are available in the health services and an infirmary area is provided for 12 inpatients. A registered nurse is on duty 24 hours a day, except vacations and holidays.

A residence hall student receives bed care for up to 72 hours, without charge. Students receiving bed care longer will be charged the daily rate which is currently charged by local hospitals for similar services.

The student who becomes seriously ill or suffers a serious injury on campus should be taken to an emergency ward of one of the local hospitals without delay. Those persons present in this kind of emergency should call Security or an ambulance immediately. The University assumes no legal responsibility or obligation for the expenses of such transportation or for medical services at the hospital.

The University constructs every facility with high safety standards and carries out this principle of maintaining physical security for its students by following stringent accident prevention measures. However, the University assumes no responsibility for student accidents incurred while attending or participating in classroom, gymnasium or laboratory work.

Student health and accident insurance designed specifically for a student is required of all residence hall students and all international students except those who present proof of similar coverage. Other students may purchase this insurance at the annual individual rate. The student insurance provides coverage for such items as hospitalization, surgical benefits and in-hospital medical benefits.

In order to identify existing or potential health problems, a *Health History Profile* form is included in the packet containing other admission forms and information. Explanations for completion and mailing of this form are included. Completion of this form is essential.

The completed health form and other health-related records are treated as confidential and are kept in the Student Health Services offices.

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## Student Legal Programs

This office represents an innovative and unique approach to providing necessary, but limited, legal assistance to the student. While not providing the type of legal counseling that may be considered to be the practice of law, this office does provide assistance, guidance and referral with respect to private rights which a student believes exist.

In addition to limited legal counseling, this office offers programs and activities which expose the student and others to legal concepts which specifically affect the student and which affect citizens generally.

Reports of student misconduct are directed to this office and in all cases of alleged student misconduct this office attempts to guarantee to the student the elements of procedural and substantive due process of law, thereby affording a fair and equitable procedure by which to determine the validity of misconduct charges.

This office also coordinates reference inquiries about a student for purposes of employment, transfer to another university or for other reasons. Since the collection, maintenance, use and dissemination of information concerning a student is a task which must balance the individual's "right to privacy" with the University's and the community's "right to know," this office is sensitive to the concept of confidentiality and the rights of a student with regard to records.



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## Counseling and Testing

The center provides psychological counseling, therapy and testing without charge to any student enrolled for credit as well as to faculty and staff.

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### Counseling Service

The center's Counseling Service offers assistance in the following areas:

- Career counseling involves discovering one's interests, needs, values, aptitudes, abilities and goals; relating these to the world of

work; exploring appropriate major subjects and career fields. A library of occupational information materials is available for use in connection with career exploration.

- Personal-emotional counseling deals with feelings of loneliness, inadequacy, guilt, anxiety and depression; harmful involvement with alcohol and drugs; interpersonal relationships especially with the immediate family, dating partners and roommates; personality development, identity and self-esteem.
- Educational counseling relates to educational goals, motivation, attitudes, abilities and the development of effective study habits and skills.
- Group educational programs are offered in such areas as self-awareness and personal growth, improving grades, career counseling, improving relations with others, communications and listening skills, midlife career change and understanding and accepting an individual's sexuality.
- Consulting services deal with: concerns of non-traditional students; understanding individual and group behavior; problem-solving and decision-making skills; communication and human relations skills; referral for social, psychological and medical services; and counseling psychology theory and technique.

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## Testing Service

The center's Testing Service offers a variety of testing programs such as the American College Test, the Admissions Testing Program of the College Entrance Examination Board, foreign language placement testing, Graduate Record Examination, Miller Analogies Test, Law School Admissions Test and the College Level Examination Program (successful completion of CLEP tests can be substituted for certain course requirements of the University College).

In addition, individual testing is offered in conjunction with counseling. Such tests cover vocational interests, aptitudes, achievement, personality, assessment of learning disabilities, etc.

The Counseling and Testing Center is located in Simmons Hall. Counseling service, individually or in groups, is available by appointment or on an immediate basis, when necessary.



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## Bierce Library

Bierce Library is divided into two major segments: the main library on East Buchtel Avenue and the Science-Technology Division in Auburn Science and Engineering Center 104.

There are over 1,800,000 books, pamphlets, pictures, government documents, microforms, maps, records, audio tapes, films, filmstrips, slides and archival materials in the library. In addition, the library subscribes to over 4,300 periodicals. Through the University's membership in the Center for Research Libraries, interlibrary loan activities and reciprocal borrowing arrangements with other Ohio academic libraries, Bierce Library can provide the student with access to vast resources.

A student identification card serves as the library card. Group study rooms and photocopying services are available.



## Residence Halls

The Office of Residence Halls has the responsibility for providing comfortable, safe and healthy living accommodations for the non-commuting student. The residence hall program is committed to providing a living experience which contributes to the educational, social and personal development of each resident student.

The University residence hall program is administered from the Office of Residence Halls located on the first floor of Bulger Residence Hall. Presently the dorm system includes 16 facilities housing approximately 2,500 students from 17 states and several foreign countries.

Living in each hall is a trained head resident and selected returning students who serve as resident assistants. Most of the halls are fully air-conditioned and feature semi-private rooms with bathroom facilities on each floor. Recently acquired residence halls, that were formerly apartments, house more students per unit and include private bathroom facilities. The rooms are furnished with beds, desks, chairs, bookshelves, closets, storage space, lamps, wastebaskets, drapes and pillows. A student is *not permitted* to bring pets.

The dormitories have coin-operated washers and dryers as well as lounge and study areas. A dormitory resident can have a car on campus but must purchase and display a student parking permit. There are open parking lots adjacent to the halls as well as a deck below the Robertson Dining Hall.

## Robertson Dining Hall

A student who lives in the residence halls must participate in

the board plan. A residence hall occupant receives a meal ticket, which is not transferable, entitling the holder to 20 meals per week in the dining hall. Meals are served cafeteria style with an "unlimited seconds" policy. Meals are planned under the supervision of a professional dietician.

## Cost: Room and Board

The current rate for housing accommodations and food service is \$2,180 per year (\$1,090 per semester).

Housing accommodations are also available during the summer on a limited basis. The charges are: per night, \$5.50; per session, \$176; and for the entire summer school period, \$352. These prices reflect the cost of rooms only. A student is responsible for meals.

To the extent that any surplus space should ever become available in University residence halls or housing, the University shall enforce a rule requiring occupancy of such facilities by a student attending the University.

## Residence Hall Program Board (RHPB)

RHPB is a student-operated programming organization whose purpose is to provide a variety of social activities for residence hall students. RHPB's seven standing committees: major events, musical entertainment, telecom, media, publicity, technical and special features sponsor a diverse array of activities such as Freshman Orientation, Little Sibs Weekend, Dorm Week, dances, mini-concerts, contests, talent shows, movies, Spring Break Florida trips and trips to sports events.

## Residence Hall Radio Station (WRHA)

WRHA is the residence hall radio station: 590 AM. The station is staffed entirely by students and participation is open to all University students.

## Residence Hall Student Council Government

Residence Hall Council (RHC) is the major governmental body for residence hall students. The purpose of RHC is to facilitate communication among students, faculty and administration; to provide services for the residence hall community and to plan educational and recreational activities to enhance residence hall living.

RHC consists of executive officers and representatives from each individual residence hall. Each residence hall has its own hall government responsible for supporting and enriching hall environment and sponsoring group activities for its residents.

## Residence Halls

	Number of Residents
Alpha Gamma Delta House (women) 464 E. Carroll Street	52
Batrick Hall (women) 421 E. Carroll Street	24

Berns Hall (men and women) 503/505 Vine Street	106
Bulger Hall (men)	491
Buchtel Avenue Complex	
Grant Residence Center	470
Highrise (women) 151 Wheeler Street	
Townhouses (men and women) Sherman and Grant Streets	
James Street (graduate women) 277 James Street	12
Mitchell Hall (women) 419 E. Carroll Street	19
New South Hall (men) 200 E. Exchange Street	461
Orr Hall (women)	124
Buchtel Avenue Complex	
Ritchie Hall (women)	96
Buchtel Avenue Complex	
Sisler-McFawn (women)	126
Buchtel Avenue Complex	
Spanton Hall (women)	316
Buchtel Avenue Complex	
Spicer Residence Hall (graduate men) 300 Spicer Street	8
Sumner Hall (women) 430 Sumner Street	43
Thompson Hall (women) 261 Spicer Street	39
Torrey Hall (men) 282 Torrey Street	63

experiences. Resource people from the community are invited to the school to share their talents and vocations. The program emphasizes positive self-image, racial awareness and anthropological differences among people. Children must be between the ages of two and one-half through six years, and tuition is \$1.10-\$1.35 per hour. Registration is handled on a per-semester basis for all parents and space is allotted hourly on a "first-come" basis.

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## Ecumenical Campus Ministry

The Ecumenical Campus Ministry is a cooperative enterprise supported by many Protestant and Roman Catholic churches, working together to proclaim the Christian Gospel to and within the academic community. The church cooperates with the University in shaping values, in creating awareness of self-identity and in providing intellectual preparedness for tasks relating to God and his children. Thus the campus ministry programs focus on all facets of the academic community—faculty, students, staff—through discussion groups, worship celebrations, retreats, social projects, personal counseling and reflection.

A student is invited to share in this ministry through participation in any of its programs and services. The Catholic campus ministers are available at the Newman Center, 143 South Union Street (north of Olin Hall); and the Protestant minister is available at the AGAPE Center, 263 East Mill Street.

A priest is available to all of the Eastern Orthodox faith at the Greek Orthodox Church of the Annunciation adjacent to the campus at 129 South Union Street.

There are synagogues in the city for the student of orthodox, conservative and reformed Jewish faith. The Akron Jewish Center, located on the west side of the city, provides cultural opportunities for all students and residents of the city.

Many of the extracurricular groups have a faith as a focal point of the organization. These are listed in the student handbook, the *A-book*.

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## Hourly Pre-School

The Hourly Pre-School is open to children of a student or faculty member while they are in class or studying. The curriculum covers planned, spontaneous and facilitated experiences for children and is supervised by trained teachers and aides. Opportunities are provided for youngsters to engage in arts, language arts, table toys, socio-dramatic play, rug toys, science exploration, sandbox and water play. Field trips provide real life

# Extracurricular Activities

Learning through research papers, classes and experiments is equally as important to students as the learning experience obtained through social life. It is with pride that the University offers great opportunities for student involvement through over 180 different student activities.

Offerings range from athletics to communications and publications, from recognition societies and honoraries to personal interest groups, from performing arts groups to religious organizations and from academic department interest clubs to social fraternities and sororities. These activities have a common goal of providing an opportunity for new acquaintances and contacts with various people in the University and community.

There are other benefits. Extracurricular activities and participation in campus life provide the chance to broaden classroom learning experiences, develop skills that will be marketable in the eventual search for a career position, expand horizons into additional interests and learn leadership and human relations skills.

These are some of the most popular activities. A complete listing may be found in the student handbook, the *A-book*.



## Performing Arts

Opportunities are abundant for the interested student to develop the ability to face the public through live audience performances such as plays, debates, recitals and dance, as well as media presentations through radio, television and film.

A student who aspires to act, write or produce in theatre is encouraged to attend auditions and to apply for technical positions. The experimental theatre in Guzzetta Hall is one of the most flexible theatre designs to date. The University Theatre in Kolbe Hall, with its intimate proscenium stage, is the scene for many University productions.

Those interested in mass media-communication will find that Guzzetta Hall contains fully-equipped television and radio stations. A student may participate in the operation and broadcast of public radio station, WAUP (88.1). Also available is experience at the residence hall station, WRHA. In addition to speaking and broadcasting opportunities, forensic and debate teams compete locally and nationally.

A University student interested in music may audition for membership in the famous 250-piece Marching Band, the Concert Choir, the Jazz Pops Vocal Ensemble, the award-winning Jazz Ensemble, the University Orchestra, the select Student/Faculty Chamber Orchestra, the Symphony Band, the outstanding Opera Theatre, the Evening Chorus which performs regularly with the Akron Symphony Orchestra or any number of other small or specialized musical ensembles or clubs.

A final opportunity in the area of Performing Arts is offered in ballet. The organization is the Experimental Dance Ensemble, which is intimately associated with the world-renowned Ohio Ballet.

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## Sports

The University aims to provide a broad and diversified program in intercollegiate club sports and intramural sports. The student, regardless of athletic success or experience, is urged to participate.

A wide variety of intramurals ranging from flag football to tennis, is offered. On the intercollegiate level, the University participates in 16 sports during the three major athletic seasons. Fall includes football, soccer, men's and women's cross country and women's volleyball. Winter offers men's and women's basketball, swimming and riflery. Spring intramurals are men's and women's track, baseball, golf, men's and women's tennis and women's softball.

Athletic clubs, among others, include the nationally acclaimed Karate Club and the Ski Club.

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## Departmental Organizations

In order to enhance and expand classroom learning, many academic departments sponsor organizations which provide social and educational programs in a particular field of study. Speakers, Career Nights, associations with professional societies and projects to sharpen professional skills are a few of the activities these organizations sponsor.

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## Personal Interest Organizations

From political organizations to chess tournaments, the personal interest organizations cover a wide range of activities and interests.

Some of the most prominent, broad-appeal groups are: Associated Student Government (ASG), the representative government for the day undergraduate which provides student input into University governance and recommends budget allocations to campus organizations; Black United Students offers enrichment for the Black student supplemented through Black History Month, orientation programs for the Black student, African Awareness Week and other cultural programs; the Residence Hall Program Board schedules entertaining activities such as coffeehouses, dances, films and video entertainment in order to fill residence hall leisure time.

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## All-Campus Advisory Boards

In addition to organizations, there are opportunities for students to hold a position on a number of all-campus advisory committees. These groups, while technically not organizations, are open to interested students and function as organizations with the same benefits for their members.

One of these, the Campus Activities Board (CAB), strives to present a unique and diverse package of events to all University students, with an emphasis on cultural and educational events and festivals. Stressing a cooperative relationship with other campus organizations, CAB will train interested students in the presentation of campus activities. Highlights of each collegiate year include CAB's annual Renaissance Fayre in December and its annual Native American/Indian Festival in April. Lectures, theatrical presentations, concerts, dance performances, film screenings and exhibitions are some of the other presentations highlighted by the Campus Activities Board.

The Gardner Student Center presents another opportunity through Student Center Programming (SCP). SCP is an activities board responsible for providing social and recreational activities and programs for all students who use the Student Center.

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## Student Publications

*The Buchtelite* is a student newspaper issued twice weekly during the regular academic year. This is the campus "voice" with news, columns and photographs describing campus events. Copies of each edition are distributed to students free of charge at various spots on campus.

The *Tel-Buch* is a yearbook with comprehensive editorial and photographic coverage of student life at the University. This impressive publication of approximately 300 pages is free to students in attendance during the school year which the yearbook is capsulizing.

*Nite-Life* is a monthly publication with news of interest to students in the Evening College. Each year 10 issues are distributed to students.

*Arete* is composed of journals and newsletters produced by law students to advance the goals of the profession, present opinions of contemporary issues related to law and to facilitate communication among law students.

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## Directory of Student Organizations

July 1983

### Athletics

Cheerleaders  
Frisbee Club  
Gymnastics Club  
Intramurals — Men's, Women's  
Karate Club (Tae Kwon Do)  
Ski Club  
Table Tennis Club  
Water Ski Club

### Communications and Publications

Akros (literary magazine)  
Amateur Radio Club  
*The Buchtelite* (newspaper)  
Forensic Union  
*Tel-Buch* (yearbook)  
WRHA  
Women in Communications

### Departmental Organizations

Accounting Association  
Administrative Management Society  
American Chemical Society  
American Institute of Chemical Engineers  
American Society of Civil Engineers  
American Society of Mechanical Engineers  
American Society for Personnel Administration  
Biology Club  
Collegiate Nursing Students  
Computer Science Club  
Council for Exceptional Children  
Data Processing Club  
Der Deutsche Studentenklub  
Electronics Club  
Finance Club  
Geography Club  
Industrial Management Student Association  
Institute of Electronic and Electrical Engineers  
International Food Service Executive Association  
Johnson Club (English)  
Le Cercle Francais Universitaire  
Math Club  
Medical Assisting Club  
Medical Technology Club  
Philosophy Club  
Psychology Club  
Slavic Club  
Social Work League  
Society of Physics Students  
Student Art League  
Student Dietetic Association

### Evening College

Alpha Sigma Lambda  
Chi Sigma Nu  
Evening Student Council  
Gamma Beta  
*Nite-Life* (newspaper)  
Phi Beta Sigma Fraternity, Inc.

### Graduate Student Groups

Chinese Student Association  
Graduate Student Council

### Association of College Honor Society Members

Alpha Kappa Delta (sociology)  
Alpha Lambda Delta (freshmen; 3.5 full-time enrollment toward bachelor's degree)  
Eta Kappa Nu (electrical engineering)  
Kappa Delta Pi (education)  
Kappa Omicron Phi (home economics)  
Mortar Board (seniors-scholarship, leadership, service)  
Omicron Delta Kappa (student activities)  
Phi Alpha Theta (history)  
Phi Eta Sigma (freshmen)  
Pi Delta Phi (French)  
Sigma Delta Pi (Spanish)  
Sigma Pi Sigma (physics)  
Tau Beta Pi (engineering)

### Other Honor Societies

Alpha Alpha Alpha (social work)  
Beta Gamma Sigma (business administration)  
Delta Phi Alpha (German)  
Financial Management Association Honor Society  
Mu Kappa Tau (marketing)  
Omicron Delta Epsilon (economics)  
Phi Theta Kappa (Community and Technical College)  
Pi Mu Epsilon (mathematics)

### Professional Fraternities

Alpha Epsilon Rho (broadcasting)  
Beta Alpha Psi (accounting)  
Delta Nu Alpha (transportation)  
Delta Sigma Pi (business)  
Lambda Alpha Epsilon (criminal justice)

National Student Speech and Hearing Association  
Phi Delta Kappa (education)  
Pi Lambda Theta (education)

### Recognition Societies

Gamma Theta Upsilon (geography)  
Honors Club  
Kappa Kappa Psi (band)  
Pi Kappa Delta (forensic)  
Pi Sigma Epsilon (marketing)  
Tau Beta Sigma (band)

### Law Groups

ARETE  
Black American Law Students Association  
Bracton's Inn  
International Law Society  
Law Association for Women's Rights  
Phi Alpha Delta Law Fraternity  
Student Bar Association

### Military Recognition Societies

Arnold Air Society — AFROTC  
Pathfinders — Army ROTC  
Pershing Rifles — Army ROTC  
Silver Wings

### Performing Arts

Choral Ensembles  
Jazz/Pops Singers  
Men's Glee Club  
Opera Theatre  
Symphony Chorus  
Concert Choir  
Women's Glee Club  
Experimental Dance Ensemble  
Instrumental Ensembles  
Brass Choir  
Chamber Orchestra  
Jazz Ensemble  
Jazz Sextet  
Percussion Ensemble  
Marching Band  
University Orchestra  
University Steel Drum Band  
Symphony Band  
Wind Ensemble  
Woodwind Choir  
University Theatre Guild

### Personal Interest

Advertising Association  
Akron Simulation Society  
American Congress on Surveying and Mapping  
Arab Students Organization  
Associated General Contractors  
Associated Student Government  
Black United Students (BUS)  
Campus Campaign for Reproductive Rights  
Center for Concern  
Chess and Go Club  
Chinese Martial Arts Club  
College Republicans

Democrats Club  
Future Physicians Club  
Gospel Chorus  
Hellenic Club  
Indian Students Association  
International Affairs Society  
International Students Club  
Malaysian Students Organization  
Minority Business Students Association  
Nigerian Student Union  
Outing Club  
The Palestine Club  
Pre-Law Club  
Public Relations Student Society of America (PRSSA)  
Residence Hall Council  
Residence Hall Program Board  
Senior Class Board  
Stargate  
Student Toastmasters Club  
Turkish-American Student Association  
Vietnamese Student Club

### Religious Organizations

The Alpha Omega Christian Fraternity  
American Friends Service Committee  
Baha I Club  
Baptist Student Union  
Ecumenical Christian Association  
Intervarsity Christian Fellowship  
Kappa Phi Club  
Students for Christ  
True Vine Campus Ministry  
University Christian Outreach (formerly Bread of Life)

### Social Fraternities

Alpha Phi Alpha  
Delta Tau Delta  
Lambda Chi Alpha  
Phi Beta Sigma  
Phi Delta Theta  
Phi Kappa Psi  
Phi Kappa Tau  
Phi Sigma Kappa  
Pi Kappa Epsilon (Lone Star)  
Sigma Nu  
Sigma Pi  
Tau Kappa Epsilon  
Theta Chi  
Interfraternity Council

### Social Sororities

Alpha Delta Pi  
Alpha Gamma Delta  
Alpha Kappa Alpha  
Chi Omega  
Delta Gamma  
Delta Sigma Theta  
Kappa Kappa Gamma  
Sigma Gamma Rho  
Theta Phi Alpha  
Zeta Phi Beta  
Panhellenic Council

## 3

Admissions, Requirements,  
Procedures and Cost

# Admissions

Admission is necessarily limited by the University's capacity to provide for the student's educational objectives. The University reserves the right to approve admission only to those individuals whose ability, attitude and character promise satisfactory achievement of University objectives.



## Recommended High School Courses

Students should pursue the following college preparatory curriculum:

- 4 units of English
- 3 units of mathematics
- 3 units of science
- 3 units of social science
- 3 units of a foreign language

Applicants intending to major in business, computer science, engineering, natural science or statistics should take a fourth year of high school mathematics. Appropriate preparation for natural science or engineering includes biology, chemistry, physics and a fourth year of science if available. It is strongly recommended that students interested in nursing complete additional credits to those required in mathematics and science.

The high school courses mentioned above are *recommendations* not requirements. Because of variations in degree requirements for different majors, the recommended high school courses may differ. Students may obtain specific high school course recommendations by major area of study from the Office of Admissions.

Students whose preparation differs from that recommended by the University or for those who show a deficiency in English or mathematics will be required to take developmental courses in that area. Developmental courses do not count as degree credit; however, they do count toward full-time status.

## Classification of Students

With an enrollment of approximately 26,000, The University of Akron has several classifications of students seeking an edu-

cation according to their own needs and abilities. Classifications include:

- **Undergraduate** — A student who has not earned the baccalaureate degree and is eligible to enroll in undergraduate-level credit courses.
- **Postbaccalaureate** — A student who holds the baccalaureate degree from an accredited institution, who is eligible to enroll in credit courses on the undergraduate level and who has not been admitted to the Graduate School. A postbaccalaureate student applies for admission to the college (Arts and Sciences, Education, etc.) where undergraduate credit is to be earned.
- **Graduate** — A student who holds the baccalaureate degree from an accredited institution, has been admitted to the Graduate School and is eligible to enroll in graduate-level credit courses.
- **Professional** — A student who holds the baccalaureate degree from an accredited institution and has been admitted to the School of Law.
- **Special Student** — A student who does not meet the regular admissions requirement but qualifies by certain abilities or maturity and is admitted by the dean after special petition.
- **Auditor** — A student who wishes to enroll in a course without obtaining a grade-point value ("A-F") or a grade of noncredit or credit. A student must indicate that the student is an auditor at the time of registration. Audit status may be denied if space is not available. An auditor is expected to do all prescribed coursework except the writing of examinations.
- **Transient** — **(from another institution)** A student who is regularly enrolled and eligible to continue at another institution, and who desires to enroll at The University of Akron for specified courses.
  - **(from the University of Akron)** A student enrolled at the University of Akron who must obtain written permission from the dean of the student's college before enrolling (transient student status) for credit work at another institution. Credit for such work may be granted at the discretion of the dean.

## Admission Procedure

The University of Akron operates under a policy of rolling admissions which means an applicant receives a letter of admission as soon as all credentials are received. There is no set date for notification of admission; it is an ongoing process. However, it is advisable for a prospective student to submit all credentials as early as possible to be assured the best selection of classes and/or a room in the residence halls.

Admission procedures vary slightly for different types of students. The various admissions categories include: recent high school graduate, adult student, transfer student, postbaccalaureate student, special student, transient student and international student. For information on admission to Graduate School, see **Section 5** of this *Bulletin*.

## Recent High School Graduates

A recent high school graduate should apply for admission as follows:

- Obtain an application form from the Office of Admissions. If your request is by mail, use this address: Office of Admissions, The University of Akron, Akron, OH 44325. Fill it out and return it as soon as possible with the non-refundable application fee (a one-time charge). All checks should be made payable to: The University of Akron, and should specify what fees and for which student payment is being made.
- At the time of application, a student transcript must be sent to the Office of Admissions. This record must be received before any admission action can be taken by the University.
- The University requires enrollment in basic mathematics and/or English if the student's academic adviser determines that deficiencies

exist in one or both of these areas. This recommendation will be based on the following: work completed at a previous institution in mathematics and/or English, high school academic record (if available), standardized test results (ACT or SAT if available), and University mathematics and/or placement test results. If a mathematics or English placement test is deemed necessary to comply with this policy the student must take the appropriate placement test(s) in mathematics and/or English by the completion of your first term of attendance. In order to arrange for the mathematics test contact the Testing Bureau, Simmons Hall 161, at 375-7084. The English test can be taken by contacting the Department of Developmental Programs, Carroll Hall 210, at 375-7087. Have test score(s) interpreted by contacting the dean of the University College, Spicer Hall 214, at 375-7066 two days after taking the appropriate test(s). Please note that failure to take the required test(s) prohibits enrollment in college-level mathematics and/or English courses.

- A health record will be sent from the Office of Admissions after the student has been admitted. Please complete the form and return it. This provides the University with the information necessary for a complete health record on every student.
- In the letter of admission to the University, directions for academic counseling will be explained. All freshmen receive academic advisement through Academic Advising Services of the University College. The evening student at the same level will be advised by the Evening College.

## Adult Students

An adult student who has graduated from a regionally-accredited Ohio secondary school or completes the GED test is eligible to enroll.

The following application procedures should be followed:

- Obtain an application form from the Office of Admissions. If your request is by mail, use this address: Office of Admissions, The University of Akron, Akron, OH 44325. Fill it out and return it as soon as possible with the non-refundable application fee (a one-time charge). All checks should be made payable to: The University of Akron, and should specify what fees and for which student payment is being made.
- **If the student is under 25 years of age** the student must request a transcript from the local high school. This official record must be received and evaluated before admission action can be taken.
- **If the student is under 21 years of age** the student must submit results of either the ACT or SAT. (The University of Akron's Counseling and Testing Center serves as a testing center for the ACT test.) These test scores are needed before an applicant is formally admitted to the University.



- A health record will be sent from the Office of Admissions after the student has been admitted. Please complete the form and return it. This provides the University with the information necessary for a complete health record on every student.
- In the letter of admission to the University, the student will receive directions concerning academic counseling. All freshmen receive academic advisement through Academic Advising Services of the University College. Evening students at the same level will be advised by the Evening College.

## Transfer Students

A student applying for admission who has formerly attended another institution of higher learning is eligible to transfer to The University of Akron if the student is eligible to re-enter the institution from which transfer is desired; and the student presents scholastic records judged to be satisfactory by University of Akron officials. The assessment of scholastic records may include consideration of prior courses, grade point average, credit value and other such factors which the University or individual colleges use in evaluating, ranking or otherwise determining admissibility to the University or to specific programs.

A transfer student should apply as follows:

- Obtain an application form from the Office of Admissions. If requested by mail, use this address: Office of Admissions, The University of Akron, Akron, OH 43425. Fill it out and return it as soon as possible with the non-refundable application fee (a one-time charge). All checks should be made payable to: The University of Akron, and should specify what fees and for which student payment is being made.
- A transfer applicant must request official transcripts from the records office of all institutions previously attended. The transcripts should be mailed to the Office of Admissions.
- A student under 25 years of age and with fewer than 12 credits of accredited transfer work must submit a high school transcript or GED scores along with the college transcript(s). A student under 21 years of age and having fewer than 12 transfer credits must submit results from the ACT or SAT test in addition to a high school transcript or GED scores. If it appears necessary to validate the transfer credits of a student with more than 12 credits, the appropriate admitting officer may require the ACT battery for this person also. These documents must be received and evaluated before any admission action can be taken by the University.
- The University requires enrollment in basic mathematics and/or English if the student's academic adviser determines that deficiencies exist in one or both of these areas. This recommendation will be

based on the following: Work completed at a previous institution in math and/or English; high school academic record (if available); standardized test results, ACT or SAT (if available); and, university mathematics and/or English placement test results.

If a mathematics or English placement test is deemed necessary to comply with this policy, the student must: Take the appropriate placement test(s) in mathematics and/or English by the completion of first term of attendance. (Arrange for the mathematics test by contacting the Testing Bureau (Simmons 161, 375-7084); arrange for the English test by contacting the Department of Developmental Programs (Carroll 210, 375-7087); and, have test score(s) interpreted by contacting the dean of the University College two days after taking the appropriate test(s).

Please note that failure to take the required test(s) prohibits enrollment in college-level mathematics and/or English courses.

- A health record will be sent from the Office of Admissions after the student has been admitted. Please complete the form and return it. This provides the University with the information necessary for a complete health record on every student.
- In the letter of admission, the student will receive directions concerning academic counseling. University College freshmen and some sophomore day students receive academic advisement through Academic Advising Services of the University College. A student in the Community and Technical College or a degree-granting college will be advised by a faculty member in the appropriate department.

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## Postbaccalaureate Students

A student who holds the baccalaureate degree from an accredited college and wishes to continue educationally but has not been admitted to the Graduate School, should apply as a post-baccalaureate student through the Office of Admissions.

This procedure should be followed:

- Obtain an application form from the Office of Admissions. If requested by mail, use this address: Office of Admissions, The University of Akron, Akron, OH 44325. Fill it out and return it as soon as possible with the non-refundable application fee (a one-time charge). All checks should be made payable to: The University of Akron, and should specify what fees and for which student payment is being made.
- A postbaccalaureate student must request the registrar of the institution(s) from which the student graduated to send an official and complete transcript. These documents must be received and evaluated before any admission action can be taken by the University.
- A health record will be sent from the Office of Admissions after the student has been admitted. Please complete the form and return it. This provides the University with the information necessary for a complete health record on every student.
- In the letter of admission, the student will receive information on registration and instructions for academic counseling by a faculty member in the appropriate department.

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## Special Students and the High School/College Program

A special student is one who does not qualify for regular admission to the University or who is participating in a special short-term academic program.

A special student may not take more than 15 credits unless official status as a regular student is gained.

This procedure should be followed:

- Obtain a special student application from the Office of Admissions.
- A student presently enrolled in high school must also submit written permission from either the high school principal or guidance counselor to participate.

- Information regarding registration for classes and academic advisement will be forthcoming in the letter of admission to the special student program.

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## Transient Students

An undergraduate transient student must apply to the Office of Admissions. A graduate student must apply through the dean's office of the Graduate School.

A transient student may not, as a general rule, attempt more than 16 credits in any semester or session and is subject to all rules and regulations of The University of Akron.

The following procedures should be followed when applying to the University as a transient student:

- Obtain a transient student application from the Office of Admissions, The University of Akron, Akron, OH 44325. Complete it and return it with the non-refundable application fee (a one-time charge).
- Receive advice and written approval by the home institution of the coursework for which the student plans to enroll.
- After admittance, information regarding registration will be received. The admissions officers act as transient student counselors, and one day of open registration is set apart for transient students to register for classes.

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## International Student Program

The University of Akron welcomes qualified students from other countries and seeks to make their educational experiences pleasant and meaningful. During the 1982-83 academic year, approximately 713 students with citizenship other than the United States attended the University. These students represent 83 countries and are pursuing studies in a number of major fields.

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## Admission Procedures

Applicants from abroad can be admitted to the University only in September, the beginning of the academic year. All admission requirements should therefore be completed by July 1 preceding the September in which the student desires to enroll.

The following application procedures should be followed:

- Obtain an international student application form from the Office of Admissions. If your request is by mail, use this address: Office of Admissions, The University of Akron, Akron, Ohio 44325 USA. Fill it out and return it with the non-refundable application fee (a one-time charge).
- Submit official transcripts from all secondary or middle schools and all universities attended previously. Original records in languages other than English must be accompanied by exact English translations.
- International students must also complete an autobiographical essay to be included with the application. This essay should cover any significant personal, occupational and educational experiences.
- Proof of English language proficiency. The University requires each student for whom English is not the native language to participate in the Test of English as a Foreign Language (TOEFL). This test is administered throughout the world in major cities. Applications may be obtained from bi-national agencies, USIS offices or by applying directly to Educational Testing Service, Princeton, NJ 08540. Because it normally takes six to eight weeks for the University to receive the results of the TOEFL, the student is encouraged to take the examination in October or January. The University cannot guarantee the

student who takes the examination in March that the records will be processed completely before the July 1 deadline. The English Language Institute at the University also offers a program in English for the student who has not reached the level of proficiency required for full admission. A student who has not yet taken or passed the TOEFL can still enroll in the English Language Institute.

- Proof of adequate financial support. An international student is requested to submit a *Declaration and Certification of Finances* showing that the student has sufficient funds to cover the cost of the student's education while attending the University and that these funds will be available to the student in this country. It is estimated that an international student will need a minimum of \$7,500 per year for undergraduate and graduate study for tuition and living expenses while attending. Immigration regulations prevent a student from earning any substantial portion of this amount. There are virtually no scholarships available to an undergraduate from abroad, although a graduate student may request and often receives financial aid through fellowships and graduate assistantships. A graduate student interested in applying for this aid should request the necessary forms at the time of application for admission to the Graduate School. Each international student will be held responsible for obtaining and maintaining appropriate health and accident insurance coverage while enrolled at this institution. This insurance coverage is mandatory.



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## Orientation

The international student is required to attend a special orientation program which begins two weeks before classes. The schedule for orientation will be mailed with the *Certificate of Eligibility* (I-20) from the international student adviser. During orientation, the international student is given an English language placement examination in addition to the proficiency examination overseas. The student may be required to participate in noncredit English classes if it is felt the results of this placement examination warrant such action.

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## English Language Institute

The University offers an intensive English Language Institute for the international student whose command of the English language has not reached a level of proficiency to enable the student to begin full-time coursework. The English Language Institute operates on a schedule of two 15-week semesters and a summer session. An applicant is required to pass a language proficiency test before the student can be admitted.

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## Special Note

The University has a director of International Programs, a full-time international student adviser and instructors of *English as a Second Language*. If an international applicant has questions about housing, climate or immigration regulations, the student is encouraged to contact the international student adviser directly.

The University is a member of The National Association for Foreign Student Affairs.

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## Special International Education Programs

The University sends students to different parts of the world as part of its continuing program — *Classrooms Around the World*. This program, offered for graduate or undergraduate credit, began in 1960.

# Procedures and Requirements

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## Orientation

The first major contact the new student has with the University after having been admitted comes during an orientation period held prior to the beginning of each semester. During orientation, the student learns a great deal about the University and about what it expects from the student. The student will meet many of the University's administrative officers and faculty members and discuss particular problems and questions with an upper-college student. In this way, the student will have an opportunity to become acquainted with the University and clear up many of the questions which arise when embarking on a new enterprise.

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## Counseling

During orientation, and each term thereafter, a student meets with a counselor individually to discuss progress to date and the next logical step in the progression of the academic program. The counselor and student together review the areas of success as well as the problems which have been encountered in previous terms in order to determine what courses the student's academic record calls for in future terms. Also the two then plan a schedule of courses to be taken during the next term.



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## Registration

Each term it is necessary for a student to select courses, complete necessary forms and pay the appropriate fees. This formal process is called registration.

The student may elect to register by mail or in person. Details relative to each of these options are described in the *Schedule of Classes* published every academic period and available

upon request from the student's advising agency: Office of Academic Advising Services, Evening College or degree-granting college. A non-refundable late registration fee is assessed registrants enrolling after the official open registration period.



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## Class Attendance

A student is expected to attend all class meetings for which registered. A student may be dropped from a course by the dean if absence is repeated and the instructor recommends this action; a student can gain readmission only with permission of both.

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## Student Schedules

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### Modification of Student Schedules

A student must register for a course before the end of the first week of the term. Alterations in the schedule of courses registered for can be made only with the permission of the dean or the dean's designate.

A day student in the University College and a first-term student in the Community and Technical College should make all changes through an adviser in the Office of Academic Advising Services, Spicer Hall; an evening student in these colleges should contact the Evening College Office, Spicer Hall.

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### Withdrawal Policy

A student may withdraw from a course up to the midpoint of the course with the signature of the student's adviser. After midpoint of a course, a student must have the written approval of both the course instructor and the student's adviser in order to withdraw. Such approval must be dated and processed through the offices of the Registrar and the Cashier prior to the final examination period. Should the instructor or adviser refuse to sign the withdrawal form, the student may appeal to the dean of

the student's college, who shall make the final decision after consultation with the instructor and adviser who declined to approve the withdrawal.

An approved withdrawal will be indicated on the University official academic record by a "W." A student who leaves a course without going through the withdrawal procedure will be given an "F" in the course.

A student may be dropped from a course by the dean if absences are repeated and the instructor recommends this action. A dismissed student may gain readmission only with the permission of the instructor and the dean. A student dropped from a course receives an "F" which counts as work attempted whenever grade-point ratio calculations are made.

## Transfer Credit

Coursework taken at an institution of higher education in the United States of America which is fully accredited or has been granted candidacy status by Middle States Association of Colleges and Schools/Commission on Higher Education (MSA/CHE); New England Association of Schools and Colleges (NEASC); North Central Association of Colleges and Schools (NCA); Northwest Association of Schools and Colleges (NASC); Southern Association of Colleges and Schools - Commission on Colleges (SACS); Western Association of Schools and Colleges - Accrediting Commission for Senior Colleges (WASC-Sr.); Western Association of Schools and Colleges - Accrediting Commission for Community and Junior Colleges (WASC-Jr.) as designated in *Accredited Institutions of Postsecondary Education - Programs/Candidates* as published for The Council on Postsecondary Accreditation (COPA) by the American Council on Education will be listed on The University of Akron official academic record. Each course will reflect the course number, title, grade and credit value; no grade-point value will appear on the record and no grade-point average will be calculated for the coursework listed; however, grade point average may be considered for purposes of evaluating, ranking or otherwise determining admissibility to the University or to specific programs. In addition, the name of the institution will be listed on The University of Akron official academic record as well as the time period during which the courses were taken.

For courses which have been taken at an institution of higher education noted in the reference document above, the dean of the college in which the student intends to obtain the degree will specify which courses listed, other than general studies, will apply toward the degree requirements at the University. This specification will be made at the time the student enters the degree-granting college. The dean of the University College will specify which courses listed will apply toward the general studies requirements when the student enters the University.

## Transient Student

A University of Akron student may take coursework at another institution of higher education as a transient student. For all courses other than general studies, the student must obtain prior written permission from the dean of the college in which the student is enrolled; for general studies courses, prior written permission must be obtained from the dean of the University College. These courses will be listed on the University official

academic record. Each course will reflect the course number, title, grade and credit value; no grade-point value will appear on the record and no grade-point average will be calculated for the coursework listed. The name of the institution will be listed on the University official academic record as well as the date that the coursework was taken.

## Credit by Examination

A student interested in earning credits by special examination may do so with the permission of the dean of the student's college and the dean of the college in which a particular course is offered and by payment of the Special Examination Fee. The grade obtained in such an examination is recorded on the student's permanent record. Credit by examination is not permitted in the semester before graduation. Credit by examination may not be used to repeat for change of grade.

## Bypassed Credit

Certain courses designated in the General Bulletin by each department enable a student to earn "bypassed" credit. A student who completes such a course with a grade of "C" or better is entitled to credit for designated prerequisite courses which carry the same departmental code number. Credit for such bypassed prerequisites shall be included in the total credits earned but shall not count in the quality point ratio, class standing or hours required for graduation with honors. Bypassed credit is not awarded on the basis of completing a course either credit-by-examination or credit/noncredit.

	Course	Prerequisite	Approved for Bypassed Credit
<b>University College</b>			
	1100:112	1100:111	1100:111
<b>Community &amp; Technical</b>			
Mathematics	2020:132	2020:131	2020:131
Analysis	2020:233	2020:132	2020:131,2
	2020:334	2020:233	2020:131,2 and 233
Secretarial	2540:151	2540:150	2540:150
Science	2540:253	2540:151	2540:150,1
	2540:254	2540:151	2540:150,1
	2540:173	2540:171	2540:171
	2540:274	2540:173	2540:171,173
	2540:276	2540:274	2540:171,173,274
	2540:277	2540:274	2540:171,173,274
<b>Buchtel College of Arts and Sciences</b>			
Classics	3210:122	3210:121	3210:121
	3210:223	3210:121,2	3210:121,2
	3210:224	3210:121,2	3210:121,2
	3220:122	3220:121	3220:121
	3220:223	3220:121,2	3220:121,2
	3220:224	3220:121,2	3220:121,2
Economics	3250:400	3250:201,2	3250:201
	3250:410	3250:201,2	3250:202
Geography	3350:314	3350:210	3350:210
	3350:326	3350:220	3350:220
	3350:428	3350:220	3350:220
	3350:436	3350:230	3350:230
	3350:438	3350:230	3350:230
	3350:442	3350:240	3350:240
	3350:444	3350:240	3350:240
	3350:495	3350:210	3350:210
Mathematical Sciences	3450:112	3450:111	3450:111
	3450:121	3450:112	3450:111,2
	3450:212	3450:211	3450:211
	3450:221	3450:148 or 149	3450:149
	3450:222	3450:221	3450:149,221

	3450:223	3450:222	3450:149.221.2
	3460:210	3460:201	3460:201
	3470:252	3470:251	3470:251
	3470:253	3470:252	3470:251.2
Modern	3520:102	3520:101	3520:101
Languages	3520:201 or 207	3520:102	3520:101.2
	3520:202	3520:201	3520:101.2.201
	3520:208	3520:201 or 207	3520:101.2.201 or 207
	3520:301.2.5.6	3520:202	3520:101.2.201.2
	3520:309.10	3520:302 or 306	3520:101.2.201.2
	3520:312.351.2.		
	401	3520:202	3520:101.2.201.2
	3520:403.4	3520:302	3520:101.2.201.2
	3520:407.411.415.		
	419.427.450	3520:302 or 306	3520:101.2.201.2
	3530:102	3530:101	3530:101
	3530:201 or 207	3530:102	3520:101.2
	3530:202	3530:201	3530:101.2.201
	3530:208	3530:201 or 207	3530:101.2.201 or 207
	3530:301.2.305.6		
	351.2	3530:202	3530:101.2.201.2
	3530:403.4	3530:302	3530:101.2.201.2
	3530:406.7.419.20.		
	431.2.435.6.		
	439.440	3530:302 or 306	3530:101.2.201.2
	3550:102	3550:101	3550:101
	3550:201 or 207	3550:102	3550:101.2
	3550:202	3550:201	3550:101.2.201
	3550:208	3550:201 or 207	3550:101.2.201 or 207
	3550:301.2.305.6	3550:202	3550:101.2.201.2
	3570:102	3570:101	3570:101
	3570:201 or 207	3570:102	3570:101.2
	3570:202	3570:201	3570:101.2.201
	3570:208	3570:201 or 207	3570:101.2.201 or 207
	3570:301.2.305.6.		
	309.10	3570:202	3570:101.2.201.2
	3570:403.4	3570:302	3570:101.2.201.2
	3570:420.1	3570:301 or 302	3570:101.2.201.2
	3570:427.8	3570:202	3570:101.2.201.2
	3570:439	3570:404	3570:101.2.201.2
	3580:102	3580:101	3580:101
	3580:201 or 207	3580:102	3580:101.102
	3580:202	3580:201	3580:101.2.201
	3580:208	3580:201 or 207	3580:101.2.201 or 207
	3580:301.2.305.6	3580:202	3580:101.2.201.2
	3580:403.4	3580:302	3580:101.2.201.2
	3580:407	3580:302 or 306	3580:101.2.201.2
	3580:409.10.11	3580:302	3580:101.2.201.2
	3580:415.419	3580:302 or 306	3580:101.2.201.2
	3580:422	3580:202	3580:101.2.201.2
	3580:423.427.8	3580:302 or 306	3580:101.2.201.2
Philosophy	3600:374	3600:170	3600:170

#### Nursing BSN-RN Sequence

(Limited to Licensed Registered Nurses)

8200:420	8200:101.305.	8200:320.400
	405.415	

## Grade Policies

### Credit/Noncredit Option (undergraduate and postbaccalaureate only)

A student who takes a course on a "credit" or "noncredit" ("CR/NC") basis, and who earns a grade equivalent of "A" through "C-," shall receive credit ("CR") for the course and have the grade, "CR," placed on the permanent record; a grade equivalent of "D+" through "F" will be recorded with the non-credit grade, "NC."

A student who has completed 50 percent of the number of credits required for a degree with a grade-point average of at

least 2.30, shall be allowed, with the consent of an adviser, to take one free elective (not in major field)\* course per term on a "CR/NC" basis.

With the consent of the student's adviser, the first or second year of foreign languages may be taken on a "CR/NC" basis at any time the student is registered, regardless of the grade-point average.

No more than 16 credits of non-language courses and no more than 20 credits in total, including language courses, may be taken on a "CR/NC" basis (for an associate degree, half this number is permitted).

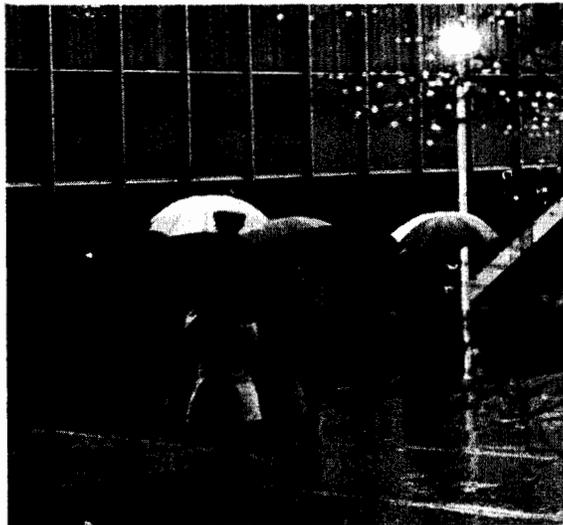
The election to take a course on a "CR/NC" basis can be made *only* at the time of registration for that course. A student who elects to take a course on a "CR/NC" basis cannot withdraw and register to take that course for a letter grade after the first week of that term. The registrar will notify the instructor by means of the final class list of students who have elected to utilize the "CR/NC" option.

Courses for which "CR" is awarded will be counted as *hours completed* only; courses for which "NC" is awarded shall *not* be counted as *hours attempted*; in neither case shall "CR" or "NC" be considered in calculating grade-point average, but in both instances the course shall be entered on the student's official academic record.

A student may repeat a course for credit ("CR"), or a grade ("A-F") after receiving a grade of "NC."

A college may, due to a closed class problem, designate in the printed schedule, on an annual basis, a course as not available to be taken on a "CR/NC" basis.

A student taking a course on a noncredit basis is expected to meet the full requirements of the course as required by the instructor.



### Re-Examination

A student may not request re-examination in order to raise a grade.

\*Free electives are defined for the present purposes as courses other than those required for all undergraduate students for graduation by their respective colleges, or by their major department.

## Repeating Courses

Any course may be repeated as many times as necessary by an undergraduate student subject to the following conditions:

- In order to secure a grade ("A-F") or a grade of "NC," "CR" or "AUD," a student may repeat a course in which the previously received grade was "C-," "D+," "D," "D-," "F," "AUD" or "NC." Registrations under the "CR/NC" option are subject to the restrictions in the "CR/NC" policy.
- The student must repeat the same course within 12 months of the completion of the prior attempt unless given special permission by the student's dean to extend this period or substitute another course if the previous course is not longer offered. Such courses must be repeated at The University of Akron.
- Grades for all attempts at a course will appear on the student's official academic record.
- Only the grade for the last attempt will be used in the grade-point average.
- All grades for attempts at a course will be used in grade-point calculation for the purpose of determining graduation with honors and class standing.
- For purposes of this section, credit for this course or its equivalent will apply only once toward meeting degree requirements.

## Academic Reassessment

An undergraduate student who has not attended The University of Akron for at least three calendar years and re-enrolls and maintains a grade-point average of 2.50 or better for the first 24 credits may petition the dean to delete from the grade-point average the grades attained under his previous University of Akron enrollment.

This policy is to apply only to the grade-point average. All grades will remain on the student's official academic record. A student may utilize this academic reassessment policy only once.

In the determination of graduation with honors and class standing, all grades obtained at the University shall be used in the calculations.



\*Fully accredited by an appropriate regional accrediting association or which has a "G" listing in the *Transfer Credit Practices of Selected Educational Institutions*, the American Association of Collegiate Registrars and Admissions Officers.

## Discipline

Continuation as a student of the University is dependent on the maintenance of satisfactory grades and conformity to the rules of the institution.

## Grades and the Grading System

A student will receive grades on various types of classroom performance during the process of most courses and a final grade at the end of the term. At the end of the term, the Office of the Registrar mails grade reports to a student's home address; summer grade reports are mailed for both summer sessions at the end of the second summer session.

Individual tests are usually graded with percentage or letter marks, but official academic records are maintained with a grade-point system.

This method of recording grades is as follows:

Grade	Grade Points Per Credit
A	4.00
A-	3.70
B+	3.30
B	3.00
B-	2.70
C+	2.30
C	2.00
C-	1.70
D+	1.30
D	1.00
D-	0.70
F	0.00
AUD (Audit)	0.00
CR (Credit)	0.00
NC (Noncredit)	0.00

The following grades may also appear on the term grade reports or on the official academic record. There are no grade points associated with these grades.

**I** — Incomplete: Indicates that the student has done passing work in the course but that some part of the work is, for good and acceptable reason, not complete at the end of the term. Failure to make up the omitted work satisfactorily by the end of the following term, not including summer sessions, converts the "I" to an "F". When the work is satisfactorily completed within the allotted time the "I" is converted to whatever grade the student has earned.\*\*

**IP** — In Progress: Indicates that the student has not completed the scheduled coursework during the term because the nature of the course does not permit completion within a single term, such as work toward a thesis.

**PI** — Permanent Incomplete: Indicates that the student's instructor and the instructor's dean have for special reason authorized the change of an incomplete ("I") to a permanent incomplete ("PI").

**W** — Withdraw: Indicates that the student registered for the course but withdrew officially sometime after the second week of the term.

**NGR** — No Grade Reported: Indicates that, at the time grades were processed for the present issue of the record, no grade had been reported by the instructor.

**INV** — Invalid: Indicates the grade reported by the instructor for the course was improperly noted and thus unacceptable for proper processing.

\*\*If instructors wish to extend the "I" grade beyond the following term for which the student is registered, prior to the end of the term they must notify the Office of the Registrar in writing of the extension and indicate the date of its termination. It is the responsibility of the student to make arrangements to make up the incomplete work. The faculty member should submit the new grade to the Office of the Registrar in writing.

**Importance of Grades**

A student becomes either eligible or ineligible to remain at the University, according to the grade-point value of each grade for each course the student has completed. A student who maintains specified levels of scholastic achievement receives privileges to participate in extracurricular activities.

On the basis of grades, a student receives opportunities to take additional courses in order to accelerate academic progress.

A student must maintain a grade-point average of at least 2.00 ("C") and complete approximately 30 credits to be eligible to transfer to a degree-granting college from the University College. Acceptance is dependent on the approval of the dean of the college which the student chooses to enter and on academic performance to date.

To receive a degree, each student must have attained a grade-point average of at least 2.00 for all work taken at The University of Akron.

Finally, high grades are essential for a student who intends to go on to graduate work.

**Probation-Dismissal**

A student who fails to maintain a grade-point average of 2.00 ("C") is placed on academic probation and may be subject to a change of courses, suspension or some other form of discipline. Academic discipline is determined by the dean of the college in which the student is enrolled. Reinstatement of a student is determined by the dean of the college from which the student was dismissed.

Once dismissed from the University, a student is not eligible to register for credit courses until readmitted.

**Graduation with Honors**

For a student who entered the University January 1982 and thereafter who is being awarded an initial baccalaureate degree and who has completed 60 or more credits at the University, the degree

will be designated	if the overall grade-point average is
Summa Cum Laude .....	3.80 or higher
Magna Cum Laude .....	between 3.60 and 3.79
Cum Laude .....	between 3.40 and 3.59

For a student who entered the University January 1982 and thereafter who is being awarded an initial associate degree and who has completed 30 or more credits at the University, the degree

will be designated	if the overall grade-point average is
with highest distinction .....	3.80 or higher
with high distinction .....	between 3.60 and 3.79
with distinction .....	between 3.40 and 3.59

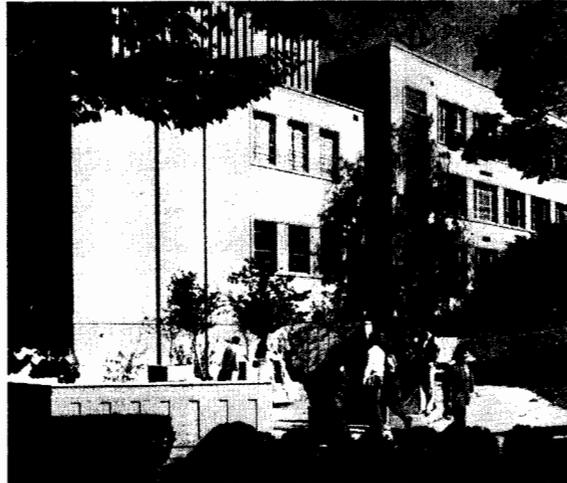
For a student who entered the University prior to January 1982 and is being awarded an initial baccalaureate degree and who

has completed 60 or more credits at the University, the degree

will be designated	if the overall grade-point average is
Summa Cum Laude .....	3.75 or higher
Magna Cum Laude .....	between 3.50 and 3.74
Cum Laude .....	between 3.25 and 3.49

For a student who entered the University prior to January 1982 and is being awarded an initial associate degree and who has completed 30 or more credits at the University, the degree

will be designated	if the overall grade-point average is
with distinction .....	3.25 or higher



**Graduation**

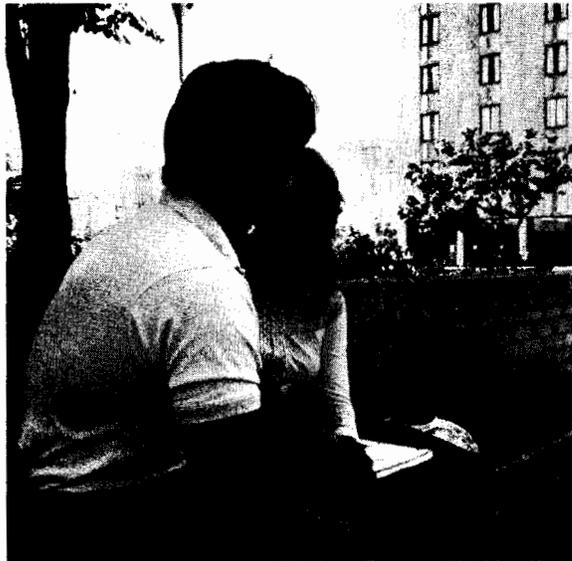
**Requirements for Baccalaureate and Associate Degrees**

A candidate for the baccalaureate or the associate degree must:

- File an application for graduation with the registrar. If the candidate plans to complete degree requirements at the end of fall semester, submit an application by or before May 15. If the plan is to complete degree requirements at the end of spring semester, submit an application by or before September 15.
- Earn a minimum 2.00 grade-point average as computed by the Office of the Registrar for work attempted at the University consistent with the *Repeating Courses* policy. The grade-point average achieved at the time of completion of requirements for a degree will be used to calculate rank in class and honors.
- Meet all degree requirements which are in force at the time a transfer is made to a degree-granting college. If the student should transfer to another major, then the requirements should be those in effect at the time of the transfer. For a student enrolled in an associate degree program in the Community and Technical College, the requirements shall be those in effect upon entrance into the program.
- Be approved for graduation by appropriate college faculty, University Council and Board of Trustees.
- Complete the requirements for a degree in not more than five calendar years from the date of transfer, as defined below. In the event the student fails to complete the degree requirements within

five calendar years from the date of transfer, the University reserves the right to make changes in the number of credits and/or courses required for a degree.

- The date of transfer for a student in a baccalaureate program will be the date that the student is accepted by the degree-granting college. For a student enrolled in an associate degree program in the Community and Technical College, the date of transfer refers to the date of entrance into the program.
- Earn the last 32 credits in the baccalaureate degree total or 16 credits in the associate degree total in residence at The University of Akron unless excused in writing by the dean of the college in which the student is enrolled.
- If a student who has transferred from another institution wishes to present for the student's major, fewer than 14 credits earned at The University of Akron, written permission of both the dean and head of the department concerned is required.
- Discharge all other obligations at the University.



### Requirements for Additional Baccalaureate and Associate Degrees

- Meet requirements given in **Section 3, Requirements for Baccalaureate and Associate Degrees.**
- Earn a minimum of 32 credits which have not counted toward the first baccalaureate degree or 16 credits which have not counted toward the first associate degree.
- Earn the above credits in residence at the University.

### Change of Requirements

To better accomplish its objectives, the University reserves the right to alter, amend or revoke any rule or regulation. The policy of the University is to give advance notice of such change, whenever feasible.

Unless the change in a rule or regulation specifies otherwise, it shall become effective immediately with respect to the student who subsequently enters the University, whatever the date of matriculation.

Without limiting the generality of its power to alter, amend or revoke rules and regulations, the University reserves the right to make changes in degree requirements of the student enrolled prior to the change by:

- Altering the number of credits and/or courses required in a major field of study.
- Deleting courses.
- Amending courses by increasing or decreasing the credits of specific courses, or by varying the content of specific courses.
- Offering substitute courses in same/or cognate fields.

The dean of the college, in consultation with the department or division head of the student's major field of study, may grant waivers in writing, in the event a change in rules affecting degree requirements operates with undue hardship upon a student enrolled before the change was effective. The action of the dean of the college in granting or refusing a waiver must be reviewed by the senior vice president and provost on his own motion, or at the request of the dean of the college of the student affected or at the request of the student affected.

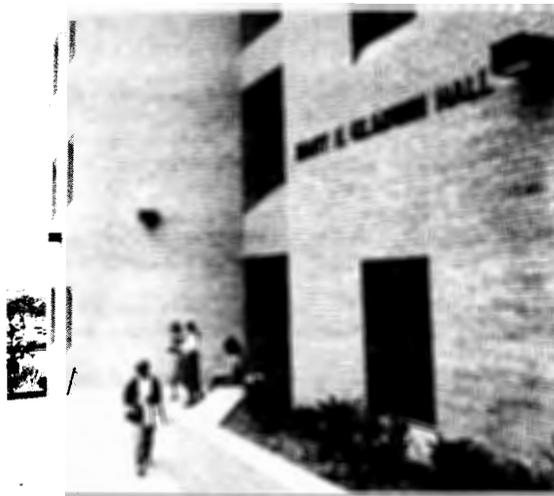
## Credit and Grade-Point Requirements for Graduation Listed by College and Degrees Granted

	Min. Cr.	Min. Grade-Point Avg. Req.
<b>Arts and Sciences</b>		
Bachelor of Science in Cytotechnology	128	2.00
Bachelor of Science in Labor Economics	128	2.00
Bachelor of Science in Political Science / Criminal Justice	131	2.00
Bachelor of Arts	128	2.00
Bachelor of Science	128	2.00
Bachelor of Science in Medical Technology	128	2.00
<b>Engineering</b>		
Bachelor of Science in Engineering	136	2.00
Bachelor of Science in Chemical Engineering	136	2.00
Bachelor of Science in Civil Engineering	136	2.00
Bachelor of Science in Electrical Engineering	136	2.00
Bachelor of Science in Mechanical Engineering	136	2.00
Bachelor of Construction Technology	136	2.00
<b>Education*</b>		
Bachelor of Arts in Education	128	2.00
Bachelor of Science in Education	128	2.00
Bachelor of Science in Technical Education	128	2.00
<b>Business Administration</b>		
Bachelor of Science in Business Administration / Finance	128	2.00
Bachelor of Science in Business Administration / Marketing	128	2.00
Bachelor of Science in Industrial Management	128	2.00
Bachelor of Science in Accounting	128	2.00
<b>Fine and Applied Arts</b>		
Bachelor of Arts	128	2.00
Bachelor of Arts in Business and Organizational Communication	128	2.00
Bachelor of Arts in Dietetics	128	2.00
Bachelor of Arts in Foods and Nutrition	128	2.00
Bachelor of Arts in Clothing and Textiles	128	2.00
Bachelor of Arts in Family and Child Development	128	2.00
Bachelor of Arts in Communicative Disorders	128	2.00
Bachelor of Arts in Theatre Arts	128	2.00

\*Grade-point average of 2.50 in major field is required.

Bachelor of Arts in Mass Media-Communication	128	2.00
Bachelor of Arts in Communication and Rhetoric	128	2.00
Bachelor of Arts in Dance	128	2.00
Bachelor of Music	128	2.00
Bachelor of Fine Arts	128	2.00
Bachelor of Arts/Social Work	128	2.00
<b>Nursing*</b>		
Bachelor of Science in Nursing	131	2.00
<b>Community and Technical</b>		
Associate of Arts	64	2.00
Associate of Individualized Studies	64	2.00
Associate of Labor Studies	64	2.00
Associate of Applied Business in:		
Business Management Technology	64	2.00
Commercial Art	64	2.00
Data Processing	64	2.00
Hospitality Management	64	2.00
Marketing and Sales Technology	64	2.00
Office Services Technology	64	2.00
Real Estate	64	2.00
Secretarial Science	64	2.00
Transportation	64	2.00
Associate of Applied Science in:		
Chemical Technology	66	2.00
Community Services Technology	64	2.00
Criminal Justice Technology	64	2.00
Drafting Technology	64	2.00
Educational Technology	64	2.00
Electronic Technology	68	2.00
Fire Science Technology	64	2.00
Handicapped Services	71	2.00
Manufacturing Technology	64	2.00
Mechanical Technology	68	2.00
Medical Assisting Technology	64	2.00
Radiologic Technology	74	2.00
Respiratory Therapy	70	2.00
Surgical Assisting Technology	72	2.00
Surveying and Construction Technology	68	2.00
Bachelor of Science in Electronic Technology	135	2.00
Bachelor of Mechanical Technology	135	2.00
<b>Wayne General and Technical College</b>		
Associate of Arts	64	2.00
Associate of Science	64	2.00
Associate of Applied Business in:		
Business Management Technology	64	2.00
Marketing and Sales Technology	64	2.00
Secretarial Science	64	2.00
Associate of Applied Science in:		
Social Services Technology	64	2.00

\*Grade-point average of 2.50 in major field is required.



## Course Numbering System

Each course at the University has two numbers. One designates the college and department of which it is a part; one specifies the subject matter of the particular course. For instance:

3300.220 English Literature

In the above example, the first four digits of the number (3300) indicate the college and department. In this case, 3000 represents the Buchtel College of Arts and Sciences; 300 refers to the Department of English. The second set of digits (220) following the colon, indicates exactly which course in the Department of English is being specified. The course number also indicates the level at which the course is being taught and the point at which the student is ready to take the course.

An explanation of that numbering system follows:

100-199	First-year-level courses
200-299	Second-year-level courses
300-399	Third-year-level courses
400-499	Fourth-year-level courses
500-699	Master's-level courses
600-799	J.D.-level courses
700-899	Doctoral-level courses

When approved 400-level undergraduate courses are taken for graduate credit, they become 500-level courses. A student must apply for and be admitted to the Graduate School to receive graduate credit.

# Fees and Expenses

## Fees subject to change without notice.

Despite the willingness of taxpayers and generous friends of the University to help support higher education, some portion of this total expense must be borne by the student. Typical costs for one year (September through May) based on an average academic load of 32 credits for the two semesters are:

	<i>Commuting Residents of Ohio</i>	<i>Residents of Ohio Living in Dorms</i>	<i>Non-Ohio Residents</i>
Undergraduate Fee for regular load	\$1,560	\$1,560	\$3,352
General Fee	328	328	328
Books (average)	250	250	250
Food and Housing in Residence Halls	—	2,270	2,270
	<u>\$2,138</u>	<u>\$4,408</u>	<u>\$6,200</u>

Following are comprehensively outlined fees for the student at the University who is studying for credit and noncredit in all areas of instruction. Included also are the additional expenses required for special academic services available to a student such as private music lessons, thesis-binding, etc.



It is the responsibility of the student to know the correct amount of all fees including the non-Ohio resident surcharge.

In any question concerning fees, surcharge or residence, it is the responsibility of the student, parents or court appointed guardian, to furnish such proof as may be required by The University of Akron. A student who is in doubt about residency status should consult with the University registrar.

It is the responsibility of the registrar to assess fees and surcharges at the time of registration; information given by the student at that time is used in the assessment. Each registration is later audited by the University auditor, and appropriate additional charges or refunds will be made.

All fees and surcharges are due at the time of registration or on the specified fee payment deadline. The status of the student

as of the opening day of the semester or session for which registered, will determine the final, correct amount of fees and surcharges.

## Fees

- **Instructional Fee (all students)**
  - Undergraduate
    - 1-14 credits \$44 per credit
    - 14-16 credits \$616 per semester
    - Over 16 credits \$616 + \$44 per credit
  - Graduate and Professional (Law)
    - 1 or more credits \$64 per credit
- **Tuition Surcharge**  
(Non-residents of Ohio pay the surcharge in addition to the instructional fee)
  - Undergraduate
    - 1 or more credits \$56 per credit
  - Graduate and Professional (Law)
    - 1 or more credits \$47 per credit
- **General Fee**
  - Undergraduate \$12 per credit to a maximum of \$164 per semester  
(Maximum general fee for two combined summer sessions is \$164)
  - Graduate and Professional (Law)
    - 1-14 credits \$5 per credits
    - 14 credits and over \$70. per semester
- **Admission Application Fee**  
(Non-refundable)
  - Undergraduate and postbaccalaureate \$25
  - Entering postbaccalaureate and graduate student 25
  - Entering School of Law student 25
  - Transient student (first enrollment only) 25
- **Special Fees**
  - Late Registration Fee**  
Charged to student who has not completed registration and paid fees before close of registration or by final date of payment 25
  - Music Fees**  
Private lessons in band instrument, organ, piano, violin and voice (in addition to normal instructional fees):
    - One-hour lesson per seek (undergraduate and graduate) 120
    - One 1/2-hour lesson per week (undergraduate and graduate) 60
  - Thesis and Binding Fees**
    - Binding (per volume) 9
    - Microfilming (for Ph.D. degrees only) 48
  - Graduation Fees (non-refundable)**
    - Each degree (except law) 25
    - Each Juris Doctor degree 40
    - In Absentia, per degree (add'l) 5
  - Department of Special Programs and ICE**  
Course charge based on number of Continuing Education Units
    - One CEU (10.0 contact hours) 33
    - Transcript fee 2
- **Miscellaneous Fees**
  - ACT Test 12
  - ACT Special Testing 21
  - Education Administration Battery 10
  - Miller Analogies Test 15
  - Transcripts
    - (If more than one copy is ordered at the same time, the fee is \$3 for the first transcript and \$1 for each additional one) 3
    - I.D., late or lost 5
  - Credit by Examination (undergraduate and postbaccalaureate) per credit 19.50
  - Student teaching fee 30
  - Locker fee (\$2 refundable fall-spring semesters) 8
  - Locker Fee (\$2 refundable, spring semester only) 5
  - Locker fee, physical education and Schrank Hall (\$2 refundable) per semester 5
  - Change of course registration (for each schedule change form processed) 10
  - Laboratory breakage and late service deposit (refundible) 15
  - "Insufficient Funds" or returned check charge 10
  - Co-op course fee 40
  - Bypassed credit, per course 5
  - CLEP (each authorization) 10

Day and Evening Care	
(per hour according to parents ability to pay)	\$1.30-1.55
Registration, per semester	10
Registration, per Summer Session	5
Registration, per combined Summer Sessions	10
Nursery School	
per term (for 3 mornings)	146.25-174.38
per term (for 4 afternoons)	195.00-232.50
Registration, per semester	10
Dance Institute	
Academic Year (3 sessions)	
advanced	864
intermediate II	900
intermediate I	864
advanced beginner	276
beginner	276
pre-schooler	140
Summer (4 weeks)	
advanced	408
intermediate II	360
intermediate I	288
advanced beginner	120
beginner	120
pre-schooler	40
Audition Fee	12
English Language Institute	
tuition fee	1,300
(Summer Sessions I and II)	900
Application Fee (effective spring semester 1982)	25
Kvam's Kinder Camp	
Enrolled Camper (total 5 week fee)	90
(half-day session, 5 days per week)	
Rental by other organizations	
rental of all facilities per diem	
(includes water safety instructor)	
group size — under 25	55
25-50	65
51-75**	85
76 and over**	110
rental of all facilities per diem	
(except swimming pool)	
group size — under 25	40
25-50	50
50-75**	70
75 and over**	85
rental of building only per diem	
group size — under 25	25
25-50	35
50-75**	55
75 and over**	70
Hower House	
Group Rental (nonmembers)	*75
House Guided Tours, adults (students, half-price)	1
• Parking Fees	
Student enrolled for 9 or more credits per semester	30
Student enrolled for 8% of fewer credits per semester	15
Summer session student, per session	10
Workshop participant	10
Department of Special Programs	
7 weeks	5 per course
15 weeks	10 per course
Off-campus Instruction Student	up to 10
Temporary Permit (per week)	2

## Room and Board

Residence hall facilities are available for the housing of a limited number of undergraduate students. The current total cost of housing accommodations and food service is \$1,135 per semester or \$2,270 per year. All students who live in the residence halls must participate in the provided 20 meals per week board plan.

A student living off campus may participate in the residence hall board program, the current rate being \$530 per semester.

\*Not applicable if \$100 or more paid to Hower House during the year.

\*\*The University will provide additional restroom facilities.

## Veterans Expenses

A disabled veteran who is eligible for admission to the University may register for courses without payment of fees if the disabled veteran has been authorized for training by the V.A. If the disabled veteran has not been authorized, payment of all fees is required. However, the University will return to the veteran the payment made when the official authorization is received.

A non-disabled veteran must pay fees at the time of registration. The non-disabled veteran will receive direct payment from the V.A. after enrollment has been certified under the provision of USC Title 38.

An Ohio Veterans Bonus Commission recipient may arrange with the Accounts Receivable Office to have the Ohio Bonus Commission billed directly for tuition charges only.

Dependents of a veteran covered under other provisions of USC Title 38 must pay fees at the time of registration. The V.A. will make direct payment to the payee.

## Auditors

The fees for an auditor in any course or group of courses are the same as if taken for credit.

## Student Health and Accident Insurance

Student health and accident insurance designed specifically for a student of The University of Akron is required of all residence hall students and all international students except those who present proof that they already have similar coverage. Other day students carrying nine or more credits, graduate students carrying six or more credits may purchase this insurance, at the same annual individual rate, through the Student Health Services Office.

# The University of Akron Residency Requirements

Payment of non-resident tuition surcharge is required of any student who does not qualify as a permanent resident of Ohio as defined by one or more of the following sections:

## 3333-1-10. Ohio Student Residency for State Subsidy and Tuition Surcharge Purposes

## Intent, Authority and Definitions

It is the intent of the Ohio Board of Regents in promulgating this rule to exclude from treatment as residents, as that term is applied here, those persons who are present in the state of Ohio primarily for the purpose of receiving the benefit of a state-supported education while insuring that the same benefit is conferred on all bona fide domiciliaries of this state whose permanent residence and legal citizenship is in Ohio, and whose actual source of financial support is subject to Ohio taxation. This rule is adopted pursuant to Chapter 119 of the revised code, and under the authority conferred upon the Ohio Board of Regents by section 3333.31 of the revised code.

For purposes of this rule a "Resident of Ohio for all other legal purposes" shall mean any person who maintains a 12-month place or places of residence in Ohio, who is qualified as a resident to vote in Ohio and receive state welfare benefits, and who may be subjected to tax liability under section 5747.02 of the revised code; provided such person has not, within the time prescribed by this rule, declared himself or herself to be or allowed himself or herself to remain a resident of any other state or nation for any of these or other purposes.

"Financial Support" as used in this rule, shall not include grants, scholarships and awards from persons or entities which are not related to the recipient.

An "institution of higher education" as used in this rule shall mean any university, community college, technical institute or college, general and technical college, medical college or private medical or dental college which receives a direct subsidy from the state of Ohio.

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## General Residency for Subsidy and Tuition Surcharge Purposes

The following shall be classified as residents of the state of Ohio for subsidy and tuition surcharge:

- Dependent students, at least one of whose parents or legal guardian has been a resident of Ohio for all other legal purposes for 12 consecutive months or more immediately preceding the enrollment of such student in an institution of higher education.
- Persons who have resided in Ohio for all other legal purposes for at least 12 consecutive months immediately preceding their enrollment in an institution of higher education and who are not receiving, and have not directly or indirectly received in the preceding 12 consecutive months, financial support from persons or entities who are not residents of Ohio for all other legal purposes.
- Persons who are living and are gainfully employed on a full- or part-time and self-sustaining basis in Ohio and who are pursuing a part-time program of instruction at an institution of higher education.

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## Specific Exceptions and Circumstances

- A person on active duty status in the United States military service who is stationed and resides in Ohio and his or her dependents shall be considered residents of Ohio for these purposes.
- A person who enters and currently remains upon active duty status in the United States military service while a resident of Ohio for all other legal purposes and his or her dependents shall be considered residents of Ohio for these purposes as long as Ohio remains the state of such person's domicile.
- Any alien holding an immigration visa or classified refugee shall be considered a resident of the state of Ohio for state subsidy and tuition surcharge purposes in the same manner as any other student.
- No persons holding a student or temporary visa shall be eligible for Ohio residency for these purposes.
- A dependent person classified as a resident of Ohio for these purposes shall continue to be considered a resident during continuous full-time enrollment and until his or her completion of any one academic degree program.
- In determining residency of a dependent student, removal of the student's parents or legal guardian from Ohio shall not, during a period of 12 months following such removal, constitute relinquishment of Ohio residency status otherwise established under item (C) (1) of this rule.
- Any person once classified as a non-resident, upon the completion of 12 consecutive months of residency in Ohio for all other legal pur-

poses, must apply to the institution he or she attends for reclassification as a resident of Ohio for these purposes if such a person in fact wants to be reclassified as a resident. Should such person present clear and convincing proof that no part of his or her financial support is or in the preceding 12 consecutive months has been provided directly or indirectly by persons or entities who are not residents of Ohio for all other legal purposes, such person shall be reclassified as a resident.

- Evidentiary determinations under this rule shall be made by the institution which may require, among other things, the submission of information regarding the sources of a student's actual financial support to that end.
- Any reclassification of a person who was once classified as a non-resident for these purposes shall have prospective application only from the date of such reclassification.
- A person who is transferred by his employer beyond the territorial limits of the 50 states of the United States and the District of Columbia while a resident of Ohio for all other legal purposes and his or her dependents shall be considered residents of Ohio for these purposes as long as Ohio remains the state of such person's domicile.
- A person who has been employed as a migrant worker in the state of Ohio and his or her dependents shall be considered a resident for these purposes provided such person has worked in Ohio at least four months during each of the three years preceding the proposed enrollment.



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## Procedures

Institutions of higher education charged with reporting student enrollment to the Ohio Board of Regents for state subsidy purposes and assessing the tuition surcharge shall provide each individual student with a fair and adequate opportunity to present proof of Ohio residency for purposes of this rule. Such institution may require the submission of affidavits and other documentary evidence which it may deem necessary to a full and complete determination under this rule.

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## Note

The registrar shall classify a student as a bona fide resident or non-resident student at the time of registration for each semester or session. The registrar may in advance of his determination seek the advice of the Committee on Residence Status.

The committee is comprised of the director of Institutional Research and Systems Development who shall act as chairman, the University registrar, the dean of the School of Law and the University auditor.

A student may appeal to the committee from a classification by the registrar that the student does not qualify as a bona fide resident, by executing and filing with the registrar a form entitled "Application for Residence Status." The registrar may transmit this form to the chairman of the committee who shall conduct a hearing on the merits of the application. The student may request on this form to appear personally before the committee on residence status. The student may thereafter appear and may employ counsel at his expense. The decision of the committee shall be final.

A student has the burden of persuasion by clear and convincing proof that the student qualifies as a bona fide resident. The committee may require the student to submit evidence in support of the statements made on the student's *Application for Residence Status*. The committee shall not be bound by the usual common law or statutory rules of evidence nor by any technical or formal rules of procedure. The committee may admit any relevant evidence in support of the student's claim or in opposition to it, and may exclude evidence that is irrelevant, cumulative or is lacking in substantial probative effect. The committee may make rules of procedure consistent with this regulation.

If a student's proper status is that of a non-resident, he shall pay non-resident tuition and interest at the rate of six percent per annum on the unpaid balance. A student who knowingly submits a false claim or knowingly gives false evidence in support of a claim commits an offense against The University of Akron and may be subject to disciplinary procedures.

**For purposes of residency determination only, enrollment of 12 credit hours or more will be considered full-time.**  
**Eff. 6-11-79**

## Regulations Regarding Refunds—Credit/Noncredit

Registration does not automatically carry with it the right of a refund or reduction of indebtedness in cases of failure or inability to attend class or in cases of withdrawal. The student assumes the risk of all changes in business or personal affairs.

### Fees Subject to Refund—Credit

Certain fees are subject to refund:

- Instructional and non-resident surcharge.
- General fee.
- Parking (only if permit is returned).
- Student teaching.
- Laboratory breakage and late service deposit.
- Residence hall fees (note: subject to special policy).

### Amount of Refund—Credit

Amount of refund is to be determined in accordance with the following regulations:

- In full
  - if the University cancels the course;
  - if the University does not permit the student to enroll or continue;
  - if the student dies before or during the term or is drafted into military service by the United States; or if the student enlisted in the National Guard or Reserve prior to the beginning of the term called to active duty, presents notice of induction or orders to Active Duty. A student who enlists voluntarily for active duty should see "in part" below.
- In part
  - less \$5 per enrolled credit to a maximum of \$50 if the student requests in writing to the dean of designate official withdrawal from all credit courses on or before the second day of the enrolled term.
  - if the student requests in writing to the dean or designate official withdrawal after the second day of the fall or spring semesters, the following refund percentages apply:
 

3 through 12 calendar days*	70%
13 through 24 calendar days*	50%
25 through 33 calendar days*	30%
Thereafter	0%
  - if the student requests in writing to the dean or designate official withdrawal after the second day of any Summer Session the following refund percentages apply:
 

3 through 7 calendar days*	60%
8 through 15 calendar days	40%
Thereafter	0%
- Refunds for course sections which have not been scheduled consistent with either the standard 15-week fall/spring semester or the five-week summer term scheduling pattern will be handled on a pro rata basis according to the number of days the section (class, institute or workshop) has been attended compared to the number of days said section has been scheduled to meet.
- Refunds will be determined as of the date of formal withdrawal unless proof is submitted that circumstances beyond control of the student prevented the filing of the formal withdrawal earlier, in which case the refund will be determined as of the last day of attendance. The student assumes responsibility for filing for a refund.
- Refunds will be mailed as soon as possible. Refund checks are subject to deduction for any amount owed to The University of Akron by the student.
- No refund will be granted to a student dismissed or suspended for disciplinary reasons.

### Amount of Refund—Noncredit

- In full less \$5
  - upon written request of the student who is officially withdrawn from any course before the first class meeting.
- In part
 

<i>Courses of 6 to 11 weeks:</i>	
After the first class meeting	60%
After the second class meeting	30%
After the third class meeting	0%
<i>Courses of 12 weeks or more:</i>	
After the first class meeting	60%
After the second class meeting	45%
After the third class meeting	30%
After the fourth class meeting	0%
- No refund on courses of less than six weeks.

Refunds will be determined by the date (postmark of written request) of formal withdrawal, unless proof is submitted that

\*If the 7th, 8th, 12th, 15th, 22nd, 24th, or 33rd day falls on Friday, Saturday or a holiday, the deadline will become the next business day.

circumstances beyond the control of the student prevented filing of the formal withdrawal earlier. In this case, the refund will be determined from the date of the last attendance in class. Refunds will be mailed within six weeks after the beginning of the session.

The University reserves the right to cancel a course should there be insufficient enrollment. A full refund will be mailed to the student within four to six weeks when a course is cancelled.

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## Residence Hall Refunds

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### Refund/Release and Forfeiture Policy

A contract for housing accommodations and food services at the University upon being breached by the student, or otherwise terminated by the University, is subject to the following refund provisions.

A full refund of any prepaid fees (including the advance \$100 rental payment\*) and release of other financial liability therefore under the following circumstances: graduation of the student from the University; academic dismissal of the student from the University; non-attendance or complete withdrawal by the student from the University prior to the start of the contract term; in the event mandatory or recommended participation in academic programs of the University require the student to commute regularly beyond the Akron metropolitan area (i.e., student teaching or co-op engineering assignments).

A partial refund of prepaid fees will be made (including the advance \$100 rental payment\*) according to the refund schedule below, and release of financial liability for subsequent terms covered by the contract term, in the event the student completely withdraws from The University of Akron after the start of the contract term. In such instances, the student shall not be liable for damages.

A partial refund of prepaid fees will be made (including the advance \$100 rental payment\*) in accordance with the refund schedule below:

- In the event the University, in its sole discretion, terminates the contract for reasons related to the orderly operation of the residence halls, or for reasons relating to health, physical or emotional safety and well-being of the student, or for reasons relating to the health, safety and well-being of the person or property of other students, faculty, staff or University property. In such instances, the student shall not be liable for damages and shall be released of further financial liability beyond the date of termination.



- In the event the student breaches the contract prior to the end of the term thereof but continues to be enrolled as a student at The University of Akron. In addition, if the student has contracted for subsequent terms beyond that term in which the contract is terminated, the student shall pay as damages for breach of the term of the contract an additional amount of \$100.
- In the event that the student is dismissed or suspended from The University of Akron for disciplinary reasons in accordance with law or rules and regulations of the Board of Trustees; or, if the student is placed on terms of disciplinary probation in accordance with law or rules and regulations of the Board of Trustees, whereby such terms of probation prohibit the student from residing in University housing accommodations.

These conditions do not release the student from financial liability for any fees which are due not later than the effective date of such termination, dismissal, suspension or probation.

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### Refund Schedule

Beginning with the first day of the fall and spring semesters, the following refund percentages shall apply for all contracts for housing accommodations and food services.

<i>Refund Inclusive Dates</i>	<i>Applicable</i>
1-12 calendar days	70%
13-24 calendar days	50%
25-36 calendar days	30%
Thereafter	0%

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### Notice Requirements

All notices of intent to break this contract must be submitted in writing to the Office of Residence Halls. If the student is a minor (under the age of 18 years), the written notification of termination must be co-signed by the student's parent or legal guardian.

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\*Advance rental payment NOT refundable to freshmen.

# Financial Aid

Financial aid programs were developed by the federal and state governments as well as by institutions of post-secondary education to assist students from families with limited resources to meet educational expenses. The primary purpose of financial aid is to insure that no one is denied the opportunity of a college education because of economic background.

When applying for financial aid at The University of Akron, the Office of Student Financial Aid and Employment determines a budget that best suits the needs of the student. The budget includes direct costs that must be paid to the University (instructional and general fees and room and board in the residence halls) and variable expenses such as transportation and personal expenses.

Generally, financial aid is provided in three forms: gift aid, loans and work. It is not unusual for a student to have all three forms of aid. This is called a "financial aid package." If a person receives a proper financial aid package, it is assumed that the family will not be expected to contribute more than is reasonable for a family member's education. The word "family" is crucial because the financial aid system assumes that the family will work together to assist a family member pay for college.

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## Sources of Aid

In order to meet the needs of the financial aid applicant there are a number of sources from which aid can be received. The following programs represent those sources of aid for which The University of Akron selects recipients and/or distributes the funds. The application(s) for these programs can be obtained at the Office of Student Financial Aid and Employment.

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### Federal Programs

#### Pell Grant

The Pell Grant is the foundation of student financial aid. The grant is awarded to the student by the federal government. After applying for the grant, the student will receive a Student Aid Report (SAR) which must be taken to the school which the student will attend. The office will then calculate the amount of the grant that will be received. The grant amount is based on the costs of the school the student attends.

#### Supplemental Educational Opportunity Grant

The Supplemental Educational Opportunity Grant (SEOG) is a federal grant that is awarded by the school the student attends. The amount of the grant is determined by the school attended, and is based on the need and the costs at that school. Entering freshmen must have a 1.75 grade-point average to be eligible for the SEOG. The following minimum grade-point average must be maintained in order to be eligible for the SEOG as a continuing student: 1.75 at the end of the first year and 2.00 at the end of the second and third years.

#### College Work-Study Program

The College Work-Study Program (CWSP) is a program that provides an eligible student with a job on campus or in a non-profit off-campus agency. Eligibility for CWSP is determined on the basis of need. The office determines the amount of money that can be earned, and places the student in a suitable job. The student and job supervisor adapt working hours to meet the student's class schedule.

#### National Direct Student Loan

The National Direct Student Loan (NDSL) Program offers low interest, long-term loans for an eligible student. Eligibility and loan amounts are

determined by the office on the basis of need. This loan must be repaid, beginning six months after ceasing to be at least a half-time student. Interest at five percent is calculated at the time repayment of the loan begins. If the student is teaching in certain fields or locations after graduation, eligibility for cancellation of all or part of the amount that was borrowed is possible. Entering freshmen must have a 1.75 grade-point average to be eligible for the NDSL. The following minimum grade-point averages must be maintained in order to be eligible for the NDSL as a continuing student: 1.75 at the end of the first year and 2.00 at the end of the second and third years.



#### Guaranteed Student Loan/Federally Insured Student Loan

This program offers low-interest, long-term loans to an eligible student. In Ohio, it is called the Ohio Student Loan. Application for the loan can be made at a bank, savings and loan or credit union. This loan must be repaid to the lender beginning six months after ceasing to be at least a half-time student. The interest on the loan is nine percent, and it is paid by the federal government while the student is in school.

#### Nursing Student Loan

Low-interest loans are available to an eligible student who is pursuing the Bachelor of Science in Nursing. These are based on need, and the amounts are determined by the Office of Student Financial Aid. These programs are generally reserved for a student who has been accepted by the College of Nursing.

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### State Programs

#### Ohio Instructional Grant (OIG)

The OIG is available to an eligible student who is an Ohio resident and is attending college in Ohio or Pennsylvania. Eligibility is based on family income. The grant is awarded by the Ohio Board of Regents. If eligible, the student will receive an award certificate which is taken to the school that the student will attend.

#### Ohio Academic Scholarship

The state of Ohio awards scholarships each year to a graduating senior from each high school in Ohio. The scholarship must be used at a college in Ohio. The amount is \$1,000 and is renewable for four years.

#### Ohio National Guard Scholarship

This scholarship is available to the student who enlists in the Ohio National Guard. Contact a local recruiter for information.

#### Ohio War Orphans Scholarship

Scholarships are available to a student whose father or mother was disabled or killed in a war. For information contact the Ohio Board of Regents.

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## University Programs

### Scholarships

The University offers scholarships to the student with high academic achievement. Academic scholarships are awarded to the continuing student as well as the outstanding high school student who plans to enroll. These academic scholarships are renewable each year based on continued high academic performance. A University Financial Aid/Scholarship Application must be submitted, but a need analysis form is not required. The majority of awards for the 1982/83 academic year ranged from \$200 to \$500.

The **Presidential Scholarship Program** was initiated for the 1975/76 academic year. At the present time, approximately 25 to 35 scholarships are awarded each year to new freshmen. For the 82/83 school year, the scholarship amount was \$1,000. This scholarship is considered to be most prestigious.

The **Honors Program** at the University awards a number of scholarships each year to new freshmen. In 1982/83, the scholarships ranged from \$500-\$900. This combination scholarship/academic program is also considered to be a most prestigious program.

### Loans

The University offers short-term loans to the student who needs temporary help in paying tuition. These loans must be repaid in full before the end of the term for which the money was borrowed. Information and applications are available at the Student Loan Office (Spicer 105).

Special long-term loans are available to selected students in certain fields who need partial help.

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## Application for Financial Aid

- To apply for the Pell Grant, National Direct Student Loan, Nursing Student Loan and the College Work-Study Program, the student must complete and submit the Financial Aid Form (FAF) to the College Scholarship Service. In addition, the student must complete a Financial Aid Scholarship Application.
- To apply for the Ohio Instructional Grant, a student must complete and submit the Ohio Instructional Grant application to the Ohio Board of Regents.
- The Guaranteed Student Loan application is secured through lending institutions such as the local bank, savings and loan associations or credit unions.
- The information sent to the College Scholarship Service through the Financial Aid Form is used to determine eligibility for: Pell Grant, National Direct Student Loan, Nursing Student Loan, Supplemental Educational Opportunity Grant, and College Work-Study Program.

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## Computation of Financial Aid

The College Scholarship Service determines what the family may be able to contribute toward the student's education; this amount is called the family contribution. Some of the key factors involved in computing the family contribution are:

- Family income.
- Family assets.
- Family size.
- Number in college.
- Medical bills.
- Unusual expenses

The difference between the cost of education and the family contribution is called the unmet need. The unmet need is the amount the Office of Student Financial Aid attempts to cover through various financial aid programs to assist a student in meeting educational costs.

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## Independent Students

An independent student is one who:

- Has not been or will not be claimed as an exemption for federal income tax purposes by either of the student's parent(s) or adoptive parent(s) for the school year in which aid is received as well as the prior calendar year.
- Has not or will not live with one or both parents or adoptive parent(s) for more than six weeks in the calendar year in which aid is received as well as the prior calendar year.
- Has not or will not receive financial support or more than \$750 from one or both of the student's parents or adoptive parent(s) in the calendar year in which aid is received as well as the prior calendar year.

The University requires that the independent student (and spouse if applicable) complete the student section of the Financial Aid Form (FAF). In addition to completing the FAF, if the independent student is 25 years of age or under, the student's parent(s) must sign an Independent Student Status Certification to document the student's self-supporting status. If the student is over the age of 25, the student may complete this form. The Independent Student Status Certification may be obtained through the Office of Student Financial Aid. This form must be completed each year for which financial aid is desired.

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## Notification of Award

A student will be notified of the aid package by a Financial Aid Proposal which will be mailed home. If accepting the proposal, the student must sign the proposal and return it to the Office of Student Financial Aid as soon as possible.

If questions arise regarding your *Financial Aid Proposal*, either call or write the office for clarification.

If denied aid, (the family contribution exceeds the cost of education), the student will be informed by mail. Advisement as to alternatives such as the Guaranteed Student Loan and/or short-term loans, will be made.

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## Distribution of Aid

Financial aid is disbursed by vouchers. The vouchers are based on full-time enrollment (12 semester credits). If the student is not taking at least 12 credits, contact the Office of Student Financial Aid so that financial aid may be adjusted.

The student is awarded aid for the entire academic year; however, the aid is disbursed proportionately each semester. A student receives a voucher for fall semester by mail during July. For spring semester, a student must pick up the voucher in the office after mid-November.

The voucher is used to assist in paying for the invoice for instructional fees; if the aid is substantial, the student can apply it toward the residence hall bill.

If the student's aid exceeds the direct costs, the difference is refunded to the student during the semester to assist with other educational expenses such as transportation, housing, etc.

A student may request a bookstore voucher to assist in purchasing textbooks. This voucher is an advance on the expense check. It is available one week before classes begin.

The remainder of the expense money is issued to a student during the fourth week of the semester. The expense check is

picked up in the office. The student must maintain satisfactory enrollment status to be eligible for the expense check.

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### Revision of Awards

After receipt of the financial aid award, situations may arise which may necessitate a revision in the aid package. A revision may result from receipt of an outside scholarship; a dramatic change in the family income such as unemployment of a parent or a divorce, etc.

If family circumstances alter, contact the Office of Financial Aid so the aid package can be reviewed.

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### Eligibility for Aid as it Applies to Certain Classifications of Students

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#### Transfer Students

A student transferring to The University of Akron at the beginning of fall semester must have the previous college complete a financial aid transcript and send it to the Office of Student Financial Aid and Employment.

If a student is transferring to the University during the academic year and has received a Pell Grant and/or OIG the previous session, the student must:

- Have a duplicate Student Aid Report for the Pell Grant mailed to the office. This Student Aid Report must be received before any funds can be disbursed to the student. Instructions for receiving a duplicate Student Aid Report can be obtained from the office.
- Have the former Financial Aid Office provide a transfer of remaining funds request to have the OIG transferred to The University of Akron.

National Direct Student Loans, College Work-Study Programs, Supplemental Educational Opportunity Grants and scholarships do not automatically transfer. The student must reapply for these programs at The University of Akron.

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#### Graduate Students, Law Students and Postbaccalaureate Students

A student who has already received a bachelor's degree can make application for the National Direct Student Loan and/or the College Work-Study Program. The Pell Grant, Ohio Instructional Grant and Supplemental Educational Opportunity Grant may not be received.

A graduate assistantship is available through various graduate departments. A graduate fellowship and other graduate awards are distributed by the Graduate School; therefore, a separate application is required.

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#### Transient Students

A transient student is not pursuing a degree at The University of Akron, and is not eligible for financial aid through the University.

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#### International Students

A student in the United States on a student or other temporary visa is not eligible for any state or federal financial aid. Application for scholarships, short-term loans and some types of employment may be made.

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#### Veterans

A veteran may be eligible to receive educational benefits through the Veterans Administration and should contact the Veterans Office at the University for details.

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### Student Rights and Aid Responsibilities

A financial aid recipient has various rights and responsibilities, including the right to expect confidentiality regarding financial aid as well as a response in a reasonable amount of time after submitting applications. Outside scholarships received must be reported.

A National Direct Student Loan and Nursing Student Loan recipient has the responsibility of informing the Office of Student Financial Aid of changes of address, graduation plans, etc.

Probably the most important responsibility the student has is to meet the requirements of the "standards of progress." The "standards of progress" states that the student must make progress toward a degree. To make progress, the student must maintain full-time status if the aid was based on full-time status; if the student's aid was based on less than full-time status, the student must maintain at least half-time status to meet the "standards of progress."

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### Inquiries

Since the process of applying for financial aid may at first seem complicated, it is suggested that families contact a high school counselor or a University financial aid officer for additional information. Direct inquiries to:

#### Office of Student Financial Aid and Employment

**Spicer Hall 115**  
**The University of Akron**  
**Akron, OH 44325**  
**Phone: (216) 375-7032**

4

Undergraduate Academic Programs

# Community and Technical College

Robert C. Weyrick, M.S., *Dean*  
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## Objectives

The Community and Technical College helps to further the goals and purposes of the University by emphasizing the following objectives:

- Consistent with the philosophy of learning as a life-long experience, the college provides educational opportunities for the student no matter the age, background and need; full- or part-time, day or evening.
- The college provides for industry, business, government agencies, health-care establishments and human service occupations; the pre-service and in-service manpower training for entry-level positions or advancement in employment.
- The college serves the student by providing the means to examine academic and career opportunities considering interests, abilities and achievements.
- The college provides quality instruction with the qualified and experienced teacher who is encouraged to use the community as a "laboratory" for achieving educational goals.

The college recommends each student for the appropriate degree in accordance with the level of accomplishment.

The college offers both pre-service and in-service training; pre-service for the recent high school graduate who can receive an associate degree upon the satisfactory completion of two years of full-time studies; and in-service through the Evening College where employed persons may pursue the same degrees while working full time. To provide information about potential careers, the Office for Career Planning has been established in the college.

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## College Requirements

### Baccalaureate Degrees

The baccalaureate-level programs in engineering technology are intended to fill the widening gap in modern industry between the professional engineer and the engineering technician. The graduate of a program works in close support of engineers, translating conceptual ideas into functioning systems and providing supervisory direction for the implementation of these ideas by technicians and craftsmen.

These programs are designed as transfer programs to permit the qualified engineering technology student to continue education to the baccalaureate degree. During the first and second years, a student follows an associate degree program in the

corresponding engineering technology. The third and fourth years provide the additional study required for the baccalaureate degree. Emphasis is placed on advanced training in the student's field of specialization, broadened knowledge of related technical fields, extended general education and basic management training.

The programs are available in electronic technology and mechanical technology. It is intended that a graduate will find employment in manufacturing, technical sales and service, application engineering, inspection and testing and the more standardized aspects of engineering design.

The requirements for the Bachelor of Science in Electronic Technology degree or the Bachelor of Technology in Mechanical Technology degree are:

- Compliance with the general University requirements for a baccalaureate degree as listed in this *Bulletin*.
- Compliance with the requirements of the general studies program as outlined in this *Bulletin*.
- Completion of the requirements for the associate degree in a related engineering technology at The University of Akron or other accredited institution.
- Successful completion of a minimum of 135 credits including associate degree program, general studies courses and the following course requirements.

### Bachelor of Science in Electronic Technology

(an ABET accredited engineering technology curriculum)

For the first- and second-year requirements, see associate degree program in 2860: electronic technology.

Third- and fourth-year requirements:		<i>Credits</i>
1100:106	Effective Oral Communication	3
1100:112	English Composition	4
1100:320	Western Cultural Traditions	4
1100:321	Western Cultural Traditions	4
1100:—	Eastern Civilizations	2
1100:—	Eastern Civilizations	2
2020:334	Mathematics for Technical Applications	3
2840:101	Introductory Chemistry	3
2860:350	Advanced Circuits	4
2860:351	Industrial Electrical Systems	3
2860:352	Digital Systems	4
2860:353	Control Systems	4
2860:400	Data Analysis	3
2860:406	Communications Systems	3
2860:410	Technology Project	1
2920:310	Economics of Technology	3
3470:251	Descriptive Statistics and Probabilities	1
3470:252	Distributions	1
4450:206	Fortran (Science and Engineering)	2
6500:301	Management Principles and Concepts	3
6500:331	Production and Systems Management	3
	Computer Programming Electives*	2
	Technical Electives	5

Prior to enrolling in the program and to taking 2860:350 *Advanced Circuits*, a student must have completed at least 45 credits of a two-year Electronic Technology Associate degree program; maintained a grade-point ratio of 2.00 or higher in major courses (*Mathematical Analysis* or equivalent, *Basic Physics* or equivalent, and technical courses in the 2860 or 2900 series or equivalent); and maintained a minimum overall grade-point ratio of 2.00.

### Bachelor of Mechanical Technology

For first- and second-year requirements, see associate degree program in mechanical technology.

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\*Computer programming courses from 3460 Computer Science, 4450 Engineering Computer Science and 2440 Data Processing.

Third- and fourth-year requirements:		<i>Credits</i>
1100.112	English Composition	4
1100.320	Western Cultural Traditions	4
1100.321	Western Cultural Traditions	4
1100. —	Eastern Civilizations	2
1100. —	Eastern Civilizations	2
2020.247	Survey of Basic Economics	3
2020.334	Mathematics for Technical Applications	3
2840.101	Introductory Chemistry I	3
2840.102	Introductory Chemistry II	3
2860.270	Survey of Electronics I	3
2860.271	Survey of Electronics II	3
2880.241	Quality Control Procedures	3
2900.231	Control Principles	3
2920.310	Economics of Technology	3
2920.346	Mechanical Design II	3
2920.347	Production Machines and Processes	2
2920.348	Introduction to Numerical Control	3
2920.495	Inspection Tours	1
2920.402	Mechanical Projects	1
2920.448	Numerical Control Programming	3
4450.206	Fortran (Science and Engineering)	2
6500.301	Management Principles and Concepts	3
6500.321	Quantitative Business Analysis I	3
	Technical Electives	6

Prior to enrolling in the program, a student must have completed at least 45 credits of the two-year program with a grade-point ratio of 2.00 or higher in *Mathematics Analysis, Basic Physics* and technical courses (2920 and 2980 series) in the two-year program; and a minimum overall grade-point ratio of 2.00.

## Associate Degrees

Specialized technical programs are offered in the following divisions of the college:

- Allied Health Technology
- Associate Studies
- Business and Office Technology
- Engineering and Science Technology
- Public Service Technology

These programs lead to the Associate in Applied Science or Associate in Applied Business degree (carrying a designation of the specific program). In addition, a program in liberal arts leading to the Associate of Arts degree and programs leading to the Associate of Labor Studies and Associate of Individualized Studies degrees are offered in the Associate Studies Division.

## Requirements for Graduation

Candidates for the associate degree must:

- Complete the required courses listed in the program.
- Complete as a minimum, the number of credits listed for each program.
- Earn a minimum grade-point average of 2.00 in all work taken at The University of Akron.
- Be recommended by the faculty.
- Spend the last semester in residence (earning a minimum of 16 credits) at the University unless excused by the dean of the college.
- Complete other University requirements as in "Requirements for Graduation," **Section 3** in this *Bulletin*.

A student who expects to receive a second associate degree must earn a minimum of 16 credits in residence which have not counted toward the student's first degree.

## Cooperative Education

Minimum requirements for cooperative education students

include the following:

- Enrollment in a program of study offered by the Community and Technical College wherein Cooperative Education has been established.
- Minimum grade-point average of 2.00 for all University of Akron coursework.
- Completion of specific courses and/or credits for a particular program as approved by the College faculty.

## Programs of Instruction

### Allied Health

#### 2740: Medical Assisting Technology

This program provides students the education to perform receptionist, record keeping and general office duties and to assist physicians in examining patients, performing simple laboratory tests and helping with treatment in physicians' offices, clinics and hospital outpatient departments.

	<i>Credits</i>	
1100. —	Physical Education	1
1100:105	Introduction to Public Speaking	1
	or	
1100:106	Effective Oral Communication	3
2020:121	English	4
2020:240	Human Relations	4
2420:211	Basic Accounting I	3
2540:119	Business English	3
2540:121	Office Problems	3
2540:150	Beginning Typewriting	3
2540:151	Intermediate Typewriting	3
2540:263	Business Communications	3
2540:286	Keyboarding on Word Processing Equipment	3
2740:120	Medical Terminology	3
2740:130	Medical Assisting Techniques I	3
2740:230	Pharmacology in Medical Assisting	3
2740:231	Medical Assisting Techniques II	2
2740:232	Medical Assisting Techniques III	2
2740:240	Medical Machine Transcription	2
2740:241	Medical Records	3
2740:250	Medical Assisting Specialties	3
2840:100	Basic Chemistry	3
3100:206	Anatomy and Physiology	3
5550:211	First Aid	2
	General Electives	3

#### 2760: Radiologic Technology

This program prepares graduates to perform radiologic examinations under a physician's direction for diagnosis and treatment of physical diseases and injuries. Although the University is authorized to offer the associate degree in radiologic technology, this degree program is not fully operational on campus at this time but is offered in conjunction with area hospital schools of radiology. A student who satisfactorily completes an accredited program in radiologic technology at a hospital school having an affiliation with the University may earn the associate degree by completing additional courses at the University. The student will then receive a block of credit for the hospital program that is applicable only to the associate degree in radiologic technology.

The degree requirements for the student are:

1100. —	Physical Education	1
1100:106	Effective Oral Communication	3
2020:121	English	4
2020:130	Introduction to Technical Mathematics	3

		Credits
2020:240	Human Relations	3
2760:106	Anatomy for Radiologic Technology I or	
3100:206	Anatomy and Physiology	3
2760:107	Anatomy for Radiologic Technology II or	
3100:207	Anatomy and Physiology	3
2760:161	Basic Physical Science for Radiologic Technology	2
2760:165	Radiographic Principles	3
2760:261	Physical Science for Radiologic Technology	3
3750:100	Introduction to Psychology	3
	General Electives	2
	Credits for Hospital Program	41

Radiology schools at the following hospitals are affiliated with the University:

Akron City Hospital  
 Children's Hospital Medical Center of Akron  
 Akron General Medical Center  
 Barberton Citizens Hospital  
 St. Thomas Hospital Medical Center (Akron)  
 Robinson Memorial Hospital (Ravenna)

Applications for admission to these programs should be made directly to the hospital school.

### 2770: Surgical Assisting Technology\*

This program trains people to prepare equipment and assist the physician and other members of the surgical team with patient care and related services in the hospital operating room.

1100:—	Physical Education	1
1100:106	Effective Oral Communication	3
2020:121	English	4
2020:130	Introduction to Technical Mathematics	3
2020:240	Human Relations	3
2020:242	American Urban Society	3
2740:120	Medical Terminology	3
2740:230	Pharmacology in Medical Assisting	3
2770:100	Introduction to Surgical Assisting Technology	4
2770:121	Surgical Assisting Procedures I	2
2770:131	Clinical Application I	1
2770:222	Surgical Assisting Procedures II	4
2770:232	Clinical Application II	3
2770:233	Clinical Application III	3
2770:241	Surgical Anatomy	3
2840:100	Basic Chemistry	3
3100:103	Introduction to Microbiology	3
3100:206	Anatomy and Physiology	3
3100:207	Anatomy and Physiology	3
	General Elective	3
	Technical Electives	6

### Surgeon's Assistant Option

1100:—	Physical Education	1
1100:106	Effective Oral Communication	3
2020:121	English	4
2020:130	Mathematics for Health Technology	3
2020:240	Human Relations	3
2020:242	American Urban Society	3
2740:120	Medical Terminology	3
2740:230	Pharmacology in Medical Assisting	3
2770:100	Introduction to Surgical Assisting Technology	4
2770:121	Surgical Assisting Procedures	2
2770:131	Clinical Application I	1
2770:222	Surgical Assisting Procedures II	4
2770:232	Clinical Application II	3
2770:234	Clinical Application IV	2
2770:235	Clinical Application V	3
2770:236	Clinical Application VI	3
2770:241	Surgical Anatomy	3
2770:242	Surgical Laboratory Procedures	2
2770:243	Introduction to Medicine	2
2770:244	Medical History and Physical Evaluation	2
2770:245	Roentgenogram Assessment	1

\*Deadline for application to the program is March 15.

		Credits
2770:246	Medical Laboratory Procedures	1
2770:247	Pulmonary Assessment and Electrocardiography	2
2840:100	Basic Chemistry	3
3100:103	Introduction to Microbiology	3
3100:206	Anatomy and Physiology	3
3100:207	Anatomy and Physiology	3
	General Elective	2

### 2790: Respiratory Therapy Technology\*

This program prepares persons, under the supervision of a physician, to administer medical gases, medications and operate equipment in the medical care of patients with respiratory disorders.

1100:—	Physical Education	1
1100:106	Effective Oral Communication	3
2020:121	English	4
2020:130	Introduction to Technical Mathematics	3
2020:222	Technical Report Writing	3
2020:240	Human Relations	3
2020:242	American Urban Society	3
2790:121	Introduction to Respiratory Therapy	3
2790:122	Patient Care: Respiratory Therapy	3
2790:123	Mechanical Ventilators	3
2790:131	Clinical Application I	3
2790:132	Clinical Application II	2
2790:133	Clinical Application III	5
2790:134	Clinical Application IV	5
2790:141	Pharmacology	2
2790:142	Pathology: Respiratory Therapy	2
2790:201	Anatomy and Physiology: Cardiopulmonary System	3
2790:223	Advanced Respiratory Therapy	3
2790:224	Pulmonary Rehabilitation and the Respiratory Therapy Department	2
2840:100	Basic Chemistry	3
3100:103	Introduction: Microbiology	3
3100:206	Anatomy and Physiology	3
3100:207	Anatomy and Physiology	3
	General Elective	2

## Associate Studies

### 2020: Arts

Through basic coursework and general education, this program is intended to produce a socially intelligent individual, one who understands effective social values as well as scientific facts.

1100:—	Physical Education	1
1100:105	Introduction to Public Speaking or	
1100:106	Effective Oral Communication	3
1100:111	English Composition	4
1100:112	English Composition	4
1100:—	Science Requirement**	6
1100:—	Eastern Civilizations	2
1100:—	Eastern Civilizations	2
1100:320	Western Cultural Traditions	4
1100:321	Western Cultural Traditions	4
2020:240	Human Relations†	3
2020:242	American Urban Society†	3
2020:247	Survey of Basic Economics†	3
3450:—	Modern University Mathematics	3
	Electives	22

\*Deadline for application to the program is March 15.

\*\*Two of the following are required: 1100:221,2,3,4.

†See "The University College," **Section 4** of this *Bulletin* for alternate course options.

## 2100: Individualized Study

Designed for students whose educational goals cannot be met through one of the structured associate degree programs. It makes available a program of study which combines coursework from various disciplines and focuses on education for individual development.

## 2240: Commercial Art

This program enables individuals to gain skill as artists and designers for employment involving the development of materials included in visual advertising and communication for art studies, advertising agencies and industry.

		<i>Credits</i>
1100:—	Physical Education	1
2020:121	English	4
2020:131	Mathematical Analysis I	4
2240:124	Design in Commercial Art	3
2240:140	Typography and Lettering	3
2240:222	Advertising Photography	3
2240:242	Advertising Layout Design	3
2240:243	Publication Design	3
2240:245	Designing for Production	3
2240:247	Packaging Design	3
2520:103	Advertising Principles	3
7100:131	Introduction to Drawing	3
7100:231	Drawing II	3
7100:232	Instrument Drawing	3
7100:233	Life Drawing	2
7100:275	Introduction to Photography	3
	Art Electives	10
	General Electives	7

## 2270: Labor Studies

Through in-service education, this program prepares the student for a position of responsibility and leadership in labor unions and related organizations.

1100:—	Physical Education	1
1100:106	Effective Oral Communication	3
2020:121	English	4
2020:222	Technical Report Writing	3
2020:240	Human Relations	3
2020:247	Survey of Basic Economics	3
2270:101	Introduction to Labor Studies	3
2270:111	Collective Bargaining I	3
2270:122	Legal Framework for Collective Bargaining	3
2270:123	Labor Legislation and Economic Security	3
2270:212	Collective Bargaining II	3
2270:221	Occupational Health and Safety Standards	3
2270:241	Union Leadership	2
2270:251	Problems in Labor Studies	3
2420:170	Business Mathematics	3
2420:211	Basic Accounting I	3
2880:141	Safety Procedures	3
3700:100	Government and Politics in the United States	3
	Electives	12

## Business and Office Technology

### 2280: Hospitality Management

Through educational and technical skills offered in a professional environment, this program emphasizes the development of expertise in food service management, hotel/motel management or culinary arts.

1100:—	Physical Education	1
1100:105	Introduction to Public Speaking	1
	or	
1100:106	Effective Oral Communication	1
2020:121	English	4
2020:222	Technical Report Writing	3
2020:247	Survey of Basic Economics	3

2420:170	Business Mathematics	3
2420:211	Basic Accounting I	3
2420:212	Basic Accounting II	3
	or	
2540:263	Business Communications	3
2420:280	Essentials of Law	3
2520:103	Principles of Advertising	3
2540:119	Business English	3
2280:120	Safety and Sanitation	3
2280:121	Fundamentals of Food Preparation I	4
2280:122	Fundamentals of Food Preparation II*	4
2280:123	Meat Technology*	2
2280:135	Menu Planning and Purchasing	3
2280:232	Dining Room Service and Training*	2
2280:233	Restaurant Operations and Management	4
2280:236	Food and Beverage Cost Control	3
2280:237	Internship	1
2280:240	Systems Management and Personnel	3
2280:243	Food Equipment and Plant Operations	3

### Options

#### Culinary Arts

1100:—	Physical Education	1
1100:105	Introduction to Public Speaking	1
	or	
1100:106	Effective Oral Communications	3
2020:121	English	4
2020:222	Technical Report Writing	3
2020:247	Survey of Basic Economics	3
2280:120	Safety and Sanitation	3
2280:121	Fundamentals of Food Preparation I	4
2280:122	Fundamentals of Food Preparation II	4
2280:123	Meat Technology	2
2280:160	Wine and Beverage Service	2
2280:232	Dining Room Service and Training	2
2280:233	Restaurant Operations and Management	4
2280:240	Systems Management and Personnel	3
2280:261	Baking and Classical Desserts	3
2280:262	Classical Cuisine	3
2280:263	International Foods	2
2420:170	Business Mathematics	3
2420:211	Basic Accounting I	3
2420:212	Basic Accounting II	3
	or	
2540:263	Business Communications	3
2420:280	Essentials of Law	3
2540:119	Business English	3
7400:133	Nutrition Fundamentals	3

#### Hotel/Motel Management

1100:—	Physical Education	1
1100:105	Introduction to Public Speaking	1
	or	
1100:106	Effective Oral Communication	3
2020:121	English	4
2020:222	Technical Report Writing	3
2020:247	Survey of Basic Economics	3
2230:153	Principles of Fire Protection and Life Safety	3
2280:120	Safety and Sanitation	3
2280:135	Menu Planning and Purchasing	3
2280:150	Front Office Procedures	3
2280:152	Maintenance and Engineering Management	3
2280:232	Dining Room Service and Training	2
2280:236	Food and Beverage Cost Control	3
2280:240	Systems Management and Personnel	3
2280:254	Hotel/Motel Housing Management	3
2280:255	Hotel/Motel Sales Promotion	3
2280:256	Hospitality Law	3
2420:170	Business Mathematics	3
2420:211	Basic Accounting I	3
2420:212	Basic Accounting II	3
	or	
2540:263	Business Communications	3
2420:280	Essentials of Law	3
2520:103	Principles of Advertising	3
2540:119	Business English	3

\*Not required for hospitality marketing and sales emphasis.

		Credits			Credits
<b>Marketing and Sales Emphasis</b>					
2520:202	Retailing Fundamentals	4	2420:202	Personnel Practices	3
2520:212	Principles of Salesmanship	4	2420:211	Basic Accounting I	3
<b>2420: Business Management Technology</b>					
This program provides comprehensive training in varied business activities which prepare for beginning management or supervisory-level positions in business, industry or self-employed management.					
<b>Options</b>					
<b>General</b>					
1100:—	Physical Education	1	2420:202	Personnel Practices	3
1100:105	Introduction to Public Speaking		2420:211	Basic Accounting I	3
	or		2420:212	Basic Accounting II	3
1100:106	Effective Oral Communication	3	2420:221	Administrative Office Supervision	2
2020:121	English	4	2420:225	Credit Union Lending and Collections	2
2020:240	Human Relations	3	2420:243	Survey in Finance	3
2020:247	Survey of Basic Economics	3	2420:245	Credit Union Financial Management	2
2420:101	Elements of Distribution	3	2420:280	Essentials of Law	3
2420:103	Role of Supervision in Management	3	2440:120	Introduction to Information Processing	2
2420:104	Introduction to Business	3	2540:119	Business English	3
2420:170	Business Mathematics	3	2540:263	Business Communications	3
2420:202	Personnel Practices	3		Technical Electives	2
2420:211	Basic Accounting I	3	<b>Recommended Electives:</b>		
2420:212	Basic Accounting II	3	2420:101	Elements of Distribution	3
2420:221	Administrative Office Supervision	2	2420:221	Administrative Office Supervision	2
2420:243	Survey of Finance	3	2440:239	RPG II Programming	1
2420:280	Essentials of Law	3	2880:232	Labor-Management Relations	3
2440:120	Introduction to Information Processing	2	2540:125	Business Machines	2
2540:119	Business English	3	<b>Data Administration</b>		
2540:125	Business Machines	2	1100:—	Physical Education	1
2540:263	Business Communications	3	1100:106	Effective Oral Communications	3
2560:110	Transportation Economic Policy	3	2020:130	Introduction to Technical Mathematics	3
2880:232	Labor Management Relations	3	2020:121	English	4
	Electives	4	2020:240	Human Relations	3
			2020:247	Survey of Basic Economics	3
			2420:103	Role of Supervision in Management	3
			2420:104	Introduction to Business	3
			2420:170	Business Mathematics	3
			2420:202	Personnel Practices	3
			2420:211	Basic Accounting I	3
			2420:212	Basic Accounting II	3
			2420:212	Basic Accounting II	3
			2440:120	Introduction to Information Processing	2
			2440:130	BASIC Programming for Business	3
			2440:133	COBOL Programming	2
			2440:250	BASIC Programming Applications in Business	5
			2540:119	Business English	3
			2540:140	Typewriting for Non-Secretarial Majors	2
			2540:263	Business Communications	3
				Technical Electives	3
<b>Banking</b>					
1100:—	Physical Education	1	<b>Small Business Management</b>		
1100:106	Effective Oral Communication	3	1100:—	Physical Education	1
2020:121	English	4	2200:106	Effective Oral Communication	3
2020:240	Human Relations	3	2020:121	English	4
	or		2020:240	Human Relations	3
3750:100	Introduction to Psychology	3	2020:247	Survey of Basic Economics	3
2020:247	Survey of Basic Economics	3	2420:101	Elements of Distribution	3
2420:101	Elements of Distribution	3	2420:103	The Role of Supervision in Management	3
2420:103	Role of Supervision in Management	3	2420:104	Introduction to Business	3
2420:104	Introduction to Business	3	2420:117	Small Business Management I	3
2420:113	Introduction to Banking	2	2420:118	Small Business Management II	3
2420:123	Federal Regulation of Banking	2	2420:170	Business Mathematics	3
2420:170	Business Mathematics	3	2420:202	Personnel Practices	3
2420:202	Personnel Practices	3	2420:211	Basic Accounting I	3
2420:211	Basic Accounting I	3	2420:212	Basic Accounting II	3
2420:212	Basic Accounting II	3	2420:227	Entrepreneurship	4
2420:233	Installment Credit	2	2420:243	Survey in Finance	3
2420:243	Survey in Finance	3	2420:280	Essentials of Law	3
2420:253	Elements of Bank Management	2	2440:120	Introduction to Information Processing	2
2420:273	Monetary Systems and the Payments Mechanism	3	2450:119	Business English	3
2420:280	Essentials of Law	3	2520:103	Principles of Advertising	3
2430:105	Real Estate Principles	2	2540:263	Business Communications	3
2430:245	Real Estate Finance	2		Technical Elective	2
2440:120	Introduction to Information Processing	2	<b>Recommended Electives:</b>		
2540:119	Business English	3	2020:254	The Black American	2
2540:263	Business Communications	3	2420:111	Public Relations	2
<b>Credit Union</b>					
1100:—	Physical Education	1	2520:106	Visual Promotion	4
1100:106	Effective Oral Communications	3	2520:201	Principles of Wholesaling	2
2020:121	English	4	2520:202	Retailing Fundamentals	3
2020:240	Human Relations	3	2520:210	Consumer Service Fundamentals	2
2020:247	Survey of Basic Economics	3	2520:211	Mathematics for Retail Distribution	3
2420:101	Elements of Distribution	3	2520:212	Principles of Salesmanship	4
2420:103	Role of Supervision in Management	3	2520:233	Installment Credit	2
2420:104	Introduction to Business	3	2540:125	Business Machines	2
2420:105	Introduction to Credit Unions	2	2540:140	Typewriting for Non-Secretarial Majors	2
2420:115	Credit Union Operations	2	2880:200	Manufacturing Profitability*	3
2420:125	Personal Financial Counseling	3			
2420:170	Business Mathematics	3			

\*Prerequisites are 2420:104, 2420:211

**2430: Real Estate**

Designed to educate the student in all areas of the field, this program prepares students for entry-level positions in sales and management in the real estate industry through the study of products, professions and processes involving real estate.

		Credits
1100:—	Physical Education	1
1100:105	Introduction to Public Speaking or	
1100:106	Effective Oral Communication	3
2020:121	English	4
2020:240	Human Relations	3
2020:247	Survey of Basic Economics	3
2420:104	Introduction to Business	3
2420:170	Business Mathematics	3
2420:202	Personnel Practices	3
2420:211	Basic Accounting I	3
2420:221	Administrative Office Supervision	2
2420:243	Survey in Finance	3
2420:280	Essentials of Law	3
2430:105	Real Estate Principles	2
2430:185	Real Estate Law	2
2430:245	Real Estate Financing	2
2430:255	Valuation of Residential Property	2
2430:265	Real Estate Brokerage	2
2430:275	Real Estate Project	2
2440:120	Introduction to Information Processing	2
2520:212	Principles of Salesmanship	4
2540:119	Business English	3
2540:263	Business Communications	3
	Electives	6

**2440: Data Processing**

This program prepares individuals for careers in electronic data processing in operating, programming and systems analysis.

1100:—	Physical Education	1
1100:105	Introduction to Public Speaking or	
1100:106	Effective Oral Communication	3
2020:121	English	4
2020:131	Mathematical Analysis I	4
2020:135	Mathematics for Data Processing	3
2020:240	Human Relations	3
2020:247	Survey of Basic Economics	3
2420:104	Introduction to Business	3
2420:211	Basic Accounting I	3
2420:212	Basic Accounting II	3
2420:243	Survey of Finance	3
2440:120	Introduction to Information Processing	2
2440:131	Introduction to Programming	2
2440:132	Assembler Programming and JCL	4
2440:133	Cobol Programming	2
2440:234	Advanced Cobol Programming	3
2440:235	Current Programming Topics	2
2440:239	RPG II Programming	1
2440:241	Data Processing Systems	3
2440:251	Data Processing Projects	5
2540:119	Business English or	
2020:222	Technical Report Writing	3
	General Elective	4

A program is available for the student interested in both an Associate in Applied Business in Data Processing degree and a Bachelor of Science in Business Administration degree. Substitute courses must be selected in the associate program in order to obtain the bachelor's degree within the minimum required credits. The student interested in this unique transfer program should consult an academic adviser for appropriate course selection.

**Minor**

2440:120	Introduction to Information Processing	2
2440:131	Introduction to Programming	2
2440:132	Assembler Programming and JCL	4
2440:133	COBOL Programming	2
2440:234	Advanced COBOL Programming	3
2440:235	Current Programming Topics	2

2440:239	RPG II Programming	1
2440:241	Data Processing Systems	3

**2520: Marketing and Sales Technology**

This program equips graduates to fill entry-level positions in distributive business areas including retailing, industrial distribution and fashion.

1100:—	Physical Education	1
1100:105	Introduction to Public Speaking	3
2020:121	English	4
2020:240	Human Relations	3
2020:247	Survey of Basic Economics	3
2420:101	Elements of Distribution	3
2420:111	Public Relations	2
2420:170	Business Mathematics	3
2420:211	Basic Accounting	3
2420:280	Essentials of Law	3
2520:103	Principles of Advertising	3
2520:106	Visual Promotion	4
2520:202	Retailing Fundamentals	4
2520:210	Consumer Service Fundamentals	2
2520:211	Mathematics of Retail Distribution	3
2520:212	Principles of Salesmanship	4
2540:119	Business English	3
	Technical Requirements	13

**Options****Fashion**

7400:121	Textiles	3
7400:317	History of Costumes	3
7400:419	Clothing Communication	3
7400:439	Fashion	3
	Elective	1

**Industrial**

2420:202	Personnel Practices	3
2420:243	Survey of Finance	3
2440:120	Introduction to Information Processing	2
2520:201	Principles of Wholesaling	2
	Technical Electives	3

**Retailing**

2420:202	Personnel Practices	3
2420:243	Survey of Finance	3
2440:120	Introduction to Information Processing	2
	Technical Elective	5

**2540: Secretarial Science**

Preparing students for the different but often overlapping fields of secretarial, word processing, stenographic or clerical work, this program is based on personal career objectives. Students choose from program options that prepare them for positions in executive, legal, international or word processing secretarial work.\*

**Core Program**

1100:—	Physical Education	1
2020:121	English	4
2420:170	Business Mathematics	3
2540:119	Business English	3
2540:125	Business Machines	2
2540:150	Beginning Typewriting	3
2540:151	Intermediate Typewriting	3
2540:171	Shorthand Principles	4
2540:173	Shorthand and Transcription	4
2540:241	Information Management	3
2540:263	Business Communications	3
2540:274	Advanced Dictation and Transcription	4
	Option Requirements	24

\*Associate degree courses may be applied toward a four-year business education degree.

**Options****Executive Secretarial Science**

		Credits
2020.240	Human Relations	3
2420.202	Personnel Practices	3
2420.211	Basic Accounting I	3
2420.247	Survey of Basic Economics	3
2540.121	Office Problems	3
2540.253	Advanced Typewriting	3
2540.276	Executive Dictation and Transcription	4
2540.281	Machine Transcription	2
2540.286	Keyboarding on Word Processing Equipment	3

**International Secretarial Science**

2540.121	Office Problems	3
2540.253	Advanced Typewriting	3
2540.276	Executive Dictation and Transcription	4
	or	
2540.277	Legal Dictation and Transcription	8
	Beginning Foreign Language	6
	Intermediate Foreign Language	3
2540.286	Keyboarding on Word Processing Equipment	3

**Legal Secretarial Science**

2020.240	Human Relations	3
2020.247	Survey of Basic Economics	3
2420.211	Basic Accounting I	3
2420.280	Essentials of Law	3
2540.254	Legal Typewriting	2
2540.277	Legal Dictation and Transcription	4
2540.279	Legal Office Procedures	4
2540.286	Keyboarding on Word Processing Equipment	3
	Elective	2

**Word Processing**

1100.—	Physical Education	1
1100.106	Effective Oral Communications	3
2020.121	English	4
2020.222	Technical Report Writing	
	or	
	English Elective	3
2020.240	Human Relations	3
2020.247	Survey of Basic Economics	3
2420.104	Introduction to Business	3
2420.170	Business Mathematics	3
2420.211	Basic Accounting I	3
2440.120	Introduction to Information Processing	2
2440.130	BASIC Programming for Business	3
2540.119	Business English	3
2540.121	Office Problems	3
2540.125	Business Machines	2
2540.150	Beginning Typewriting	3
2540.151	Intermediate Typing	3
2540.241	Information Management	3
2540.253	Advanced Typewriting	3
2540.263	Business Communications	3
2540.280	Word Processing Concepts	2
2540.281	Machine Transcription	2
2540.286	Keyboarding on Word Processing Equipment	3
2540.287	Word Processing Applications	3

**Certificate Program in Secretarial Science**

A certificate program is offered in secretarial science. A full description of this program may be found in "Interdisciplinary and Certificate Programs," **Section 4** of this *Bulletin*.

**2550: Office Services Technology**

This program prepares students to perform various services that are a vital part of the modern business office with emphasis on clerical and record-keeping occupations and word processing concepts.

1100.—	Physical Education	1
1100.105	Introduction to Public Speaking	3
2020.121	English	4
2020.240	Human Relations	3
2020.242	American Urban Society	3
2020.247	Survey of Basic Economics	3

2420.101

Elements of Distribution

Credits

	or	
2420.104	Introduction to Business	3
2420.170	Business Mathematics	3
2420.202	Personnel Practices	3
2420.211	Basic Accounting I	3
2420.221	Administrative Office Supervision	2
2420.280	Essentials of Law	3
2540.119	Business English	3
2540.121	Office Problems	3
2540.125	Business Machines	2
2540.150	Beginning Typewriting	3
2540.151	Intermediate Typewriting	3
2540.241	Information Management	3
2540.253	Advanced Typewriting	3
2540.263	Business Communications	3
2540.281	Machine Transcription	3
	Electives	5

**2560: Transportation**

This program provides experience for individuals in areas of the field such as sales, traffic, operations and rate analysis.

**Options****Airline/Travel Industry**

1100.—	Physical Education	1
1100.105	Introduction to Public Speaking	
	or	
1100.106	Effective Oral Communication	3
2020.121	English	4
2020.240	Human Relations	3
2020.247	Survey of Basic Economics	3
2420.101	Elements of Distribution	3
2420.104	Introduction to Business	3
2420.170	Business Mathematics	3
2420.202	Personnel Practices	3
2420.211	Basic Accounting I	3
2420.280	Essentials of Law	3
2440.120	Introduction to Information Processing	2
2520.212	Principles of Salesmanship	4
2540.119	Business English	3
2540.140	Typewriting for Non-Secretarial Majors	2
2560.110	Transportation Economic Policy	3
2560.116	Transportation Commercial Air	2
2560.118	Transportation Freight Rates	3
2560.220	Transportation Terminal Management	
	and Safety	2
2560.221	Transportation Traffic Principles and Practices	3
2560.228	Introduction to Travel	2
	Electives	6

**General**

1100.—	Physical Education	1
1100.105	Introduction to Public Speaking	
	or	
1100.106	Effective Oral Communication	3
2020.121	English	4
2020.222	Technical Report Writing	3
2020.240	Human Relations	3
2020.247	Survey of Basic Economics	3
2420.101	Elements of Distribution	3
2420.104	Introduction to Business	3
2420.170	Business Mathematics	3
2420.202	Personnel Practices	3
2420.280	Essentials of Law	3
2440.120	Introduction to Information Processing	2
2540.119	Business English	3
2540.263	Business Communications	3
2560.110	Transportation Economic Policy	3
2560.115	Motor Transportation	3
2560.116	Air Transportation	2
2560.117	Water Transportation	2
2560.118	Transportation Rate System	3
2560.220	Transportation Terminal Management	
	and Safety	2
2560.221	Transportation Traffic Principles and Practices	3
2560.224	Transportation Regulations	4
2560.227	Transportation of Hazardous Materials	
	and Wastes	2

# Engineering and Science Technology

## 2840: Chemical Technology

This program prepares students for technical positions in chemistry-related laboratories and manufacturing plants. Areas of emphasis in the program are industrial, rubber and plastics, geology, environmental and forensic.

### Core Program

		Credits
1100:—	Physical Education	1
2020:121	English	4
2020:131	Mathematical Analysis I	4
2020:222	Technical Report Writing	3
2840:101	Introductory Chemistry	3
2840:102	Introductory and Analytical Chemistry	3
2840:103	Chemical Calculations	2
2840:121	Organic Principles	4
2840:151	Basic Physics: Mechanics	3
2840:152	Basic Physics: Electricity and Magnetism	2
2840:153	Basic Physics: Heat, Light and Sound	2
2840:201	Quantitative Analysis	4
2840:202	Instrumental Methods	4
2840:255	Literature of Science and Technology	1
2840:270	Natural and Synthetic Organic Polymers	4
	General Electives	9
	Option Requirements	13

### Options

#### Environmental

2940:151	Technical Computations	1
3100:130	Principles of Microbiology	3
3370:200	Environmental Geology	3
	Technical Electives	6
	(3100:426 <i>Applied Aquatic Ecology</i> recommended)	

#### Forensic

2220:100	Introduction to Criminal Justice	3
2220:250	Criminal Case Management	6
2940:151	Technical Computations	1
	Technical Elective	3

#### Geology

2020:132	Mathematical Analysis II	3
2940:151	Technical Computations	1
3370:101	Introductory Physical Geology	4
3370:230	Mineralogy	3
	Technical Elective	2

#### Industrial

2020:132	Mathematical Analysis	3
2940:151	Technical Computations	1
	Technical Electives	9
	(3940:401 <i>Introduction to Elastomers</i> recommended)	

#### Rubber and Plastics

2020:132	Mathematical Analysis II	3
2940:151	Technical Computations	1
	Technical Electives	9
	(3940:401 <i>Introduction to Elastomers</i> and 3940:402 <i>Introduction to Plastics</i> recommended)	

## 2860: Electronic Technology

(ABET accredited engineering technology curriculum)

This program prepares individuals for work as technicians in developing, manufacturing, installing, testing and maintaining electronic equipment and systems.

1100:—	Physical Education	1
2020:121	English	4
2020:131	Mathematical Analysis I	4
2020:132	Mathematical Analysis II	3

2020:222	Technical Report Writing	3
2020:233	Mathematical Analysis III	3
2020:240	Human Relations	3
2020:242	American Urban Society	3
2020:247	Survey of Basic Economics	3
2840:151	Basic Physics: Mechanics	3
2840:153	Basic Physics: Heat, Light and Sound	2
2860:120	DC Circuits	4
2860:122	AC Circuits	3
2860:123	Electronics I	4
2860:225	Electronics II	4
2860:231	Control Principles	3
2860:237	Digital Circuits I	3
2860:238	Digital Circuits II	3
2860:242	Machinery and Controls	4
2860:251	Communications Circuits	3
2860:255	Electronic Design and Construction	2
	Manufacturing	2
2860:260	Electronics Project	2
2940:151	Technical Computations	1

## 2880: Manufacturing Technology

Through the study of basic technical subjects and through concentration on work measurement, safety procedures, plant layout and quality control, this program educates the student in the areas of analysis, design and management of the resources, facilities and people involved in industrial processes.

1100:—	Physical Education	1
2020:121	English	4
2020:131	Mathematical Analysis I	4
2020:132	Mathematical Analysis II	3
2020:222	Technical Report Writing	3
2020:240	Human Relations	3
2420:211	Basic Accounting I	3
2880:100	Introduction to Manufacturing Management	3
2880:130	Work Measurement Procedures I	2
2880:141	Safety Procedures	3
2880:200	Manufacturing Profitability	3
2880:210	Controlling and Scheduling Production	2
2880:231	Plant Layout	3
2880:232	Labor-Management Relations	3
2880:235	Work Measurement Procedures II	2
2880:241	Quality Control Procedures	3
2920:121	Technical Drawing I	3
2920:247	Technology of Machine Tools	3
	Electives	13

### Industrial Supervision Option

1100:—	Physical Education	1
1100:106	Effective Oral Communication	3
2020:121	English	4
2020:131	Mathematical Analysis I	4
2020:222	Technical Report Writing	3
2020:240	Human Relations	3
2020:247	Survey of Basic Economics	3
2420:103	Role of Supervision in Management	3
2420:202	Personnel Practices	3
2420:211	Basic Accounting I	3
2420:212	Basic Accounting II	3
2420:280	Essentials of Law	3
2880:100	Introduction to Manufacturing Management	3
2880:130	Work Measurement Procedures I	2
2880:141	Safety Procedures	3
2880:200	Manufacturing Profitability	3
2880:210	Controlling and Scheduling Production	2
2880:232	Labor Management Relations	3
2880:235	Work Measurement Procedures II	2
2880:241	Quality Control Procedures	3
2920:247	Technology of Machine Tools	3
	General Elective	2
	Technical Elective	2

Technical Electives (2 credits required from following):

2020:132	Mathematical Analysis II	3
2020:135	Mathematics for Data Processing	3
2440:120	Introduction to Information Processing	2
2420:243	Survey in Finance	3
2920:121	Technical Drawing I	3
2920:348	Introduction to Numerical Control	3
2920:448	Numerical Control Programming	3

General Electives (2 credits required from following):		Credits
2020:242	American Urban Society	3
2020:251	The Black American	2
2020:351	Work Relationships	2

### 2920: Mechanical Technology

(ABET accredited engineering technology curriculum)

This program prepares individuals to work as technicians in developing, designing, manufacturing, testing and servicing mechanical equipment.

1100:—	Physical Education	1
1100:106	Effective Oral Communication	3
2020:121	English	4
2020:131	Mathematical Analysis I	4
2020:132	Mathematical Analysis II	3
2020:222	Technical Report Writing	3
2020:233	Mathematical Analysis III	3
2020:240	Human Relations	3
2020:242	American Urban Society	3
2840:151	Basic Physics: Mechanics	3
2840:152	Basic Physics: Electricity and Magnetism	2
2840:153	Basic Physics: Heat, Sound and Light	2
2920:121	Technical Drawing I	3
2920:122	Technical Drawing II	3
2920:242	Design Materials	3
2920:243	Kinematics	2
2920:244	Dynamics	2
2920:245	Mechanical Design I	5
2920:247	Technology of Machine Tools	3
2920:249	Applied Thermal Energy	2
2920:251	Fluid Power	2
2920:252	Thermo-Fluids Laboratory	1
2980:125	Statics	3
2980:241	Strength of Materials	3
	Technical Elective	2

### 2940: Drafting Technology

This program is designed to give the student in-depth knowledge of various types of drafting. It will prepare the individual to compile detailed drawings based on rough sketches, specifications and calculations made by engineers, architects and designers.

1100:—	Physical Education	1
1100:106	Effective Oral Communication	3
2020:121	English	4
2020:131	Mathematical Analysis I	4
2020:222	Technical Report Writing	3
2020:240	Human Relations	3
2920:121	Technical Drawing I	3
2920:122	Technical Drawing II	3
2920:247	Technology of Machine Tools	3
2940:150	Drafting Design Problems	2
2940:151	Technical Computations	1
2940:160	Manufacturing and Construction Processes	2
2940:170	Surveying Drafting	3
2940:200	Advanced Drafting	3
2940:210	Computer Drafting	3
2940:230	Mechanical Systems Drafting	3
2940:240	Electrical, Electronic and Instrumentation Drafting	3
2940:250	Architectural Drafting	3
2940:260	Drafting Technology Project	3
2980:250	Structural Drawing	2
3350:340	Cartography	3

General Electives:		Credits
2020:241	Man and Technology	2
2020:242	American Urban Society	3
2020:247	Survey of Basic Economics	3
2020:251	Work Relationships	2
2020:254	The Black American	2

### 2980: Surveying and Construction Technology

(ABET accredited engineering technology curriculum)

Designed to provide a foundation in mathematics, physics, technical drawing and communication skills, this program

allows increased application of these areas in order to build an in-depth background in either construction or surveying.

#### Options

Construction	Credits	
1100:—	Physical Education	1
2020:121	English	4
2020:131	Mathematical Analysis I	4
2020:132	Mathematical Analysis II	3
2020:222	Technical Report Writing	3
2020:233	Mathematical Analysis III	3
2840:—	Basic Physics (elective)	2
2840:151	Basic Physics: Mechanics	3
2920:121	Technical Drawing I	3
2980:122	Basic Surveying	3
2980:123	Surveying Field Practice*	2
2980:125	Statics	3
2980:222	Construction Surveying	3
2980:231	Building Construction	2
2980:232	Construction	3
2980:233	Construction Administration	2
2980:234	Elements of Structures	3
2980:237	Materials Testing I	2
2980:238	Materials Testing II	2
2980:241	Strength of Materials	3
2980:245	Cost Analysis and Estimating	3
2980:250	Structural Drafting	2
	General Electives	9

#### Surveying

1100:—	Physical Education	1
2020:121	English	4
2020:131	Mathematical Analysis I	4
2020:132	Mathematical Analysis II	3
2020:222	Technical Report Writing	3
2020:233	Mathematical Analysis III	3
2840:—	Basic Physics (elective)	2
2840:151	Basic Physics: Mechanics	3
2920:121	Technical Drawing I	3
2980:122	Basic Surveying	3
2980:123	Surveying Field Practice*	2
2980:125	Statics	3
2980:222	Construction Surveying	3
2980:224	Land Surveying	3
2980:225	Advanced Surveying	4
2980:226	Subdivision Design	2
2980:232	Construction	3
2980:233	Construction Administration	2
2980:237	Materials Testing I	2
2980:241	Strength of Materials	3
3350:340	Cartography	3
	General Electives	9

## Public Service Technology

### 2200: Educational Technology

This program prepares individuals for employment as elementary aides, assisting the professional teacher; library technicians, assisting the professional librarian or information specialist; or child development workers, filling a variety of staff positions in either a day care center, nursery school or Head Start program.

#### Core Program

1100:—	Physical Education	1
1100:106	Effective Oral Communication	3
2020:121	English	4
2020:240	Human Relations	3
2020:242	American Urban Society	3
2540:150	Beginning Typewriting**	3

\*Faculty may select substitute course for student.

\*\*May substitute 2540:140, 2 credits.

3450:—	Modern University Mathematics*	Credits 3
3750:100	Introduction to Psychology	3
5100:150	Introduction to Professional Education	3
5100:250	Human Development and Learning	3
5100:410	Audio-Visual Education	2
5550:211	First Aid	2
5850:295	Education Technician Field Experience Option Requirements	5 26

### Options

#### Child Development\*\*

2200:245	Infant/Toddler Day Care Program	3
2200:250	Observing and Recording Children's Behavior	3
5200:360	Nursery School Laboratory	3
7400:132	Early Childhood Nutrition	2
7400:265	Child Development	3
7400:275	Play and Creative Expression	4
7400:290	Administration of Child Care Centers	3
7400:485	Seminar: Parent-Child Relations Electives	2 3

#### Elementary Aide†

5200:335	Teaching Language Arts	5
5850:207	Mechanics of Student Appraisal†† Electives	3 18

#### Library Technician★

2200:100	Introduction to Library Technology	3
2200:201	Processing, Cataloging and Classifying Materials	3
2200:202	Organizing and Operating Library Media Centers	3
2200:203	Materials Selection	2
2200:204	Reference Procedures	3
2200:205	Information Retrieval Systems in Library Technology Electives	3 9

## 2210: Handicapped Services

The purpose of this program is to train and educate the student who wishes to interpret for and assist deaf persons and those persons who desire to communicate with the deaf.

1100:—	Physical Education	1
1100:106	Effective Oral Communication	3
2020:121	English	4
2020:240	Human Relations	3
	or	
3750:100	Introduction to Psychology	3
2020:242	American Urban Society	3
2210:100	Introduction to Interpreting for the Deaf	4
2210:104	Sign Language Gesture and Mime	3
2210:110	Specialized Interpreting I	3
2210:150	Handicapped Services Practicum	8
2210:200	Reverse Interpreting	3
2210:230	Specialized Interpreting II	3
2420:170	Business Mathematics	3
7700:100	Ameslan I	4
7700:120	Introduction to Audiology/Aural Rehabilitation	3
7700:121	Psycho-Social Aspects of Deafness	3
7700:150	Ameslan II	4
7700:200	Ameslan III	3
7700:222	Introduction to Deaf Culture	2
7700:223	Speech and Language of Deaf Child and Adult	4
7700:271	Language of Signs I General Electives Technical Electives	3 2 2

\*May substitute 2020:130, 3 credits. Child development and library students may substitute 2420:170, 3 credits.

\*\*Must complete 7400:265, 275 and 5200:360 before doing 5850:295. 7400:290 can be taken concurrently. See coordinator the previous semester.

†Must complete required courses before doing 5850:295. See coordinator the previous semester.

††Elementary aide students may substitute 5100:350.

★Library courses are offered in alternate years. See adviser or coordinator.

## 2220: Criminal Justice Technology

This program provides the student with a professional perspective of criminal justice through skills and technical functions and offers courses designed to develop a better understanding of our rapidly changing society.

1100:—	Physical Education★★	Credits 1
1100:106	Effective Oral Communication	3
2020:121	English	4
2020:131	Mathematical Analysis I	4
2020:222	Technical Report Writing	3
2200:100	Introduction to Criminal Justice	3
2200:102	Criminal Law for Police	3
2200:104	Evidence and Criminal Legal Process	3
2220:106	Juvenile Justice Process	2
2220:110	Social Values and Criminal Justice	3
2220:200	Criminal Justice Theory and Practice	3
2220:240	Dynamics of Vice Crime and Substance Abuse	3
2220:250	Criminal Case Management	6
2250:260	Administration and Supervision in the Public Service	3 3
2840:100	Basic Chemistry	3
3750:100	Introduction to Psychology	3
3850:100	Introduction to Sociology General Electives Technical Electives	4 5 3

### Security Administration Option

1100:—	Physical Education★★	1
1100:106	Effective Oral Communications	3
2020:121	English	4
2020:131	Mathematical Analysis I	4
2020:240	Human Relations	3
2020:242	American Urban Society	3
2220:101	Introduction to Security	4
2220:102	Criminal Law for Police	3
2220:104	Evidence and Criminal Legal Procedure	3
2220:240	Dynamics of Vice Crime	3
2220:250	Criminal Case Management	6
2020:222	Technical Report Writing	3
2230:204	Fire Prevention Practices	3
2230:250	Hazardous Materials	4
2250:260	Administration and Supervision for Public Services	3 3
2420:104	Introduction to Business	3
2440:120	Introduction to Information Processing	2
2840:100	Basic Chemistry	3
2882:141	Safety Procedures Technical Electives	3 3

A student with a particular interest in corrections may vary the program of study by making the following substitutions: 3850:330 *Criminology*, 3 credits; 3850:432 *Probation and Parole*, 3 credits; or 2260:278 *Techniques of Community Work*, 4 credits; and 3850:431 *Corrections*, 3 credits, for courses: 2220:250 *Criminal Case Management*, 6 credits; 2220:200 *Criminal Justice Theory and Practice*, 3 credits; and 2220:240 *Dynamics of Vice Crime and Substance Abuse*, 3 credits. Students must complete electives to equal the 64 credit program requirement.

## 2230: Fire Science Technology

This program prepares persons to serve governmental, industrial and other fire protection agencies in fire fighting and prevention, property protection and in handling emergency situations.

1100:—	Physical Education	1
1100:105	Introduction to Public Speaking	3
2020:121	English	4
2020:131	Mathematics Analysis I	4
2020:222	Technical Report Writing	3
2020:240	Human Relations	3
2020:242	American Urban Society	3

★★The following are recommended: 139, *Life Saving*; 155, *Swimming*; 173, *Self-Defense*, or 174, *Karate*.

		<i>Credits</i>
2230:100	Introduction to Fire Science	3
2230:102	Fire Prevention and Building Construction	3
2230:140	Fire Investigative Methods	2
2230:202	Fire Fighting Tactics and Strategy	3
2230:204	Fire Prevention Practices	3
2230:205	Fire Detection and Suppression Systems I	3
2230:206	Fire Detection and Suppression Systems II	3
2230:250	Hazardous Materials	4
2230:254	Legal Aspects of Fire Protection	3
2230:256	Fire Protection for Business and Industry	3
2240:260	Administration and Supervision for Public Services	3
2840:152	Basic Physics-Mechanics	2
5550:211	First Aid	2
	General Electives	2
	Technical Electives	2

## 2260: Community Services Technology

This program prepares individuals for employment supportive of social work of other professional community service personnel providing social services for individuals, families, groups and communities.

1100:—	Physical Education	1
1100:106	Effective Oral Communication	3
2020:121	English	4
2020:222	Technical Report Writing	3
2020:240	Human Relations	3
2020:242	American Urban Society	3
2020:254	Black American	2
2220:100	Introduction to Criminal Justice	3
2260:100	Introduction to Community Services	3
2260:150	Introduction to Gerontological Services	3
2260:260	Alcohol Use and Abuse	3
2260:278	Techniques of Community Work	4
2260:279	Technical Experience: Community and Social Work	4
3750:100	Introduction to Psychology	3
3850:100	Introduction to Sociology	4
7750:270	Poverty in the United States	3
7750:276	Introduction to Social Welfare Electives	4 12

## Options

### Alcohol Services

2260:261	Alcoholism Treatment	3
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		<i>Credits</i>
2260:262	Basic Helping Skills in Alcohol Problems	4
2260:290	Special Topics: Alcohol Services	1-3
<b>Gerontology</b>		
2260:251	Community Services for Senior Citizens	3
2260:252	Resident Activity Coordination	3
<b>Volunteer Programming</b>		
2260:280	Fundamentals of Volunteer Management	3
2260:281	Recruitment and Interviewing of Volunteers	3
Technical Electives (suggested):		
2200:245	Infant/Toddler Day Care Programs	3
2220:106	Juvenile Justice Process	3
2260:240	Drug Use and Abuse	3
2260:241	Drug Treatment	3
2260:290	Special Topics in Community Services Technology	2-4
2540:150	Beginning Typewriting	3

### Social Services Emphasis\*

1100:—	Physical Education	1
1100:105	Introduction to Public Speaking or	
1100:106	Effective Oral Communication	3
1100:112	English Composition	4
2020:121	English	4
2020:222	Technical Report Writing	3
2020:240	Human Relations	3
2020:242	American Urban Society	3
2020:247	Survey of Basic Economics	3
2020:254	Black American	2
2260:100	Introduction to Community Services	3
2260:150	Introduction to Gerontological Services	3
2260:260	Alcohol Use and Abuse	3
2260:278	Techniques of Community Work	4
2260:279	Technical Experience: Community and Social Service	5
3750:100	Introduction to Psychology	3
3850:100	Introduction to Sociology	4
7750:—	Social Work Electives	6
7750:270	Poverty in the United States	3
7750:276	Introduction to Social Welfare	4

\*For students who wish to pursue a baccalaureate degree in social work in a "2+2" arrangement.

# Wayne General and Technical College

Tyrone M. Turning, Ed.D., *Dean*  
Robert L. McElwee, M.A., *Assistant Dean*

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## History

The Wayne General and Technical College of The University of Akron is located on 163 acres one mile northwest of Orrville, Ohio. The College was founded in 1972, culminating 10 years of effort on the part of local citizens to establish locally a permanent facility for a branch campus of a major state university, and is authorized by the state of Ohio through the Ohio State Board of Regents to offer general studies, including baccalaureate-oriented preparation; technical education programs; and continuing education experiences for those who live in Medina, Wayne and Holmes counties.

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## Mission and Goals

Wayne General is a public two-year branch campus of The University of Akron serving the citizens of Wayne, Holmes and Medina counties. Authorized by the Ohio General Assembly and the Ohio Board of Regents and governed by the Board of Trustees of The University of Akron, Wayne College operates under an open admission policy which provides broad access to educational opportunities.

Serving a predominantly rural and small city area, Wayne College has a diverse student population representing a wide range of ages, goals and needs. To meet the varied needs of the students, the College provides placement testing, career information, academic advising and convenient scheduling to assist students in planning and pursuing their academic and career futures.

Wayne College provides a general studies transfer program integral to a variety of professional and pre-professional majors. This program can lead to the degree of Associate of Arts or Associate of Science. In addition, technical preparation and occupational training for a variety of careers culminating in the degree of Associate of Applied Science or Associate of Applied Business and/or one-year certificates are other dimensions of the credit program.

The College is committed to intellectual and personal growth; it provides opportunities through which students can improve essential communication skills, acquire a body of knowledge and methodology, and develop critical decision-making abilities.

Students at Wayne College are provided an educational program that accommodates individual differences of background, age and need by providing accessible scheduling of programs, student services, academic support functions and a developmental program for those requiring skill remediation.

Wayne College contributes to the educational, cultural and social development of the community by sponsoring activities and events for the citizens of the college's service area as well as continuing education noncredit programs, workshops, seminars and courses.

The following goals provide further definition of the college's mission and serve as a basis upon which the college may establish program objectives:

### Goal 1

Wayne College is committed to quality teaching which will provide optimal learning opportunities for all students.

### Goal 2

The College will assist students to develop openness to new ideas and new ways of thinking, to undertake self-directed learning, to make a commitment to lifelong learning, and to fairly and critically evaluate current values and practices in our society.

### Goal 3

The College will maintain an appropriate balance in its transfer, career and continuing education programs.

### Goal 4

The College will continue to provide public service to the rural community which it serves through its programs, activities, faculty and students.

### Goal 5

The College will coordinate the growth and development of programs with the long-range plans and needs of the community.

### Goal 6

The College will establish itself in the community as an intellectually exciting and stimulating place.

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## Admission

Admission applications are available at the Office of Admissions on the main campus of The University of Akron or at Wayne College in Orrville (375-7356). The student enrolled at Wayne College may also take courses at the main campus of The University of Akron while attending Wayne. Likewise, a student enrolled on the main campus also may take courses at Wayne College concurrent with campus courses. Wayne General and Technical College is accredited at the associate degree level by the North Central Association of Colleges and Schools. Additional information regarding the college may be secured from the college bulletin, **Wayne College, 1982-84.**

# University College

Marion A. Ruebel, Ph.D., *Dean*  
Dudley C. Johnson, Jr., M.S.Ed., *Associate Dean, Academic Advising Services*  
Martin McKoski, Ph.D., *Director, Developmental Programs*  
David C. Riede, Ph.D., *Head, Department of General Studies*  
Thomas Vukovich, Ph.D., *Assistant to the Dean*

## Objectives

The purpose of the University College is to further the objectives of The University of Akron by providing a quality program of general collegiate education and to pursue the following aims:

- To offer the student a basic program of general studies and the prerequisite courses for advancement to the degree-granting colleges.
- To counsel the student with respect to adjustment to the collegiate environment and to academic, personal and occupational objectives.
- To direct the student to the proper curricula so that the student will enter the degree-granting colleges prepared to undertake advanced work.

The college recommends the student for advancement to the degree-granting colleges upon satisfactory completion of the appropriate requirements.

## 1100: General Studies

The Department of General Studies of the University College provides a student with courses aimed at developing ability to understand and express ideas effectively, to comprehend the processes involved in accurate thinking and to learn the responsibilities of an educated member of society. Also, these courses help a student gain knowledge which helps to develop intelligent behavior patterns, self-understanding and the recognition of individual abilities.

The General Studies program provides a wide foundation of general knowledge to serve as the structural basis for the development of the student's intellectual abilities to their cultural or professional height. This foundation includes English composition, literature, speech, mathematics, natural science, social science, western cultural traditions, eastern civilizations and physical education. The General Studies program as it is now presented is the fruit of a half century of planning, revision and developing.

A student, well-grounded in the General Studies, is academically prepared to continue into realms of higher education; this curriculum has proved the most advantageous starting point for a student, no matter the student's eventual scholastic goal. It is equally valuable to the enrollee who is indecisive about a professional future and to the enrollee who arrives at the University convinced of what the enrollee wishes to become.

A student who completes 30 semester credits and achieves a grade-point average of 2.00 ("C") or better is eligible for

transfer to a degree-granting college. A student should always check with the adviser to determine specific requirements for transfer to the programs of the student's choice.

Acceptance of a student in a degree-granting college is the responsibility of the respective collegiate dean, the dean of the University College and heads of departments concerned.

## Program of Instruction

The required General Studies courses are:

		Credits
1100.105	Introduction to Public Speaking or	
1100.106	Effective Oral Communication	3
1100.111.2	English Composition	8
1100.115.6	Institutions in the United States*	6
1100.120-81	Physical Education	1
1100.320.1	Western Cultural Traditions	8
1100.330-5	Eastern Civilizations**	4
	Mathematics	3
	Natural Sciencet	6

## Academic Advising Services

This office is responsible for the academic counseling and advising of all freshman- and sophomore-level students. The advisers are professionally-trained counselors and are prepared to help a student through academic and personal counseling on an appointment or walk-in basis.

Academic counseling helps the student adjust to the requirements of the curriculum and utilize course offerings that will

\*The six credit requirement in the social science area may also be met through one of the following options.

A. Completion of a minimum of two courses totalling at least six credits selected from two of the following four sets of course offerings:

- 3250.244 *Introduction to Economic Analysis*, three credits. (A student majoring in engineering is advised to take this as one of the student's selections.)  
or  
3250.201 *Principles of Macroeconomics*, three credits. (A student majoring in business, economics, etc., is advised to take this as one of the student's selections. A student doing so should plan to take 3250.202, three credits.)  
or  
3250.100 *Introduction to Economics*, three credits.
- 3400.201 *United States History to Civil War*, four credits  
or  
3400.202 *United States History since Civil War*, four credits.
- 3700.100 *Government and Politics in United States*, four credits.
- 3850.100 *Introduction to Sociology*, four credits.  
or  
3870.150 *Cultural Anthropology*, four credits.

B. For a Community and Technical College major only, completion of the following three courses (total of nine credits).

- 2020.240 *Human Relations*, three credits.
- 2020.242 *American Urban Society*, three credits.
- 2020.247 *Survey of Basic Economics*, three credits.

\*\*An engineering student is only required to take two credits; all other students must take four credits.

tMinimum of six credits of science. This requirement may be met either by taking courses in the Departments of Biology, Chemistry, Geology or Physics, or by any combination of two out of four of the natural science courses, 1100.221, 222, 223 and 224 (three credits each).

better prepare the student for the future. Sensible course loads, proper choice of subjects, scholastic achievement, study habits, outside work loads and other circumstances have an effect on successful work and can all be matters for concern in this kind of counseling.

Personal counseling is the type of counseling which aids when problems of a personal nature seem to be obstructing academic careers or personal lives.

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## Developmental Programs

The Department of Developmental Programs provides academic support for all University students, especially those who wish to strengthen their educational preparation in specific areas or who have been out of school for a number of years and feel the need for remediation. Through developmental courses, individual tutoring and work in the writing and reading laboratories, such a student can develop the skills necessary for acceptable performance at the college level.

Developmental courses are offered in English, reading, college reading and study skills, mathematics and chemistry. Classes are small to provide maximum time for individual help. Peer-tutoring is provided for most subjects taught in the first two years and is free.

The writing and reading laboratories are open to all undergraduate students without charge and provide professional diagnosis and remedy of weaknesses in these vital skills.

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## Diploma Nursing Program

The University, in cooperation with the hospital schools of nursing at Akron City Hospital, Akron General Medical Center and St. Thomas Hospital Medical Center in Akron, provides a program of studies basic to a diploma in nursing.

Nursing students must meet the University entrance requirements and are enrolled in regular credit courses.

Applications for this program are handled through the hospital schools of nursing which award the diploma.

The programs for the three schools of nursing differ slightly in regard to courses taken and their sequence.

The following courses are offered:

		<i>Credits</i>
3100:130	Microbiology	3
3100:206	Anatomy and Physiology	3
3100:207	Anatomy and Physiology	3
3150:124	Chemistry	3
3750:100	Introduction to Psychology	3
3750:130	Developmental Psychology	4
3850:100	Introduction to Sociology	4
7400:133	Nutrition Fundamentals	3

# Reserve Officers' Training Corps

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## 1500: Aerospace Studies

The Department of Aerospace Studies provides the student with the opportunity to pursue a commission in the United States Air Force while qualifying for graduation from The University of Akron. The United States Air Force has been in the forefront of contributions to flight, research and development, effective management of resources and people and education largely because of the existence of a well-educated, versatile and professional officer corps. The primary source of these officers is the Air Force ROTC.

The program is designed to prepare the student to become an officer who is dedicated and responsible; critical and creative in thinking; able to communicate clearly; and skilled in effective management.

Both the four- and two-year program are open to the full-time male and female student who will have completed at least a baccalaureate degree at commissioning.

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## Programs

### Four-Year Program

A full-time day student of The University of Akron may pursue the four-year program. Enrollment procedures for the first two years of Air Force ROTC known as the general military course (GMC), are the same as for any other university courses. The GMC consists of one hour of classroom work and one hour of *Aerospace Studies Laboratory* (Leadership Laboratory) each week and provides 1.5 semester credits.

Credit for portions of the GMC may be given for completion of two or more years of high school junior ROTC, participation in Civil Air Patrol, military school training or prior service in any branch of the United States Armed Forces.

Upon completion of the GMC requirements, the cadet who wishes to compete for the last two years of the program, the Professional Officer Course (POC), must meet the qualifications for that program.

### Two-Year Program

The basic requirement for entry into the two-year program is to have two academic years remaining, either at the undergraduate or the graduate level, or a combination of the two. Entry into the POC is competitive in nature. A two-year program applicant must meet the qualifications described below. A student in the POC receives a non-taxable monthly subsistence allowance of \$100. Applications for the two-year program should be made as early in the academic year as possible so that all requisites may be completed in time for summer field training. The POC consists of three hours of classroom work and one hour of *Aerospace Studies Laboratory* (Leadership Laboratory) each week, and provides 3 semester credits.

### Field Training

In the summer prior to entering the POC, all four-year program AFROTC cadets and student applicants for the two-year program must attend field training at an Air Force base where they will learn and make use of training and leadership techniques in close contact with other cadets.

The four-year program student spends four weeks at an encampment, while field training for the two-year program applicant lasts six weeks. The additional two weeks for the two-year program applicant are used to cover the academic work taken by the cadet who completed the General Military Course (GMC). Uniforms, lodging and meals are provided without charge, and travel pay is authorized to and from the individual's home or school. The cadet and applicant receive pay at approximately half the rate of a second lieutenant.

### Flight Training

As a pilot-qualified student enrolled in the Air Force ROTC Flight Instruction Program (FIP) the student can get an important start on an Air Force flying career.

When enrolled in FIP, the student will receive up to 25 hours of flight instruction at an FAA approved civilian-operated flying school near the campus. Approximately 18 hours will be dual instruction and the other seven will be solo flying. In addition to the flight training, the student will participate in a ground school covering the rules and regulations pertaining to flying.

The Air Force pays for flight instruction, textbooks, navigational equipment and transportation to and from the flying school.

### Base Visits

Classroom instruction is made more meaningful for the cadet through visits to Air Force bases. To bring the scope of Air Force operations into a clearer perspective, Air Force ROTC strives to enable every cadet to make at least one such visit each year. Many cadets have the opportunity to make more.

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## Requirements for Admission

### General Qualifications

- Be a citizen of the United States or applicant for naturalization.
- Be a full-time student.
- Be in sound physical condition.
- Be of good moral character.
- Meet age requirements as follows:
  - AFROTC four-year scholarship recipients must be at least 17 years of age and able to complete commissioning requirements prior to age 25.
  - If not on scholarship status, but designated for pilot or navigator training, be able to complete all commissioning requirements prior to age 26½.
  - If not on scholarship status and not qualified for flying training, be able to complete commissioning requirements prior to age 30.

### Additional Qualifications for Professional Officer Course

- Be at least 17 years of age.
- For the four-year program cadet, complete the General Military Course or receive credit for junior ROTC, Civil Air Patrol, military school training or prior service.

- For the two-year student applicant, complete the six-week field training course.
- Receive a satisfactory score on the Air Force Officer Qualifying Test (AFO-QT).
- Pass an Air Force physical examination.
- Be interviewed and selected by a board of Air Force Officers.
- Enlist in the Air Force Reserve prior to entry into the Professional Officer Course.

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## Requirements for Commissioning

- Complete the POC and field training.
- Earn at least a baccalaureate degree.
- Agree to accept, if offered, a commission in the United States Air Force.
- Agree to serve for a period of not less than three years on active duty after commissioning; or, if accepted for a flying training program, agree to serve for five years after navigator training or six years after pilot training.

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## Scholarships

Air Force ROTC college scholarships are available to a qualified applicant in both the two- and four-year AFROTC programs covering periods of four, three and two years. Each scholarship provides full tuition, laboratory and incidental fees and full reimbursement for curriculum-required textbooks. In addition, all scholarship cadets receive \$100 monthly non-taxable subsistence allowance.

Four-year scholarships are available for an applicant in pilot, navigator and scientific/engineering career fields. An applicant will be evaluated on the basis of:

- CEEB Scholastic Aptitude Test (SAT) or the American College Test (ACT) results
- High school academic record.
- Extracurricular and athletic activities.
- Air Force Officer Qualifying Test scores.
- Passing an Air Force medical examination.

All three- and two-year scholarships are awarded on a competitive basis and an applicant is evaluated on:

- Air Force Officer Qualifying Test.
- Collegiate grade-point averages.
- Extracurricular and athletic activities.
- Screening and nomination board rating.
- Academic major and potential active duty career.

Scholarship information may be obtained by contacting the Department of Aerospace Studies.

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## Financial Allowances

A cadet enrolled in the POC will receive a nontaxable subsistence allowance of \$100 per month.

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## Uniforms and Textbooks

All AFROTC uniforms and textbooks are provided by the Air Force both for on-campus courses and at field training.

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## 1600: Military Science

The University's Army Reserve Officer Training Corps (ROTC) was established in 1919, making it one of the oldest in the country. The main goal of the Army program is to provide both the active Army and Army Reserve and National Guard with commissioned male and female officers whose civilian education and attitudes contribute to the development of a military defense structure which reflects as well as defends our society. The graduate perpetuates and strengthens the tradition of our nation's citizen soldier concept.

A student enrolled in Army ROTC has an unusual opportunity to study and participate in leadership and management experiences which are unique to the college curriculum. Leadership, self discipline, responsibility and physical stamina are stressed as the student learns to plan, organize, motivate and lead others. Program goals are to develop decision-making capabilities through detailed examination of leadership factors; expand oral and written communication arts; provide some technical training in basic military skills; and develop an understanding of the relationship between the student's basic degree field and its application in one of 47 management fields in the United States Army.

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## Programs

### Four-Year Program

A full-time student enrolled in The University of Akron or Wayne General and Technical College may enroll in the Army four-year program. Freshmen and sophomores enroll in the basic military course *Military Science I and II (MS I, MS II)* of the four-year program for 1.5 credits per semester. *MS I and II* are held two hours each week and include studies in: national security affairs, marksmanship, leadership fundamentals, backpacking, rappelling, cross-country skiing, small unit operations and Army organization. Enrollment in *MS I* or *MS II* constitutes no obligation to military service or continuance into the advanced course; there is no requirement to wear a uniform, and the credits received can be applied toward elective requirements. A student who completes the basic course, (*MS I and MS II*) is qualified and may apply for enrollment in the advanced course which is described below.

### Two-Year Program

A student can enter the advanced course by completing *MS I and MS II*, by attending a basic military skills summer camp at Ft. Knox, KY or by having prior military service or training. Course studies are held four hours per week for three semester credits. The material includes: advanced leadership, application of tactics, methods of instruction, resource management, military history and the responsibilities of an officer. The advanced course includes a six-week paid summer camp attended usually between the junior and senior year. A student in the advanced course is paid \$100 per month or approximately \$1000 per school year. Upon graduation, the student will serve either with the Reserves, National Guard or on active duty.

### Cadet Activities

The Department of Military Science offers numerous activities to enrich classroom instruction; provide a better understanding

of the military and military life; and improve technical skills. These include:

- Military post orientation visits (at least one per year).
- Adventure training: marksmanship, rappelling, backpacking, cross-country skiing and survival training.
- Social organizations.
- Fraternal organizations.

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## Requirements for Admission

### Qualifications for Enrollment

- United States citizenship (an alien student may be enrolled under special circumstances)
- Full-time student (an advanced course student must be enrolled in baccalaureate degree course).
- Good moral character.
- Age requirements as follows:
  - be at least 17 for enrollment in the basic course;
  - be under 30 years of age by the time of commission (may be waived);
  - a scholarship student must be under 25 by commissioning date.
- Be mentally and physically fit.

### Qualifications for Advanced Course

- Basic qualifications for enrollment above.
- Completion of basic course, basic summer camp, veteran or 90 hours campus seminar.
- Qualify on the Army physical evaluation.
- Permission of the professor of military science.
- Be in good academic standing with the University.

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## Requirements for Commissioning

- Completion of a baccalaureate or advanced degree.
- Completion of the advanced ROTC course (*MS III and IV*).
- Completion of advanced summer camp.
- Agree to fulfill a service obligation as follows:

ROTC	<i>Active Duty Service</i> 4 years
Advanced Course	3 years active or 6 years Reserve/National Guard
Basic Course	no obligation

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## Scholarships

The Army ROTC has four-year scholarships available to high school seniors. Additionally, there are three-, two- and one-year scholarships available on a competitive basis to men and women enrolled in the ROTC program. Additionally, some scholarships are available to a student interested in enrolling in ROTC. These scholarships provide tuition, fees, text materials and a \$100 per month allowance to the student for the period of the scholarship. All scholarship students must agree to spend four years on active duty.

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## Uniform and Textbooks

Textbooks for all courses and equipment for adventure training are provided free by the Department of Military Science. Uniforms are issued free to the advanced course student while in the program.

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## Financial Allowances

An advanced course member and all scholarship students are paid a non-taxable allowance of \$100 per month while in the program. A student attending basic summer camp or advanced camp is paid for travel expenses, meals, housing and a salary.

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## Special Reserve and National Guard Programs

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### Reserve and National Guard Early Commissioning Program

The student who enters the advanced program may be commissioned in the Reserve or National Guard upon completion of advanced ROTC and prior to receiving a baccalaureate degree. Upon completion of a baccalaureate degree the officer may apply for active duty.

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## Simultaneous Membership Program (SMP)

A member of the Reserves or National Guard, who is enrolled full time in the University, may enroll in advanced ROTC if he applies for SMP membership through his unit, is accepted by the Professor of Military Science, and meets all other admission requirements for the advanced course (*MS III and MS IV*). Commissioning may occur upon completion of the advanced ROTC course, and the member will serve as an officer in the Reserves or National Guard. An SMP member receives \$100 tax free per month while in ROTC, is promoted to an E-5 officer trainee in the reserve/guard unit and gets paid as such.

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## Aviation

A qualified student pursuing a degree in aviation-related areas or other technical fields which can be related to aviation may apply for the Guaranteed Aviation Specialty Program. Upon graduation and commissioning the student will attend flight school and serve on active duty as an Army aviator. To be accepted, a student must pass a flight physical and the Flight Aptitude Selection Test.

# Buchtel College of Arts and Sciences

Claibourne E. Griffin, Ph.D., *Dean*

Paul S. Wingard, Ph.D., *Associate Dean*

William A. Francis, Ph.D., *Assistant to the Dean*

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## Objectives

The Buchtel College of Arts and Sciences serves the objectives of the University, which exist that learning may be procured, preserved and enlarged. More particularly, the college seeks to foster:

- The commitment to humanity — that loyal devotion to the heritage contained in those disciplines growing out of the ancient, liberal arts which teach man both his limitations and potentialities. The college seeks to provide an appropriate environment for a student to acquire an ability to evaluate, integrate and understand the conditions of man's existence, to understand himself in the natural world and in a particular civilization or society. No course or combination of courses can insure such understanding, and there is no schooling that can guarantee wisdom. Therefore, the college requires the student to study ideas and experiences that are the subject matter of a variety of disciplines:
  - the nurture of civility — those actions whereby virtue, the advancement of society and wise and humane government are encouraged;
  - the advancement of learning — that substantive knowledge discovered and cultivated by critical curiosity, tested by experimentation, propagated by instruction and capable of affecting the life of man so that he may in a free society exercise a responsible liberty. The most enduring contribution which the college can make is to help the individual acquire the skill, motivation and breadth of knowledge to continue his intellectual development throughout his life.

The college recommends each student for the appropriate bachelor's, master's or doctoral degree in accordance with the level of accomplishment.

Buchtel College is one of eight degree-granting colleges at the University. Its name truthfully implies that its traditions date back farther than those of the other undergraduate colleges, since the University itself is an outgrowth of Buchtel College, a liberal arts institution founded in 1870.

When Buchtel College became the Municipal University of Akron the original name was retained in the College of Liberal Arts which was subsequently renamed the Buchtel College of Arts and Sciences. Then, and now, the liberal arts goal has been to offer broad training to the college student so that the student can prosper in life and sustain a creative appreciation of the arts and sciences.

The college is composed of the following three administrative divisions.

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## Humanities Division

It is concerned with the intellectual traditions that have formed man and with their application to the present and future growth

of the human being by affording insights into contemporary life and by promoting the development of the individual as a creative, critical and articulate person through the study of the classics, languages, literature and philosophy.

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## Natural Sciences Division

It is the most professionally-oriented division in this college, with the highest number of graduates continuing their education in specific areas of advanced study. In undergraduate years, a natural sciences student has a course of study with a strong emphasis in biology, chemistry, computer science, geology, mathematics, physics or statistics.

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## Social Sciences Division

It stresses intelligent participation in community affairs through education in economics, geography, history, political science, psychology and sociology.

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## College Requirements

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### Requirements for Admission

To be admitted to the college the student must have completed 30 credits of work and have the approval of the dean of the college.

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### Degrees Awarded

*Humanities Division:* Bachelor of Arts.

*Natural Sciences Division:* Bachelor of Arts, Bachelor of Science, Bachelor of Science in Medical Technology.

*Social Sciences Division:* Bachelor of Arts, Bachelor of Science in Geography/Cartography, Bachelor of Science in Labor Economics, Bachelor of Science in Political Science/Criminal Justice, Bachelor of Science in Political Science/Public Policy.

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### Requirements for Baccalaureate Degrees

A student transferring into the college must have completed the equivalent of, or taken, 1100:111-112 *English Composition*, three credits of *Modern University Mathematics* and the remainder of the lower-division General Studies program.

Requirements for the bachelor's degree include:

- Completion of the General Studies program.
- A minimum of 47 credits consisting of either:
  - 300/400-level courses both in and outside the student's major;
  - any courses outside major department as specified in and approved by the student's major adviser and the department or division head (permission should be obtained prior to enrollment).

- Demonstration of ability to use English and another language:
  - for English, this ability will be shown by the completion of the General Studies sequence of 1100:111.2 *English Composition*;
  - for the other language, this ability will be shown by the completion of a second year of a foreign language on the University level or by demonstrating equivalent competence through a test approved by the Department of Modern Languages.
- Completion of requirements in a major field of study (see **Programs of Instruction**) and the recommendation of the student's major department.
- Attaining a minimum grade-point average of 2.00 in all work in the major field.
- Fulfilling the University requirements for a baccalaureate degree set forth in **Section 3** of this *Bulletin*.

Any student who wishes to receive a second baccalaureate degree must complete 32 credits of coursework in addition to the 128 credits necessary for the first degree; 16 of these credits must be 300/400-level courses or other approved courses.

## Major Field

To qualify for graduation, a student must concentrate or major in the work of either a department or a division of the college. Part or all of these credits may be taken in specifically required courses depending upon the major chosen. The longer and more professionally-oriented majors should be started during the first year when the student is still under the guidance of the Office of Academic Advising Services.

Ordinarily a student will select a department in which to major. The exact requirements for each major will be found on the following pages. Some departments offer more than one type of major. No minor is required; but in some cases, the major includes certain courses in other departments. As soon as the student is transferred to the college, the head of the student's major department becomes the academic adviser.

A student who desires a broader education than the departmental major offers may elect a divisional major and qualify in the general area of the humanities or the natural sciences. The exact requirements for these majors will be found on the following pages. As soon as the student contemplating a divisional major is transferred to the college, the chairman of the student's major division becomes the academic adviser.

## Preparation for High School Teaching

A student interested in a teaching career on the high school level may qualify for secondary school certification by the Ohio State Department of Education while enrolled in the Buchtel College of Arts and Sciences. Generally the arts and sciences major subject will also constitute a teaching major, although a second teaching field usually is required. The education and psychology courses required for the secondary school teaching certificate may be taken as electives toward the arts and sciences degrees. Additional elective credits will generally enable the student to meet the requirement of a second teaching field, without exceeding the 128 credits necessary for graduation.

The number of credits in a teaching field required for certification can be determined by referring to "Teaching Fields," College of Education, **Section 4** of this *Bulletin*.

In addition to meeting the requirements in a teaching field, a student must also take the following courses:

		Credits
5100:150	Introduction to Professional Education	3
5100:250	Human Development and Learning	3
5100:350	Educational Measurement and Evaluation	2
5100:450	Problems in Education	2
5300:265	Introduction to Secondary Education	1
5300:275	Exploratory Experience	1
5300:310	Principles of Teaching in the Secondary School	3
5300:325	Content Reading in Secondary School	3
5300:345	Human Relations in Secondary Education	1
5300:355	Managing Classroom Behavior at the Secondary Level	1
5300:375	Exploratory Experience	1
5300:411	Instructional Techniques Secondary Education	4
5300:445	Minicomputer Applications in Secondary Classroom	1
	or	
5300:455	Career Options in Secondary Education	1
5300:403	Student Teaching Seminar	1
5300:495	Student Teaching	8

## Programs of Instruction

### 3100: Biology

#### Bachelor of Science Bachelor of Science in Cytotechnology Bachelor of Science in Medical Technology

- The General Studies and the second year of a foreign language.\*
- Core requirements:

		Credits
3100:111.2	Principles of Biology	8
3100:211	General Genetics	3
3100:216	Organic Evolution	2
3100:217	General Ecology	2
3100:311	Cell Biology**	3
3100:384	Techniques and Instrumentation Laboratory†	
3150:132.3	Principles of Chemistry††	7
3150:134	Qualitative Analysis††	2
3150:201.2	Organic Chemistry and Biochemistry I and II★	8
	or	
3150:263,4,5,6	Organic Chemistry	10
3450:147.8	Elementary Functions I and II	6
	or	
3450:111.2,3	Modern University Mathematics★	3
3450:121.2,3	Mathematics★	3
3470:251.2,3	Statistics★	3

- 300/400-level courses: the student is required to complete one course in anatomy/physiology and two courses in organismal biology which has been approved by the department.
- A student majoring in biology or medical technology should consult a member of the biology faculty during the first year.

#### Areas of Specialization

Specialization in one of the areas listed below during the third and fourth years:

##### Botany

3100:440	Mycology	
	or	
3100:443	Phycology	4

\*Second year of foreign language and *Eastern Civilizations* not required for Bachelor of Science in Medical Technology.

\*\*Not required for Bachelor of Science in Medical Technology.

†Not required for B.S. in Biology degree.

††Or with permission, 3150:121.2.

★Required for B.S. in Cytotechnology.

		Credits
3100:445	Plant Morphology	4
3100:447	Plant Physiology	3
3100:449	Plant Biosystematics	2
<b>Electives:</b>		
3100:341.2	Flora and Taxonomy I and II	6
3100:441	Plant Development	4
3100:442	Plant Anatomy	3

#### Ecology

3100:422	Conservation of Biological Resources	4
3100:424	Limnology	3
3100:464	General and Comparative Physiology	4
3300:275	Specialized Writing	3
3350:495	Soil and Water Field Studies	3
3370:101	Introductory Physical Geology	4
3450:221.2	Analytic Geometry-Calculus I and II	8
3470:251-6	Statistics	6
4450:206	Fortran Programming and/either	
3100:331	Microbiology	4
3100:426	Applied Aquatic Ecology	3
3100:440	Mycology	
	or	
3100:443	Phycology	4
3150:423	Quantitative Analysis and	
3150:427	Analytical Chemistry Lecture or one course from each group below	3
3100:351	Invertebrate Zoology and	
3100:353	General Entomology	4
3100:358	Ornithology and	3
3100:458	Vertebrate Zoology	4
3100:341	Flora and Taxonomy I and	
3100:342	Flora and Taxonomy II	3

#### Microbiology

3100:331.2	Microbiology	8
3100:431	Bacterial Physiology	3
	or	
3100:435	Virology	4
3100:437	Immunology	4
<b>Electives:</b>		
3100:355	Parasitology	4
3100:433	Pathogenic Bacteriology	4
3100:440	Mycology	
	or	
3100:443	Phycology	4
3100:461.2	Human Physiology	8
3150:401.2	Biochemistry	6

#### Physiology and Pre-Professional

(Pre-medical, pre-dental, pre-veterinary and pre-pharmacy student)

3100:461.2	Human Physiology	8
3100:466.7	Developmental Anatomy	8
3650:261.2	Physics for Life Sciences I and II	8
<b>Electives:</b>		
3100:365	Histology I	3
3100:480	Radiation Biology	3
3450:221.2,3	Analytic Geometry-Calculus I, II and III	12
3650:267.8	Life Sciences Physics Computations I and II	2
3150:423	Quantitative Analysis and	
3150:427	Analytical Chemistry Lecture	3
3150:425.6	Analytical Chemistry Laboratory	4

#### Zoology

A minimum of 13 credits from the following:

3100:351	Invertebrate Zoology	4
3100:428	Biology of Behavior	2
3100:458	Vertebrate Zoology	4
3100:464	General and Comparative Physiology	4
3100:466.7	Developmental Anatomy	8

At least one of the following courses should also be included:

3100:341	Flora and Taxonomy I	3
3100:342	Flora and Taxonomy II	3
3100:440	Mycology	
	or	
3100:443	Phycology	4

		Credits
3100:445	Plant Morphology	4
<b>Electives:</b>		
3100:353	General Entomology	4
3100:355	Parasitology	4
3100:358	Ornithology	3
3100:365.6	Histology	6
3100:422	Conservation of Biological Resources	4
3100:485	Laboratory Animal Management	3

#### High School Teaching

For state certification requirements, see the College of Education and the Buchtel College of Arts and Sciences "Preparation for High School Teaching," **Section 4** of this *Bulletin*.

3100:265	Introductory Human Physiology	4
3100:341	Flora and Taxonomy I	3
3100:351	Invertebrate Zoology	4
3100:383	Laboratory Techniques and Instrumentation	2
3100:458	Vertebrate Zoology	4
<b>Electives:</b>		
3100:331	Microbiology	4
3100:342	Flora and Taxonomy II	3
3100:426	Applied Aquatic Ecology	3
3100:428	Biology of Behavior	2
3100:440	Mycology	4
	or	
3100:443	Phycology	4
3100:445	Plant Morphology	4
3100:464	General and Comparative Physiology	4
3100:485	Laboratory Animal Management	3

#### Medical Technology

A foreign language and *Eastern Civilizations* are not required.

3100:206.7	Anatomy and Physiology	6
3100:331.2	Microbiology	8
3100:355	Parasitology	4
3100:383	Laboratory Techniques and Instrumentation	2
3100:437	Immunology	4
3150:335.6	Analytical Chemistry for Laboratory Technicians	8

The first three years of instruction are given in the University. The senior year consists of a minimum of 32 credits of coursework in the 3120 series. These courses will be available only to the student selected for the clinical experience portion of the B.S.M.T. program in a CAHEA approved hospital school; normal tuition will be charged. The University is affiliated with the following hospital schools: Akron City Hospital, Akron General Medical Center, Barberton Citizens Hospital, Canton Aultman Hospital, Cleveland Metropolitan General Hospital, Elyria Memorial Hospital, Mt. Sinai Hospital in Cleveland, Northern Columbiana County Community Hospital, St. Alexis Hospital (Cleveland), St. Thomas Hospital Medical Center and the Children's Hospital Medical Center of Akron. The student must apply to a hospital school for separate admission. The University cannot guarantee placement. A student may train at other approved schools after obtaining special permission from the head of the Department of Biology.

The University grants the B.S. in Medical Technology after receipt of evidence of satisfactory completion of the hospital instructional program.

A minimum of 36 credits in biology is necessary to qualify for a Bachelor of Science degree. Additional courses in biology or other sciences are usually necessary to satisfy the admission requirements of graduate and professional schools for advanced work and professional studies.

All majors for a Bachelor of Science degree in biology take the sequence of courses listed above which will provide an understanding of the fundamentals of modern biology. During the first year, a student intending to major in biology should consult a member of the biology faculty.

#### Cytotechnology

A foreign language is not required.

The first three years of instruction are given in the University. The senior year consists of a maximum of 32 credits in the 3130 series.

These courses are available only to the student selected for the clinical experience portion of the B.S.C.T. program in a CAHEA approved school. Normal tuition will be charged. The student must apply with a separate admission to an approved school. The University will assist in the process but cannot guarantee admission.

The University will grant the B.S. in Cytotechnology after receipt of satisfactory completion of the hospital instructional program.

- The following credits are required in addition to core requirements:

		<i>Credits</i>
3100.206.7	Anatomy and Physiology	6
3100.212	Genetics Laboratory (Optional)	1
3100.331.2	Microbiology	8
3100.365.6	Histology I and II	6
3100.383.4	Laboratory Techniques and Instrumentation in Biology	2
3100.437	Immunology	4

### Bachelor of Arts

- The General Studies and the second year of a foreign language.
- At least 17 credits in the humanities or social sciences, including at least two of the following:
 

3400.477	Western Science to 1800	4
3400.478	Western Science since 1800	4
3600.464	Philosophy of Science	3
- At least 24 credits in the biological sciences which must include:
 

3100.111.2	Principles of Biology	8
3100.211	General Genetics	3
3100.216	Organic Evolution	2
3100.217	General Ecology	2
3100.311	Cell Biology	3
	or (with permission)	
3100.130	Principles of Microbiology	3
- At least one year of chemistry, including, preferably, some biological chemistry (3150:129,30 *General Chemistry* is suggested).

## 3150: Chemistry

### Bachelor of Science (A.C.S. certified)

- The General Studies and the second year of a foreign language.
- At least 45 departmental credits including:

3150:132	Principles of Chemistry I	4
3150:133	Principles of Chemistry II	3
3150:134	Qualitative Analysis	2
3150:263	Organic Chemistry Lecture I	3
3150:264	Organic Chemistry Lecture II	3
3150:265	Organic Chemistry Laboratory I	2
3150:266	Organic Chemistry Laboratory II	2
3150:313	Physical Chemistry Lecture I	3
3150:314	Physical Chemistry Lecture II	3
3150:315	Physical Chemistry Laboratory I	2
3150:316	Physical Chemistry Laboratory II	2
3150:423	Quantitative Analysis	3
3150:425	Quantitative Analysis Laboratory	2
3150:427	Analytical Chemistry Lecture	3
3150:428	Analytical Chemistry Laboratory	2
3150:472	Advanced Inorganic Chemistry	3

- At least two advanced courses:

3150:401	Biochemistry Lecture I	3
3150:402	Biochemistry Lecture II	3
3150:404	Biochemistry Laboratory I	1
3150:405	Biochemistry Laboratory II	1
3150:415	Chemical Instrumentation	3
3150:416	Instrumental Methods of Analysis	3
3150:421	Qualitative Organic Analysis	4
3150:463	Advanced Organic Chemistry	3
3150:499	Research Problems	2
3650:481	Methods of Mathematical Physics I	3
3940:407	Polymer Science	4

- Mathematics:

3450:235	Differential Equations	3
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- Physics:
 

3650:291.2	Elementary Classical Physics I and II	8
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- Recommended:
 

4450:206	Fortran (Science and Engineering)	2
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### Bachelor of Arts

- The General Studies and the second year of a foreign language.

- Chemistry:

3150:132	Principles of Chemistry I	4
3150:133	Principles of Chemistry II	3
3150:134	Qualitative Analysis	2
3150:263	Organic Chemistry Lecture I	3
3150:264	Organic Chemistry Lecture II	3
3150:265	Organic Chemistry Laboratory I	2
3150:266	Organic Chemistry Laboratory II	2
3150:303	Elementary Physical Chemistry I or	
3150:313	Physical Chemistry Lecture I	3
3150:304	Elementary Physical Chemistry II or	
3150:314	Physical Chemistry Lecture II	3
3150:423	Quantitative Analysis	3
3150:425	Quantitative Analysis Laboratory	2
3150:427	Analytical Chemistry Lecture	3

- At least two courses from the following:

3150:315	Physical Chemistry Laboratory I	2
3150:316	Physical Chemistry Laboratory II	2
3150:401	Biochemistry Lecture I	3
3150:402	Biochemistry Lecture II	3
3150:404	Biochemistry Laboratory I	1
3150:405	Biochemistry Laboratory II	1
3150:415	Chemical Instrumentation	3
3150:416	Instrumental Methods of Analysis	3
3150:421	Qualitative Organic Analysis	4
3150:428	Analytical Chemistry Laboratory	2
3150:463	Advanced Organic Chemistry	3
3150:472	Advanced Inorganic Chemistry	3
3150:499	Research Problems	2
3940:401	Introduction to Elastomers	3
3940:402	Introduction to Plastics	2
3940:407	Polymer Science	4
3940:411	Molecular Structure and Physical Properties of Polymers I	3
3940:412	Molecular Structure and Physical Properties of Polymers II	2
3940:413	Molecular Structure and Physical Properties of Polymers III	2

- Physics:

3650:291.2	Elementary Classical Physics I and II or	
3650:261.2	Physics for the Life Sciences I and II or	
3650:231.2	Concepts of Physics I and II	8

- Mathematics:

3450:149	Pre-Calculus Mathematics	4
3450:221.2	Analytic Geometry-Calculus I and II (or equivalent)	8

- Recommended:

4450:206	Fortran (Science and Engineering)	2
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### Cooperative Education Program — Chemistry

#### Qualifications

Arrangements for student entry into the program are on an individual basis, and are initiated by the student during the second year of undergraduate study. The cooperative education program is an optional program available to all full-time B.S. chemistry majors at the University who have met the following requirements:

- satisfactory completion of 60 credits with a grade-point average of at least 2.0 ("C") in the major requirements;
- be on schedule in the student's curriculum;

- received acceptance by a cooperative education coordinator or director following a series of interviews.

A transfer student may also be considered for the cooperative education program if his background is equivalent to the minimum requirements for a University of Akron student. At least one semester of full-time study at The University of Akron is required before a transfer student can be eligible for the Cooperative Education Program.

A part-time student, having completed 60 credits with a "C" average and on schedule in the curriculum, is also eligible for the program. However, once having entered, the student is expected to be a full-time student while not on his co-op job.

It should be noted that placement in an industrial or other position is not guaranteed, and that the foreign student should recognize that many companies require United States citizenship or possession of a permanent visa. In any case, final acceptance for any position is, of course, the decision of the employer.

### Schedule

The work-study schedule for a student in the co-op program is as follows:

Year	Fall	Spring	Summer
1	School	School	Vacation/School
2	School	School	Vacation/School/Work
3	School	Work	School
4	Work	School	Work
5	School	School	

### Registration

While no academic credits are assigned, each student must register for cooperative work periods in the same manner that a student registers for any other course. The courses are:

3150:300	Cooperative Education Work Period
3150:301	Cooperative Education Work Period
3150:302	Cooperative Education Work Period
3150:403	Cooperative Education Work Period

A certificate is awarded upon completion of the program. Courses required for certification are 3150:301, 302 and 403; 3150:300 is optional.

A registration fee for each work period is charged to partially cover the expenses of administering the program. Upon completion of a work period, a statement will appear on each student's official transcript listing the course number, title and name of the employer. In the place of a grade, "credit" or "no credit" will be given, depending upon the student's satisfactory or unsatisfactory completion of the following:

- Work performance as evaluated by the employer.
- A written work report and its approval by the department head and the cooperative education staff.
- *Cooperative Work Period Summary form.*

## 3200: Classics

3200: Classics; 3210: Greek; 3220: Latin

### Bachelor of Arts

- The General Studies.
- At least 24 departmental credits including

3200:313	Archaeology of Greece
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Credits  
3

		Credits
3200:314	Archaeology of Rome	3
3200:361	Literature of Greece	3
3200:362	Literature of Rome	3
	Classical Electives	12

- Language courses must be above the 200 level in order to be included in the total of 24 credits. In the case of a Latin major, three credits in this language (preferably in Latin grammar and idiom) must be taken during the senior year.
- The student wishing to be certified for public school teaching with Latin as the principal teaching field must complete 26 credits in that language. In addition, the required credits in a second academic teaching field must be completed. See "Teaching Fields," College of Education, **Section 4** of this *Bulletin*.

## 3250: Economics

### Bachelor of Arts

- The General Studies and the second year of a foreign language.
- At least 30 departmental credits including:

3250:201	Principles of Macroeconomics	3
3250:202	Principles of Microeconomics	3
3250:400	Macroeconomic Theory	3
3250:410	Microeconomic Theory	3
	Economics Electives	18

- Mathematics:

3450:—	Modern University Mathematics	9
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- Statistics (one of the following):

6500:321.2	Quantitative Business Analysis I and II	6
	or	
3470:251	Descriptive Statistics and Problems	1
3470:252	Distributions	1
3470:253	Hypothesis Testing	1
3470:255	Regression and Correlation	1
3470:256	Experimental Design	1
3470:257	Time Series and Index Numbers	1
	or	
3470:461	Applied Statistics	4

- Electives — 30-32 credits.

### Bachelor of Science in Labor Economics

- The General Studies.
- At least 30 departmental credits including:

3250:201	Principles of Macroeconomics	3
3250:202	Principles of Microeconomics	3
3250:330	Labor Problems	3
3250:410	Microeconomic Theory	3
	Two of the following:	
3250:333	Labor Economics	3
3250:431	Labor and the Government	3
3250:432	The Economics and Practice of Collective Bargaining	3
3250:435	Human Resource Policy	5
	Economics Electives	12

- Statistics (one of the following):

6500:321.2	Quantitative Business Analysis I and II	6
	or	
3470:251	Descriptive Statistics and Problems	1
3470:252	Distributions	1
3470:253	Hypothesis Testing	1
3470:255	Regression and Correlation	1
3470:256	Experimental Design	1
3470:257	Time Series and Index Numbers	1
	or	
3470:461	Applied Statistics	4

- At least eight credits in 300/400-level courses geography, history, political science, psychology or sociology.

- Electives — 45-47 credits.

## 3300: English

### Bachelor of Arts

- The General Studies and the second year of a foreign language.
- At least 35 credits in the department including the following course and distribution requirements:

Required courses:	Credits
3300:301 English Literature I	4
3300:302 English Literature II	4
3300:316 Shakespeare: The Mature Plays	3
3300:341 American Literature I	3
3300:342 American Literature II	3

#### Distribution of requirements:

One linguistics or English language course. A minimum of four 400-level courses.

Of the total number of courses taken for the major, at least two must be in literature written before 1800 and two after; 3300:301, 302, 316, 341 and 342 may not be used to meet this requirement. Courses which satisfy the language requirement and the literature before and after 1800 requirements are identified in the course descriptions.

#### Recommended:

3300:280 Poetry Appreciation	3
3300:— an advanced course in composition	3

- Electives — 40 credits.

### Certificate Program in Linguistic Studies

A certificate program is offered. A full description of this program may be found in "Interdisciplinary and Certificate Programs," **Section 4** of this *Bulletin*.

## 3350: Geography

### Bachelor of Arts

- The General Studies and the second year of a foreign language.
- At least 26 departmental credits including:

3350:210 Physical and Environmental Geography	3
3350:240 Maps and Map Reading	3
3350:320 Economic Geography	3
3350:330 Rural and Urban Settlement	3
3350:340 Cartography	3
3350:481 Geographic Research Methods	3
3350:483 Spatial Analysis	3
3350:496 Field Research Methods	3
Geography Electives	4

- At least one course from the following:

3350:350 Anglo-America	3
3350:353 Latin America	3
3350:356 Europe	3
3350:358 U.S.S.R.	3
3350:360 Asia	3
3350:363 Africa South of the Sahara	3

- Electives — 49 credits.

### Bachelor of Science in Geography/Cartography\*

- Completion in the Community and Technical College of the surveying option in the associate degree program in surveying and construction.
- Completion of General Studies requirements.
- Completion of at least 47 credits of 300/400-level courses in addition to the General Studies requirement.

\*Students planning to pursue the Bachelor of Science degree in Geography/Cartography should select courses 2020:242 *American Urban Society* and 247 *Survey of Basic Economics* as general electives.

- At least nine credits of course work which will introduce students to a foreign culture. Such courses shall be selected by the student with the approval of the adviser in the Department of Geography. Such courses may be chosen from those foreign culture courses offered in any of the following departments: anthropology, classics, non-U.S. history and modern languages. Foreign language is strongly recommended.
- At least 30 credits in geography including the following:\*\*

	Credits
3350:442 Thematic Cartography	3
3350:444 Map Compilation and Reproduction	3
3350:447 Introduction to Remote Sensing	3
3350:448 Automated Computer Mapping	3
3350:449 Advanced Remote Sensing	3
3350:481 Introduction to Geographic Research	3
3350:483 Introduction to Spatial Analysis	3
3350:496 Field Research Methods	3

## 3370: Geology

### Bachelor of Science

#### Geology

- The General Studies and the second year of a foreign language.

- At least 47 departmental credits including:

3370:101 Introductory Physical Geology	4
3370:102 Introductory Historical Geology	4
3370:210 Geomorphology	3
3370:230 Crystallography	3
3370:231 Mineralogy	3
3370:233 Petrology	2
3370:324 Sedimentation and Stratigraphy	3
3370:350 Structural Geology	4
3370:360 Introductory Invertebrate Paleontology	4
3370:395 Field Methods in Geology	2
3370:432 Optical Mineralogy	3
3370:496 Geology Field Camp	6
400-level courses	6

- Non-geology courses required for majors:

3150:132.3 Principles of Chemistry I and II	7
3450:221.2 Analytic Geometry-Calculus I and II	8
3650:231.2 Concepts of Physics I and II or equivalent	8

- Electives:

Additional work in a supporting science, mathematics or engineering is strongly recommended. During the first year, a student intending to major in geology should consult a member of the geology faculty.

#### Geophysics

- The General Studies and the second year of a foreign language.

- At least 30 departmental credits including:

3370:101 Introductory Physical Geology	4
3370:102 Introductory Historical Geology	4
3370:350 Structural Geology	4
3370:441 Fundamentals of Geophysics	3
3370:446 Exploration Geophysics	3
3370:496 Geology Field Camp	6
Geology Electives (as approved by geophysics adviser)	6

- Non-geology required courses:

3150:132.3 Principles of Chemistry I and II	7
3450:221.2.3 Analytic Geometry-Calculus I, II and III	12
3450:235 Differential Equations	3
3650:291.2 Elementary Classical Physics I and II	8
3650:431 Mechanics	3
3650:436 Electricity and Magnetism	3

\*\*See department head for possible substitutions.

## Bachelor of Arts

- The General Studies and the second year of a foreign language.
- At least 44 departmental credits including:

	Credits
3370:101 Introductory Physical Geology	4
3370:102 Introductory Historical Geology	4
3370:231 Mineralogy	3
3370:233 Petrology	2
3370:350 Structural Geology	4
3370:360 Introductory Invertebrate Paleontology	4
3370:496 Geology Field Camp	6
Elective geology courses (minimum eight credits at the 300/400-level)	17

- Non-geology courses required for majors:

3150:132 Principles of Chemistry I	4
3450:148 Elementary Functions II (or equivalent)	3

- At least seven credits from the following:

3100:111.2 Principles of Biology (or equivalent)	4
3150:133 Principles of Chemistry II (or equivalent)	3
3650:231.2 Concepts of Physics (or equivalent)	4

## 3400: History

### Bachelor of Arts

- The General Studies and the second year of a foreign language (French, German or Russian suggested).
- A minimum of 30 departmental credits including:

3400:405 Historical Methods	2
History Electives*	28

Of the 28 remaining history credits a student must take some distribution of the courses in American and European history. A suitable pattern would be: 3400:201.2 *United States Survey* (eight credits); 3400:207.8 *Modern Europe* (eight credits).

## 3450: Mathematics

### Bachelor of Science

#### Bachelor of Arts

- The General Studies and the second year of a foreign language.
- At least 40 departmental credits including:\*\*

3450:221.2,3 Analytic Geometry-Calculus I, II and III	12
3450:235 Differential Equations	3
3450:311 Abstract Algebra	3
3450:312 Linear Algebra	3
3450:421.2 Advanced Calculus I and II	6
3450:445 Introduction to Topology	3
Mathematics Electives	10
(Elective credits must be approved 300/400-level courses in the department.)	

- For the Bachelor of Science degree, complete 18 credits of course-work outside the major and beyond the General Studies in a suitable area of concentration as approved by the department.
- For the Bachelor of Arts degree, complete 18 credits of humanities or social sciences beyond the General Studies. The 18 credits are to be from more than one department.
- Electives — 17 credits.

\*Up to six credits in cognate fields may be substituted with the adviser's approval.

\*\*The courses 3450:101-39 *Modern University Mathematics*, 3450:147.8 *Elementary Functions*, 3450:149 *Pre-Calculus Mathematics*, 3450:301 *History of Mathematics* do not meet major requirements.

## Applied Mathematics

- The General Studies and the second year of a foreign language.
- At least 40 departmental credits including:†

	Credits
3450:221.2,3 Analytic Geometry-Calculus I, II and III	12
3450:235 Differential Equations	3
3450:312 Linear Algebra	3
3450:421.2 Advanced Calculus I and II	6
3450:427 Introduction to Numerical Analysis	3
3450:436 Mathematical Models	3
3450:451 Theoretical Statistics I	3
Mathematics Electives	7
(Elective credits must be in approved 300/400-level courses in the department.)	

- For the Bachelor of Science degree: complete 18 credits of course-work outside the major and beyond the General Studies in a suitable area of concentration as approved by the department.

For the Bachelor of Arts degree: complete 18 credits in the humanities and social sciences beyond the General Studies. These 18 credits are to be from more than one department.

- Electives — 17 credits.

## Cooperative Education Program — Mathematical Sciences

### Schedule

The work-study schedule for a student participating in the Cooperative Education Program is as follows:

Year	Fall	Spring	Summer
1	School	School	Vacation/School
2	School	School	Vacation/School
3	School	Work	School
4	Work	School	Work
5	School	School	

### Admission

Arrangements for student entry into the program are on an individual basis, and must be initiated by the student during the second year of undergraduate study. The Cooperative Education Program is an optional program available only to all full-time mathematical sciences students at The University of Akron who have satisfactorily met the following requirements:

- Sixty credits with a grade-point average of at least 2.00 out of a possible 4.00 in the program of mathematical sciences curriculum and be on schedule in the curriculum.
- Acceptance by a cooperative education coordinator or director following interviews.  
A transfer student must:
- Complete 16 credits of academic work at The University of Akron with a grade-point average of at least 2.00 out of a possible 4.00. Be on schedule in the mathematical sciences curriculum.

A student who desires to participate in the program will fill out a *Personal Data* form and submit it to the department head. The student will then meet with a member of the cooperative education staff to discuss the availability of prospective employers. During this interview, the student will be asked to sign a *Cooperative Educational Agreement* and a grade release form which will become effective upon employment. Employment must be coordinated or have approval of the department and the cooperative education director. The University does not guarantee

†The courses 3450:101-39 *Modern University Mathematics*, 3450:147.8 *Elementary Functions*, 3450:149 *Pre-Calculus Mathematics*, 3450:301 *History of Mathematics* and 3470:251-7 *Introduction to Statistics* do not meet major requirements.

employment for the student. The student will be expected to remain with the employer for all cooperative work periods in order to provide a progression of experience and responsibility.

### Registration

While no academic credits are assigned, each student must register for cooperative work periods in the same manner that a student registers for any other University course.

The courses are as follows:

3480.300	Cooperative Education Work Period
3480.301	Cooperative Education Work Period
3480.302	Cooperative Education Work Period
3480.303	Cooperative Education Work Period

A cooperative program fee for each work period is charged. Upon completion of a work period, a statement will appear on each student's official transcript listing the course number, title and name of the employer. In the place of a grade, "credit" or "no credit" will be given, depending upon the student's satisfactory or unsatisfactory completion of the following:

- Work performance as evaluated by the employer.
- Written work report as approved by department head and cooperative education staff.
- Cooperative Work Period Summary form.

Normally, work progresses satisfactorily on the job and a grade of "credit" is assigned at the end of the semester. If all the above conditions are not met, a change of grade to "no credit" will be submitted.

## 3460: Computer Science

### Bachelor of Science

- The General Studies and the second year of a foreign language.
- At least 37 credits in computer science.
- Core curriculum:

		Credits
3460.201	Introduction to Fortran Programming	
	or	
4450.206	Fortran (Science and Engineering)	2
3460.210	Introduction to Computer Concepts	3
4450.306	Assembler Programming	3
• One language from the following:		
3460.202	Introduction to Cobol Programming*	2
3460.203	Introduction to APL Programming	2
3460.204	Introduction to PL/1 Programming	2
3460.205	Introduction to Pascal Programming	2
• Other required courses:		
3460.307	Applied Systems Programming	
	or	
4450.407	Systems Programming	3
3460.416	Introduction to Data Structures	3
3460.418	Introduction to Discrete Structures	3
3460.420	Structured Programming	3
3460.425	Introduction to Software Systems	3
• Electives — Computer Science — 12 credits.		

### Options

#### Mathematics

At least 21 credits to include:		
3450.221	Analytic Geometry-Calculus I	4
3450.222	Analytic Geometry-Calculus II	4
3450.223	Analytic Geometry-Calculus III	4

\*6200.355 may be substituted.

		Credits
3450.312	Linear Algebra	3
3450.428	Numerical Analysis II	3
3470.450	Probability	
	or	
3470.451	Theoretical Statistics I	3

### Systems and Information Science

At least 23 credits to include:		
3450.111	Algebra	1
3450.112	Algebraic Functions and Graphing	1
3450.114	Matrices	1
3450.115	Linear Programming	1
3450.121	Analytic Geometry	1
3450.122	Differential Calculus	1
3450.123	Integral Calculus	1
3450.327	Introduction to Numerical Methods	3
3460.125	Descriptive Computer Science	1
3460.126	Introduction to Basic Programming	1
3470.251	Descriptive Statistics and Probability	1
3470.252	Distributions	1
3470.253	Hypothesis Testing	1
3470.255	Regression and Correlation	1
3470.256	Experimental Design	1
	Operations Research	3
	Mathematics/Statistics/Computer Science	
	electives at 300/400 level**	3

### Business†

A total of 29 credits to include:		
3250.201	Principles of Macroeconomics	3
3250.202	Principles of Microeconomics	3
3450.111	Algebra	1
3450.112	Algebraic Functions and Graphing	1
3450.114	Matrices	1
3450.115	Linear Programming	1
3450.121	Analytic Geometry	1
3450.122	Differential Calculus	1
3450.123	Integral Calculus	1
3470.251	Descriptive Statistics and Probability	1
3470.252	Distributions	1
3470.253	Hypothesis Testing	1
3470.255	Regression and Correlation	1
3470.256	Experimental Design	1
6200.201.2	Accounting I and II	8
6400.371	Business Finance	3
6500.301	Management: Principles and Concepts	3
6600.300	Marketing Principles	3

### Computer Science Certificate Program

A computer science certificate program is available for the qualified student. See **Section 4** of this *Bulletin* for complete details.

## 3470: Statistics

### Bachelor of Arts

### Bachelor of Science

- The General Studies and the second year of a foreign language.
- At least 40 departmental credits including:††

3450.221.2,3	Analytic Geometry-Calculus I, II and III	12
3450.235	Differential Equations	3
3450.312	Linear Algebra	3

\*\*Any 300/400-level course with a 3460 or 4450 number which is not required in the computer science program. Any 300/400-level course in another department may be used if its subject matter is essentially computer science and if the head of the Department of Mathematical Sciences approves.

†3250.202 *Economics* should be substituted for *Institutions*.

††The courses 3450.101-139 *Modern University Mathematics*, 3450.147,8 *Elementary Functions*, 3450.149 *Pre-Calculus Mathematics*, 3450.301 *History of Mathematics* and 3470.251-7 *Introduction to Statistics* do not meet major requirements.

		Credits
3450:421.2	Advanced Calculus I, II	6
3470:451.2	Theoretical Statistics I, II	6
3470:461	Applied Statistics	4
3470:463	Experimental Design	3
	Mathematics Elective	3
	(Elective course must be an approved 300/400-level course in the department)	

- For the Bachelor of Science degree: complete 18 credits of coursework outside the major and beyond the General Studies in a suitable area of concentration as approved by the department. For the Bachelor of Arts degree: complete 18 credits of humanities or social sciences beyond the General Studies. The 18 credits are to be from more than one department.
- Electives — 17 credits.

## 3500: Modern Languages

3500: Chinese, Hebrew, Modern Persian, Polish; 3520: French; 3530: German; 3550: Italian; 3570: Russian; 3580: Spanish.

### Bachelor of Arts

- The General Studies.
- Completion of 24 credits above the second year (200 level): six credits in literature, six credits in culture, six credits of electives in the major language and six credits in composition and conversation.\*

## 3600: Philosophy

### Bachelor of Arts

- The General Studies and the second year of a foreign language.
- A minimum of 30 departmental credits including:
 

3600:101	Introduction to Philosophy	3
3600:120	Introduction to Ethics	3
3600:170	Introduction to Logic	3
3600:211	History of Ancient Philosophy	3
3600:312	History of Medieval Philosophy	3
3600:313	History of Modern Philosophy	3

(Of the additional credits, six must be earned in 300/400-level courses.)
- Electives (selected concentration) — 12-16 credits.
- Electives — 29-33 credits.

## 3650: Physics

### Bachelor of Science

This degree is intended for the student seeking the most detailed and quantitative preparation in physics available in an undergraduate curriculum. A student preparing for graduate study in physics or another physical science should usually satisfy all the requirements for the degree.

- The General Studies and the second year of a foreign language.

\*For Spanish majors some distribution among languages, literature and culture courses is required. Consult an adviser.

		Credits
• Physics:**		
	A minimum of 40 credits including:†	
3650:291.2	Elementary Classical Physics I and II	8
3650:301	Elementary Modern Physics	3
3650:406	Waves	3
3650:410	Electronics	3
3650:411	Intermediate Laboratory I	2
3650:431	Mechanics	3
3650:436	Electricity and Magnetism	3
	Laboratory Electives: Selected from courses	
	3650:321, 412, 421, 451, 452	4
	Other Electives: Selected from courses	
	3650:407, 420, 430, 438, 445, 446, 458, 468, 470, 481, 482.††	11
• Mathematics:		
3450:235	Differential Equations	3
3650:221.2,3	Analytic Geometry-Calculus I, II and III	12
• Chemistry:		
3150:132.3	Principles of Chemistry I, II	7
• Computer Science:		
4450:206	Fortran (Science and Engineering)	2
• Electives — 20 credits.		

### Bachelor of Arts

This degree is primarily for the student desiring a useful background in physics, but whose professional objectives may not require graduate study in physics or a related physical science.

- The General Studies program and the second year of a foreign language.
- Physics:
  - A minimum of 24 credits including ★
  - 3650:291.2 Elementary Classical Physics I and II 8
  - 3650:410 Electronics 3
  - 3650:411 Intermediate Laboratory I 2
  - Physics Electives 11
- Mathematics:
  - 3650:221.2,3 Analytic Geometry-Calculus I, II and III 12
- Electives — 48 credits.

### Areas of Specialization

#### Applied Physics/Engineering Physics

(Bachelor of Science degree recommended)

A suggested program of 32 credits including the following:

3650:321	Physics Laboratory Techniques	2
3650:404	Energy and the Environment	3
3650:421	Applied Physics Laboratory	2
3650:438	Methods of Applied Physics	3
4200:305	Materials Science	2
4300:202	Introduction to Mechanics of Solids	3
4400:231.2	Circuits I, II	6
4400:333.4	Circuits III, IV	6
4600:125	Engineering Graphics	2
4600:310	Fluid Mechanics	3

\*\*Additional physics courses are usually necessary to satisfy the admission requirements of graduate schools for advanced work in physics or certain other physical sciences.

†Courses 1100:224, 3650:130, 133, 137, 138, 141 and 160 are not applicable toward the required 40 credits of physics courses.

††Other courses by permission, see adviser.

★Courses 1100:224, 3650:130, 133, 137, 138, 141 and 160 are not applicable toward the required 24 credits of physics courses without special permission.

**Biophysics**

(Bachelor of Science or Bachelor of Arts degree)

A suggested program of 27 credits to include the following:

		<i>Credits</i>
3100:111.2	Principles of Biology	8
3100:211	General Genetics	3
3100:214	Organic Evolution	3
3100:311	Cell Biology	2
3100:480	Radiation Biology	3
3150:263.4	Organic Chemistry	6
3650:421	Applied Physics Laboratory	2

**Chemical Physics**

(Bachelor of Arts or Bachelor of Science degree)

A suggested program of 20 credits to include the following:

3150:263.4	Organic Chemistry	6
3150:313.4	Physical Chemistry Lecture I, II	6
3150:315.6	Physical Chemistry Laboratory I, II	4
3650:421	Applied Physics Laboratory	2
3650:471	NMR Spectroscopy I	2

**Computer Physics**

(Bachelor of Science degree recommended)

A suggested program of 21 credits to include the following:

4400:231.2	Circuits I, II	6
4400:333.4	Circuits III, IV	6
4450:306	Assembler Programming	3
4450:407	Systems Programming	3
4450:410	Computer Methods	3

**Geophysics**

(Bachelor of Science or Bachelor of Arts degree)

A suggested program of 18 credits to include the following:

3370:101	Introduction to Physical Geology	4
3370:102	Introductory Historical Geology	4
3370:350	Structural Geology	4
3370:441	Fundamentals of Geophysics	3
3370:446	Exploration Geophysics	3

**Polymer Physics**

(Bachelor of Science degree recommended)

A suggested program of 24 credits to include the following:

3150:263.4	Organic Chemistry	6
3150:313.4	Physical Chemistry Lecture I, II	6
3650:421	Applied Physics Laboratory	2
3940:401	Introduction to Elastomers	2
3940:402	Introduction to Plastics	2
3940:411.2.3	Molecular Structure and Physical Properties of Polymers I, II, III	7

**Physics/Astrophysics/Astronomy Pre-Graduate School**

(Bachelor of Science degree recommended)

A suggested program of 34 credits to include the following:

3650:321	Physics Laboratory Techniques	2
3650:331.2	Astrophysics I, II	6
3650:404	Energy and the Environment	3
3650:420	Optics	3
3650:421	Applied Physics Laboratory	2
3650:438	Methods of Applied Physics	3
3650:445	Theoretical Mechanics	4
3650:446	Electromagnetic Theory	4
3650:481.2	Methods of Mathematical Physics I, II	6
3650:399	Undergraduate Research	1-6

The preceding requirements specify the minimum curriculum for the B.S. and B.A. degrees with a major in physics. The student expecting to specialize in a particular professional area should consider utilizing part or all elective courses toward one of the important program areas of specialization listed above. These programs are intended to be illustrative only; considerable flexibility is possible, depending upon the needs and interests of the individual student.

The physics student may consider it important in the bachelor's degree programs to prepare in greater depth in other science areas (besides physics and mathematics) than may usually be

possible within the traditional four-year departmental degree curricula. This student may therefore prefer to work toward the Bachelor of Science in natural science degree which in effect allows the substitution of 16 credits of science courses (either in one additional scientific discipline, or equally in two additional scientific disciplines) for the two-year foreign language requirement. For further information, refer to Buchtel College of Arts and Sciences, "Natural Sciences Division Major," **Section 4** of this *Bulletin*, or contact the Department of Physics.

**Computer Physics Certificate Program**See **Section 4** of this *Bulletin* for complete details.**Cooperative Industrial Employment Plan**

For the academically qualified undergraduate student majoring in physics, an optional cooperative plan is available which provides a scheduled sequence of professionally-oriented industrial employment (totaling a full calendar year) alternating with periods of on-campus classroom instruction. This cooperative plan requires a five-year period for the completion of the bachelor's degree program in physics, with the spring term of the third year plus the fall and summer terms of the fourth year typically spent off campus with a participating industrial employer.

Arrangements are made on an individual basis and must be initiated by the student during the second year of undergraduate study. For further information, contact the department.

**3700: Political Science****Bachelor of Arts**

- The General Studies and the second year of a foreign language.

- At least 30 credits in the department including:

		<i>Credits</i>
3700:100	Government and Politics in the United States	4
3700:200	Comparative Politics	4
3700:201	Introduction to Political Science	3
3700:303	Introduction to Political Thought	3
3700:310	International Politics and Institutions	4
3700:461	The Supreme Court and Constitutional Law	4
	Political Science Electives	9
	(Electives must include at least one 400-level course in political science.)	

- Electives — 45 credits.

**Bachelor of Science in Political Science/Criminal Justice**

- Completion of all requirements for the Associate Degree in Criminal Justice Technology established by the Community and Technical College.

- Completion of General Studies requirements.

- Completion of 47 credits of 300/400-level courses.

- At least six credits of coursework which will introduce the student to a foreign culture. Such courses shall be selected by the student with the approval of the adviser in the Department of Political Science. Courses may be chosen from any of the following departments: classics, modern languages, history, political science, anthropology and geography.

- At least 30 departmental credits including:\*

3700:100	Government and Politics in the United States	4
3700:210	State and Local Government and Politics	3

\*See department head for possible substitutions.

		Credits
3700:341	The American Congress	4
3700:360	The Judicial Process	3
3700:370	The American Bureaucracy	4
3700:380	Urban Politics and Policies	4
3700:391	Internship in Government and Politics	2-3
3700:461	The Supreme Court and Constitutional Law	4
3700:480	Policy Problems	3

### Bachelor of Science in Political Science/ Public Policy Management

- The General Studies and the second year of a foreign language.
- Political Science:

3700:100	Government and Politics in the United States	4
3700:201	Introduction to Political Science	3
3700:370	The American Bureaucracy	4
3700:395	Internship: Government and Politics Co-op Collegewide Level	3
3700:441/541	Policy Process	3
3700:442/542	Methods of Policy Analysis	3
3700:480/580	Policy Problems	3

The student will take an additional nine credits in either of the following two areas:

Domestic Public Policy		
3700:210	State and Local Politics	3
3700:340	American Political Parties	3
3700:341	American Congress	3
3700:342	Minority Group Politics	3
3700:350	American Presidency	3
3700:380	Urban Politics and Policies	4
3700:381	State Politics	3
3700:382	Intergovernmental Relations	3
3700:402	Politics and the Media	3
3700:440/540	Public Opinion and Political Behavior	4
3700:461/561	Supreme Court and Constitutional Law	4
International Policy		
3700:—	Area of Study (to be selected from current regional course offerings)	3
3700:200	Comparative Politics	4
3700:310	International Politics and Institutions	4
3700:325	Comparative Public Policy	3
3700:326	Politics of Developing Nations	3
3700:415/515	Comparative Foreign Policy	3
3700:420/520	Issues and Approaches to Comparative Politics	3

- Statistics:
 

3470:251.2,3.5	Introduction to Statistics	4
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- Computer Science:
 

3460:201	Introduction to Fortran Programming	2
3460:202	Introduction to Cobol Programming	2
3460:210	Introduction to Computer Concepts	3
3460:475/575	Data Base Management	3
- Accounting:
 

6200:201	Accounting I	4
6200:470/570	Governmental and Institutional Accounting	3
- Economics:
 

3250:202	Principles of Microeconomics	3
3250:330	Labor Problems	3
3250:405	Public Finance	3
- Psychology:
 

3750:100	Introduction to Psychology	3
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- Management:
 

6500:301	Management: Principles and Concepts	3
6500:341	Personnel Management	3
	Electives at the 300/400 level	4

### Special Curricular Tracks in Political Science

The department offers three special tracks for the student interested in pre-law, the international service or national, state or local government service. In addition to the requirements for the major, each of these tracks includes electives appropriate

for preparation for careers in law, government service or international service.

Information about these curricular tracks may be obtained from the head of the department.

## 3750: Psychology

### Bachelor of Arts

- The General Studies and the second year of a foreign language.

- At least 30 credits in the department including:

		Credits
3750:100	Introduction to Psychology	3
3750:110	Quantitative Methods in Psychology	3
3750:120	Introduction to Experimental Psychology	4
	Psychology Electives	20

- Electives — 45 credits.

The student should consult with a faculty adviser to plan a program of psychology electives geared to the student's educational objectives.

## 3850: Sociology

(3850: Sociology; 3870: Anthropology)

### Bachelor of Arts

#### Sociology

- The General Studies and the second year of a foreign language.

- A minimum of 30 credits in sociology including:

3850:100	Introduction to Sociology	4
3850:301.2	Methods of Social Research I and II	6
3850:403	History of Sociological Thought	3
3850:404	Contemporary Sociological Theories	3
	Sociology Electives	14

(3870:150 *Cultural Anthropology* can be counted as part of these credits)

- Electives — 45 credits.

The student should consult with a departmental adviser about using electives to enhance the specialty area, i.e. academic sociology, deviance and corrections, family, agency and life cycle, urban planning and social research, etc.

#### Sociology/Anthropology

- The General Studies and the second year of a foreign language.

- A minimum of 31 credits in the department including:

3850:100	Introduction to Sociology	4
3850:301.2	Methods of Social Research I and II	6
3850:403	History of Sociological Thought	3
3850:404	Contemporary Sociological Theories	3
3870:150	Cultural Anthropology	4
3870:151	Physical Anthropology	3
3870:356	New World Prehistory	3
3870:461	Language and Culture	3

- A minimum of two additional credits:

3870:257	Indians of South America	3
3870:258	Indians of North America	3
3870:357	Magic, Myth and Religion	3
3870:455	Culture and Personality	3
3870:463	Types of Kinship and Social Organization	3

- Electives — 44 credits.

## Division Majors

### Humanities

The humanities division consists of the departments of Classics, English, Modern Languages and Philosophy. The disciplines of history and the creative and dramatic arts (art, music, theatre arts) are included. The divisional major must include the following:

- The General Studies and the second year of a foreign language.
- A minimum of 54 credits, at least 24 of which must be in courses at the 300/400 level. The 54 credits must include 18 credits in each of any three of the following six fields: classics, English, history, modern languages, philosophy and the creative and dramatic arts.
- The first two years of any language in either classics or modern languages will not be included in the 18-credit requirement for those disciplines.

By field, the 18-credit requirement must include:

	<i>Credits</i>
• Classics:	
3200:161,2 Comparative Literature	6
3200:189 Classical Mythology	3
• English:	
300/400 level, including at least two courses at the 400 level (minimum)	9
• History:	
300/400 level (minimum)	10
• Modern Languages:	
Composition and Conversation	6
Literature	6
Any combination of linguistics and culture-civilization	6
• Philosophy:	
3600:101 Introduction to Philosophy	3
3600:120 Introduction to Ethics	3
3600:170 Introduction to Logic	3
• Creative and Dramatic Arts:	
Non-performance courses in art (7100), music (7500) and theatre arts (7800)	18

Courses for the humanities division major must be selected with the approval of the division adviser. For further information, please contact the Office of the Dean, Buchtel College of Arts and Sciences.

### Natural Sciences

The natural sciences division consists of the departments of Biology, Chemistry, Geology, Mathematical Sciences, Computer Science, Physics and Polymer Science. The divisional major must include:

- The General Studies.
- At least 24 credits from one of the departments of the natural sciences division.
- At least 16 credits from another of the following disciplines: biology, chemistry, engineering, geology, mathematics or computer science or statistics, physics, polymer science.
- At least 16 credits from a third of these disciplines; or alternatively, at least eight credits in each of two other of these disciplines.
- A foreign language is strongly recommended.

The courses for the natural sciences division major must be selected from those courses eligible for inclusion in the major of these disciplines. For further information, please contact the Office of the Dean, Buchtel College of Arts and Sciences.

### Social Sciences

The social sciences division consists of the departments of Economics, Geography, History, Political Science, Psychology, Sociology and Urban Studies (graduate program only). The divisional major must include the following:

- The General Studies and the second year of a foreign language.
- A minimum of 54 credits, at least 24 of which must be in courses at the 300/400 level. The 54 credits must include a minimum of 15 credits in each of any three of the following six fields: economics, geography, history, political science, psychology and sociology-anthropology.

By field, the 15-credit requirement must include:

• Economics:		
	<i>Any except 3250:100 Introduction to Economics* (must include 3250:201 Principles of Macroeconomics and 3250:202 Principles of Microeconomics)</i>	15
• Geography:		15
• History:	Minimum of seven credits at the 300/400 level	15
• Political Science:		
	At least seven credits at the 300/400 level!	
	3700:100 Government and Politics in the United States or	
	3700:201 Introduction to Political Science	15
• Each student shall take at least one course in two of the four areas (American government and politics, comparative politics, international politics and political theory) shown below:		
	American Government and Politics:	
	3700:210 State and Local Government and Politics	3
	3700:340 American Political Parties and Interest Groups	3
	3700:341 The American Congress	3
	3700:342 Minority Group Politics	3
	3700:350 The American Presidency	3
	3700:360 The Judicial Process	3
	3700:370 The American Bureaucracy	4
	3700:380 Urban Politics and Policies	4
	3700:381 State Politics	3
	3700:402 Politics and the Media	3
	3700:440 Public Opinion and Political Behavior	4
	3700:441 The Policy Process	3
	3700:461 The Supreme Court and Constitutional Law	4
	3700:480 Policy Problems	3
	Comparative Politics:	
	3700:200 Comparative Politics	4
	3700:320 Britain and the Commonwealth	3
	3700:321 Western European Politics	3
	3700:322 Soviet and East European Politics	3
	3700:323 Politics of China and Japan	3
	3700:326 Politics of Developing Nations	3
	3700:327 African Politics	3
	3700:420 Issues and Approaches in Comparative Politics	3
	3700:425 Latin American Politics	3
	International Politics:	
	3700:220 American Foreign Policy	3
	3700:310 International Politics and Institutions	4
	3700:415 Comparative Foreign Policy	3
	Political Theory:	
	3700:302 American Political Ideas	3
	3700:303 Introduction to Political Thought	3
	3700:304 Modern Political Thought	3
• Psychology:		15
• Sociology-Anthropology:		15

Courses for the social sciences division major must be selected with the approval of the division adviser. For further information, please contact the Office of the Dean, Buchtel College of Arts and Sciences.

\*Course will not apply toward 54 credits in the major.

## Bachelor of Science/Doctor of Medicine Degree (B.S./M.D. Program)\*

### Introduction

The Northeastern Ohio Universities College of Medicine is a consortium composed of The University of Akron, Kent State University, Youngstown State University and the College of Medicine that will offer a six-year B.S./M.D. degree program.

Each university admits a student into Phase I (years one and two) and recommends the successful student to Phase II (years three through six) medical study at the College of Medicine at the Rootstown campus. The Phase II student completes the undergraduate degree program during the summer of years three through five.

At The University of Akron, a student pursues a B.S. in the natural sciences division in the Buchtel College of Arts and Sciences.

### Requirements

- The General Studies.
- The following courses to meet divisional major:

\*Deadline for application to program is December 15

		<i>Credits</i>
3100:111.2	Principles of Biology	8
3100:381	Human Genetics	2
3100:466.7	Developmental Anatomy	8
3150:132.3	Principles of Chemistry I and II	7
3150:134	Qualitative Analysis	2
3150:263.4	Organic Chemistry I, II	6
3150:265	Organic Chemistry Laboratory	2
3150:266	Organic Chemistry Laboratory (Optional)	2
3150:401.2	Biochemistry I, II	6
3450:221.2	Analytic Geometry-Calculus I and II	8
3650:261.2	Physics	8
3650:267.8	Physics Laboratory	2
3750:100	Introduction to Psychology	3
3750:110	Quantitative Methods in Psychology	2
• Additional courses as follows:		
1880:201	Medical Seminar and Practicum I	3
1880:301	Medical Seminar and Practicum II	1-3
3100:190.1	Health Care Delivery Systems	2
3100:290.1	Health Care Delivery Systems	2
2780:290	Special Topics: Allied Health	1
• Humanities:		
1880:310	Seminar on Humanities in Medical Education	3
	Additional study in the humanities from courses specified by the Humanities Committee**	16
• Additional courses from the medical program years three through six to make a total of 128 credits.		

\*\*Completion of elementary or intermediate courses in one modern language will not satisfy this humanities requirement. For additional information concerning the B.S./M.D. Six-Year Program, see "Northeastern Ohio Universities College of Medicine," **Section 4** of this *Bulletin*.

# College of Engineering

Louis A. Hill, Jr., P.E., Ph.D., *Dean*  
Glenn A. Atwood, P.E., Ph.D., *Assistant Dean*  
Donald R. Burrowbridge, M.S., *Director Cooperative Program*

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## Objectives

The purpose of the College of Engineering is to further the objectives of the University by providing a quality program of engineering education with the following aims:

- To offer sound basic instruction in engineering.
- To develop the ability to apply engineering principles to economic and technological progress of society.
- To promote in the student a high sense of ethics and professional responsibility.
- To foster an appreciation of the need to further the role of the engineering profession in society.

The program of study at the undergraduate level is principally the five-year cooperative plan. While this plan is optional, by far the greater number of students elect the co-op method of obtaining a bachelor's degree.

Along with the emphasis on preparation for professional practice within the college, University policy assures that each student obtains a substantial exposure to the humanities.

A graduate is prepared for study on the master's and doctoral level in engineering or for employment in the engineering profession directly upon receipt of the baccalaureate degree.

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## College Requirements

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### Cooperative Plan

The optional Cooperative Plan provides for a coordinated sequence of alternate periods of classroom instruction and industrial employment during the cooperative phase of the five-year course.

The Cooperative Plan simultaneously provides for the development of fundamental principles in the classroom and for their application in industrial practice. The student has the opportunity to find the type of work and industrial organization in which the student can best apply individual ability. The student gains an appreciation of the problems of labor and management by first-hand experience. The student develops mature judgment by coping with the everyday problems of the industrial world. The employer of a cooperative student has the ability to train and select a student whose abilities and aptitudes can be adapted to the needs of technical staff requirements.

While a student is at work, all rules and regulations prescribed

by the employer must be obeyed. In addition, the student is subject to all current labor laws and conditions. The student is considered a full-time student by the University while in industrial assignments.

The University does not guarantee employment, but makes every effort to place a student to the best financial advantage that is consistent with the acquisition of sound subprofessional experience.

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## Requirements for Admission

In addition to the general requirements for admission to the University, a student must present the following secondary school credits:

Algebra 1½ units	Solid Geometry
Plane Geometry 1 unit	or
Chemistry or Physics 1 unit	Trigonometry ½ unit

Additional credits in mathematics and physical science are strongly recommended.

The beginning student must register in the University College. Those admitted to engineering will be eligible for transfer to the College of Engineering after satisfactory completion of 30 credits of work and the approval of the dean.

No undergraduate student shall be eligible to enroll in any 300/400-level course offered by the college unless: the student has been admitted into the College of Engineering; or the student has the permission of the head of the department offering the course; or the course has been exempted from this rule.

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## Degrees

The college offers curricula leading to the degrees of Bachelor of Science in Chemical, Civil, Electrical and Mechanical Engineering; Bachelor of Science in Engineering; and Bachelor of Construction Technology.

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## Requirements for Graduation

- Compliance with University requirements, **Section 3**, of this *Bulletin*.
- Completion of the requirements in the appropriate list of courses.
- Recommendation of the student's department.
- Any junior or senior engineering student with a grade-point average of 2.50 overall and 2.75 or better in engineering may substitute not more than two approved upper division courses in mathematics, science or engineering for an equal number of certain required engineering courses.

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## Programs of Instruction

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### 4200: Chemical Engineering

The goal of chemical engineering education is the development of the student's intellectual capacity and ability to apply

the principles of transport phenomena, equilibria and kinetics, involving chemical and physical transformations, to the creative resolution of technological problems.

The chemical engineer, like all other engineers, is trained in mechanics, materials and their properties, economics, systems and their controls, etc. The chemical engineer differs from all other engineers because the chemical engineer is responsible for materials separations and the conversion of matter — separations such as air into components of oxygen, nitrogen, argon and conversions such as natural gas into plastics and coal into liquid fuel.

The chemical engineer finds careers mainly in the chemical process industries, usually becoming involved with inorganic and organic chemicals, rubber and plastics, detergents, petroleum products, metals, pharmaceuticals, dyestuffs and food products.

The chemical engineer will usually be employed in one or more of the following activities: research and development, plant design and construction, process control, plant operations, sales and management. In addition to the processing industries, the chemical engineer is increasingly in demand in such areas of current interest as water and air pollution, biological engineering and energy engineering.

(an ABET accredited engineering curriculum)

	<i>Credits</i>	
• General Studies — 28 credits		
• Natural science:		
3150:132.3 Principles of Chemistry I, II	7	
3150:134 Qualitative Analysis	2	
3450:221.2,3 Analytic Geometry-Calculus I, II, III	12	
3450:235 Differential Equations	3	
3450:— Advanced Mathematics Elective	2	
3650:291.2 Elementary Classical Physics I, II	8	
• Advanced chemistry:		
3150:263.4 Organic Chemistry I, II	6	
3150:265 Organic Chemistry Laboratory	2	
3150:313.4 Physical Chemistry I, II	6	
• Engineering core:		
4200:120 Engineering Fundamentals	1	
4200:305 Materials Science	2	
4300:201 Statics	3	
4400:320 Basic Electrical Engineering	4	
4450:206 Fortran (Science and Engineering)	2	
4600:125 Engineering Graphics	2	
• Chemical engineering:		
4200:200 Material and Energy Balances	4	
4200:321 Fluid and Thermal Transfer Theory	3	
4200:322 Thermal and Mass Transfer Theory	3	
4200:325 Equilibrium Thermodynamics	4	
4200:351 Fluid and Thermal Operations	3	
4200:352 Transport Laboratory	2	
4200:353 Mass Transfer Operations	3	
4200:354 Operations Laboratory	1	
4200:430 Chemical Reaction Engineering	3	
4200:435 Process Analysis and Control	3	
4200:441 Process Economics and Design	4	
4200:442 Plant Design	4	
• Electives:		
Advanced Chemistry or Polymer Science	3	
Chemical Engineering Design	3	
Free Elective, adviser approved	3	

## 4300: Civil Engineering

The civil engineer is dedicated to planning, designing and building to make our environment more desirable. Civil engi-

neers help to renovate urban areas; to develop new housing systems; to plan community facilities; to build new water storage systems; to design new systems for waste disposal; to expand airport and harbor facilities; to build and maintain local streets and inter-city highways; to design all types of buildings and bridges; to build dams, reservoirs and flood control systems; to build tunnels; and to design foundations.

The civil engineering curriculum at the University is divided into two options: design and construction. The design option allows specialization in environmental engineering, foundation engineering, hydraulic engineering, structural engineering and transportation engineering. The construction option includes introductory work in the five areas above but specializes in the engineering and financial aspects of construction. Each option contains a group of elective courses.

The civil engineering graduate works for consultants, manufacturers, construction companies, utilities and for government bodies of all levels. Many civil engineers own their own businesses.

Credits are listed below by design (D) and construction (C) options.

(an ABET accredited engineering program)

		<i>(D)</i>	<i>(C)</i>
		<i>Credits</i>	<i>Credits</i>
• General Studies — 28 credits			
• Natural science:			
3150:132.3 Principles of Chemistry I, II	7	7	7
3370:101 Introductory Physical Geology	4	4	4
3450:221.2,3 Analytic Geometry-Calculus I, II, III	12	12	12
3450:235 Differential Equations	3	3	3
3470:461 Applied Statistics	4	4	4
3650:291.2 Elementary Classical Physics I, II	8	8	8
• Engineering core:			
4200:305 Materials Science	2	2	2
4300:130 Introduction to Engineering	1	1	1
4300:201 Statics	3	3	3
4300:202 Introduction to Mechanics of Solids	3	3	3
4400:320 Basic Electrical Engineering	4	4	4
4450:206 Fortran (Science and Engineering)	2	2	2
4600:125 Engineering Graphics	2	2	2
4600:203 Dynamics	3	3	3
4600:305 Thermal Science	2	—	—
4600:310 Fluid Mechanics	3	3	3
• Civil engineering:			
4300:230 Surveying	4	4	4
4300:306 Theory of Structures	3	3	3
4300:313 Soil Mechanics	3	3	3
4300:314 Geotechnical Engr.	3	3	3
4300:323 Water Supply and Wastewater Disposal	3	—	—
4300:341 Hydraulics	2	2	2
4300:361 Transportation Engineering	3	—	—
4300:380 Engineering Materials Laboratory	1	1	1
4300:401 Steel Design	3	—	—
4300:403 Reinforced Concrete Design	3	—	—
4300:445 Hydrology	3	—	—
4300:448 Hydraulics Laboratory	1	1	1
4300:471 Construction Administration	3	3	3
4300:472 Construction Engineering	—	3	3
• Business:			
6200:201.2 Accounting I, II	—	8	8
6200:321 Business Law I	—	3	3
6400:371 Business Finance	—	3	3
• Construction technology:			
2980:231 Building Construction	—	2	2
2980:241 Cost Analysis and Estimating	—	3	3
• Electives:			
Technical Electives	10	5	5

## 4400: Electrical Engineering

The many branches of electrical engineering include: production and distribution of electrical energy; research, development, manufacture and operation of electrical and electronic products; and systems for instrumentation, automation, tracking and telemetry.

The growth of electronic research and manufacturing has been accelerated by the space age. There is hardly a segment of the economy which has not been influenced by electronics. The high speed digital computer has found its way into virtually all aspects of modern life. A student wishing to specialize in computer engineering will find appropriate electives available.

The wide use of electrical means for measurement, control and computation has resulted in the need for electrical engineers in all types of industries. Varied employment opportunities are available.

A student wishing to continue education in graduate school, law school or medical school will find specialized programs of preparation are available within the framework of the Department of Electrical Engineering.

(an ABET accredited engineering curriculum)

	<i>Credits</i>
• General Studies — 28 credits.	
• Natural science:	
3150.132.3 Principles of Chemistry I, II	7
3450.221.2,3 Analytic Geometry-Calculus I, II, III	12
3450.235 Differential Equations	3
3450:— Mathematics Elective	2
3650.291.2 Elementary Classical Physics I, II	8
3650.301 Elementary Modern Physics	3
• Engineering core:	
4200.305 Materials Science	2
4300.201 Statics	3
4300.202 Introduction to Mechanics of Solids or 4600.203 Dynamics	3
4400.101 Engineering Design	1
4450.206 Fortran (Science and Engineering)	2
4600.125 Engineering Graphics	2
4600.305 Thermal Science	2
• Electrical engineering:	
4400.231.2 Circuits I, II	6
4400.333 Circuits III	3
4400.343 Electrical Measurements	4
4400.353 Electromagnetic Fields I	4
4400.359 Transmission Lines and Networks	3
4400.361 Physics of Electronic Devices	3
4400.362 Electronic Circuits	4
4400.363 Switching and Logic	4
4400.371 Control Systems I	3
4400.381.2 Energy Conversion I, II	7
• Electives:	
Technical Electives	15
Free Electives	2

## 4600: Mechanical Engineering

The mechanical engineer designs and analyzes physical systems. A high level of professional competence in this field can only be achieved through an extensive study of mathematics, mechanics, fluid flow and the thermal sciences. Among the many subtopics included in these major headings are stress analysis, vibrations, compressible and incompressible fluid flow, thermodynamics, energy conversion, environmental control, heat transfer and automatic controls. The typical mechanical engineering design problems may involve any one or possibly all of these areas in the design of a complex system.

The mechanical engineer is employed in a variety of industries in different capacities. Specific positions include management, design, analysis, safety, production and plant engineering. The types of companies include automotive, petroleum, energy generation, aerospace, tire, consulting, publishing, insurance and manufacturers in general.

The curriculum is designed to emphasize fundamentals which will place the graduate in a strong position to either pursue further education, formally or informally, or to begin a career in government or industry.

(an ABET accredited curriculum)

	<i>Credits</i>
• General Studies — 28 credits.	
• Natural science:	
3150.132.3 Principles of Chemistry I, II	7
3450.221.2,3 Analytic Geometry-Calculus I, II, III	12
3450.235 Differential Equations	3
3450:— Mathematics Elective	2
3650.291.2 Elementary Classical Physics I, II	8
3650.293.4 Physics Computations I, II	2
• Engineering core:	
4300.201 Statics	3
4300.202 Introduction to Mechanics of Solids	3
4300.380 Engineering Materials Laboratory	1
4400.320 Basic Electrical Engineering	4
4600.125 Engineering Graphics	2
4600.160 Mechanical Engineering Orientation	1
4600.203 Dynamics	3
4600.300.1 Thermodynamics I, II	7
4600.310 Fluid Mechanics	3
• Mechanical engineering:	
4600.315 Heat Transfer	3
4600.321 Kinematics of Machines	3
4600.336 Analysis of Mechanical Components	3
4600.337 Design of Mechanical Components	3
4600.360 Engineering Analysis	3
4600.380 Mechanical Metallurgy	2
4600.400 Thermal System Components	3
4600.401 Design of Energy Systems	2
4600.431 Vibrations	3
4600.440 Control Systems	3
4600.460 Concepts of Design	3
4600.461 Design of Mechanical Systems	2
4600.484 Mechanical Engineering Laboratory	2
4600.493 Measurements Laboratory	2
• Electives:	
Technical Electives (includes three credits design)	7
Free Electives, adviser approval	3

## 4980: Construction Technology

The curriculum in construction technology is designed to produce a graduate with a strong fundamental knowledge of technology, combined with management ability and a familiarity with business, economics and personnel management. The program is designed to provide graduates for employment at all levels of the construction industry and allied support industries.

The program is a "two-plus-three" arrangement with the Community and Technical College and includes one full year of on-the-job experience. All students must meet the requirements of both the associate and baccalaureate programs. Transferees from other two-year programs where the course content compares favorably may be admitted to the program.

• General Studies\* — 21 credits.

\*When the eight semester credits of English are met either by transfer credits, courses taken as part of the associate degree program or by examination the credits shall be technical elective credits so that the program total of 68 credits is satisfied.

	<i>Credits</i>		<i>Credits</i>
• <b>Technical (required courses):</b>		4300:482 Special Projects	1
4980:352 Field Management	2	4450:206 Fortran	2
4980:354 Foundation Construction Methods	3	4980:351 Construction Quality Control	2
4980:361 Construction Formwork	3	5550:211 First Aid	2
4980:453 Legal Aspects of Construction	2		
4980:462 Mechanical Service Systems	3		
4980:463 Electrical Service Systems	3		
• <b>Business (required courses):</b>			
6200:201.2 Accounting I, II	8		
6400:371 Business Finance	3		
6500:301 Management Principles and Concepts	3		
• <b>Business and management electives (minimum six credits):</b>			
3250:330 Labor Problems	3		
3250:432 Economics and Practice of Collective Bargaining	3		
6200:301 Cost Accounting	3		
6400:318 Risk Management and Insurance	2		
6400:321 Business Law I	3		
• <b>Statistics (minimum three credits):</b>			
3470:251 Descriptive Statistics and Probability	1		
3470:252 Distributions	1		
3470:253 Hypothesis Testing Parameters	1		
6500:321 Quantitative Business Analysis I	3		
• <b>Economics (minimum two credits):</b>			
2920:310 Economics of Technology	3		
3250:202 Principles of Microeconomics	3		
4400:421 Engineering Economy	2		
• <b>Technical (electives):</b>			
3370:101 Introductory Physical Geology	4		
3370:210 Geomorphology	3		
4300:311 Geotechnical Engineering	5		
4300:361 Transportation Engineering	3		
4300:414 Design of Earth Structures	3		
4300:418 Soil and Rock Exploration	3		
4300:450 Urban Planning	2		
4300:474 Underground Construction	2		

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## Bachelor of Science in Engineering

This degree program was established to introduce flexibility into the College of Engineering. Within the 68 credits of the option portion of the program, a student can pursue courses in business administration, industrial management, environmental science, pre-medicine or any other field along with engineering studies. The program of study may be very narrow as in the case of a student wishing to specialize in structural design, foundations and soil mechanics. For another student interested in patent law, the program may be broad, touching on chemical, mechanical and electrical engineering subjects. The individual's program is designed to meet each student's announced goals.

Entrance to this program is restricted. A student requests admission by letter to the dean of the College of Engineering, outlining in some detail the particular objective and how the B.S.E. program may enable the student to prepare for career goals. The mathematics, physics and chemistry requirements are identical to those of the four departments of the college.

General Studies and Science Core	60
Program Options - Engineering	40
Program Options	26
Free Electives, adviser approval	10

# College of Education

H. Kenneth Barker, Ph.D., *Dean*  
Don Birdsell, Ph.D., *Assistant Dean*  
Walter Yoder, Ed.D., *Assistant to the Dean*

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## Objectives

The purpose of the College of Education is to further the objectives of the University by providing quality programs for the student of education and by helping the student attain the following:

- Special experiences, knowledge and skills particularly useful for teaching in urban and inner-city educational institutions, in keeping with the urban mission of the University
- A knowledge of a major field and related fields of inquiry and the ability to use this knowledge in explaining the realities of life today.
- A knowledge of instructional materials and new technology and skill in recognizing and utilizing instructional tools most suitable for specific purposes.
- A knowledge of the social issues relevant to education and living in a pluralistic society and the competence to translate implications of changes in society into instructive action as teacher-citizens as well as teacher-scholars.
- An understanding of the learner and the learning processes and the ability to translate these into appropriate teaching behaviors in acting and reacting with students.
- Skill in the acquisition of inquiry techniques appropriate to generalizing knowledge and choices, and practice in using them to inquire into educational problems in rational, defensible ways.
- Human relations skills, including an appreciation of the values and feelings essential for working with young people and with adults, and the ability to develop relationships in a wide variety of professional and social roles in an educational or community setting.

To accomplish these objectives, this college offers programs for the preparation of elementary and secondary teachers, counselors, school administrators and other educational personnel. The Bachelor of Arts in Education, Bachelor of Science in Education, Bachelor of Science in Technical Education, Master of Arts in Education, Master of Science in Education, Master of Science in Technical Education and Ph.D. and Ed.D. degrees are offered.

Programs include a balanced offering of a foundation in general education, an intensive study in depth of the teaching and/or administration area and those professional courses and other learning experiences which attempt to combine theory and practice.

In addition to the regular degree programs, special courses and related services such as institutes and workshops are regularly offered with the planning assistance of school personnel.

Educators in surrounding school districts cooperate in advisory capacities with the college. Their schools are used widely for observation and for the assignment of student teachers. Approximately one-half of the teachers in the Akron Public Schools are former students of the University.

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## College Requirements

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### Admission

To be admitted to the College of Education, the student must be able to meet the following criteria:

- Completion of at least 30 credits with a minimum overall grade-point average of 2.00.\*
- Demonstration of those qualities of character and personality deemed essential for a professional person in education. This determination is made by instructors conducting the education courses in the University College, by the staff in Academic Advising Services, and if necessary, by measuring performance through standardized evaluation instruments.
- Demonstrated evidence of the ability to attain a 2.50 grade-point average in a choice of major fields.

All students preparing for certification may be evaluated by the college undergraduate committee, subject to review by the dean. Such evaluation will occur whenever there is reason to believe the student does not measure up to criteria for professional development established by the faculty of the college. This committee can recommend to the dean of the college any one of the following actions:

- That the student's admission to or retention in the program for certification be confirmed with no other action suggested.
- That the student's admission to or retention in the program for certification be confirmed but that the student be apprised that certain weaknesses must be corrected before student teaching is approved.
- That the student's final admission to or retention in the program for certification be denied because of certain weaknesses which the committee believes are not correctable.

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### Bachelor's Degrees

A student prepares to teach any one of the following areas or fields: nursery school, kindergarten-primary, elementary; the conventional academic fields found in junior and senior high schools; the special fields of art, business, home economics, music, physical education, slow learners, and speech and hearing therapy; and post-secondary technical education. A minimum of 128 credits with a grade-point average of 2.00 must be completed to qualify for the bachelor's degree.

The specific subjects required for degrees in certain fields are set forth in subsequent pages. In all cases, the requirements include courses in the General Studies, subject matter areas and professional sequences.

The Bachelor of Arts in Education degree is granted to those whose major is one of the academic fields or speech and hearing therapy. The Bachelor of Science in Education is granted to those whose major is in the other special fields or in elementary education. The Bachelor of Science in Technical Education is awarded to those who complete the requirements of that program.

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\*The secondary education student also must have eight credits in teaching field with a 2.50 average.

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## Clinical and Field-Based Experiences

Each teacher education student is required to satisfactorily participate in clinical and field-based experiences for a minimum of 600 hours prior to recommendation for certification for teaching in Ohio. The total hours will be accounted on the EDATA-I system.

Through clinical experiences under the direction, evaluation and supervision of faculty, the student shall be involved in the use of diagnostic testing instruments and observational techniques to enable an analysis of pupil-learning progress or difficulties, on both an individual and group basis, and prescriptions of instructional strategies, educational media and materials to maximize pupil-learning outcomes.

Field-based experiences are a series of planned, supervised and evaluated off-campus activities for which specific learning objectives have been set to assure increasing proficiency in performing the various teaching responsibilities under actual school conditions. Field-based experiences shall be completed under a variety of urban and suburban or rural settings. The clinical and field-based experiences are components to the developmental course programs.

Clinical and field-based hours are listed under the College of Education in "Courses of Instruction," **Section 7** of this *Bulletin*.

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## Student Teaching

Student teaching is done in the public schools under the direction of supervising teachers and a representative of the College of Education faculty.

In order to qualify for student teaching, a student must maintain a 2.50 average in the teaching field. Satisfactory work also must be done in other teaching fields and in professional education to warrant recommendation for a teaching certificate.\*

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## Certification

Every teacher in Ohio public schools is required to have a certificate covering the fields in which teaching is being done. This certificate is issued by the Ohio State Department of Education upon recommendation of the dean of the college. The student must fill out an application form obtained in the office of the dean. This form should be completed about one month before the student plans to finish all requirements for teaching.

The student is expected to receive recommendations for certification from the institution granting the degree. A student who expects to receive degrees from other institutions but who wishes to qualify for certification at The University of Akron will be expected to meet all the certification requirements of the University.

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\*Music majors, before assignment for student teaching, are required to pass the General Musicianship Examination described in the music section of the College of Fine and Applied Arts. To avoid possible delay in graduation, it is necessary for the student to take the examination six months prior to the anticipated assignment for student teaching.

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## Students Enrolled in Other Colleges at The University of Akron

A student who receives degrees from other colleges in the University also may wish to qualify for teaching. They will be recommended for certification after completing respective major and minor requirements and the pre-professional and professional courses included in the *Recommended Sequence for Secondary Education* listed in this section. Such students must be closely advised during the last two years.

Any student not enrolled in the college who wishes to teach should register with the dean by completing the form, *Admission to Teacher Education* at the time of transfer to a degree-granting college or two years prior to eligibility to teach.

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## Programs of Instruction

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### 5200: Elementary Education

#### Elementary

The elementary program is for those preparing to teach in grades one to eight inclusive. The requirements for a major in elementary education are as follows:

- General Studies — 39 credits.\*\*
- Pre-professional education:

		Credits
3350:100	Introduction to Geography	3
3350:350	Anglo-America	3
3750:100	Introduction to Psychology	3
7100:191	Design	2
One of the following three courses:		
3400:201	United States History to Civil War	4
3400:202	United States History since Civil War	4
3700:100	Government and Politics in the United States	4

- Professional education:

Basic:		
5100:150	Introduction to Professional Education	3
5100:250	Human Development and Learning	3
5100:350	Educational Measurement and Evaluation	2
5100:450	Problems in Education	2
Elementary education †		
5200:141	Handicrafts	2
5200:288	Children's Literature	3
5200:321	Art for the Grades	2
5200:333	Science Elementary Grades††	2
5200:335	Teaching of Language Arts	5
5200:336	Teaching Elementary School Mathematics††	3
5200:337	Teaching of Reading††	3
5200:338	Teaching of Social Studies††	3
5200:339	Principles of Diagnostic Teaching of Reading††	3
5200:350	Multicultural Education: Concepts, Programs and Practices	3

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\*\*Six credits of science are included in the General Studies. Two of these six credits must be in biological sciences to meet certification requirements.

†The elementary education major is responsible for completing 300 field and clinical hours in addition to student teaching. It will be the responsibility of the department to assign these credits to the appropriate courses.

††Most methods courses are accompanied by a laboratory. The student must enroll for methods course and laboratory concurrently.

		<i>Credits</i>
5200:365	Comprehensive Musicianship for the Elementary Classroom Teacher	3
5550:334	Games and Rhythms — Elementary Grades	2
5570:101	Personal Health	2
<b>Laboratory experience:</b>		
5200:200	Student Participation	1
5200:300	Student Participation	1
5200:343	Science for Elementary Grades—Laboratory	1
5200:346	Teaching Elementary School Mathematics—Laboratory	1
5200:347	Teaching of Reading—Laboratory	1
5200:348	Teaching of Social Studies—Laboratory	1
5200:349	Principles of Diagnostic Teaching of Reading—Laboratory	1
5200:403	Seminar in Student Teaching	1
5200:495	Student Teaching	6
5200:496	Student Teaching	6

• Area of specialization—8-15 credits.

Selected by the student with approval of the adviser, the student is urged to select an area of specialization which will contribute to successful teaching. The number of credits required (8-15) is above and beyond the number of credits required in any other part of the program.

**Kindergarten—Primary**

With the addition of certain courses, the student in the elementary program electing this specialization can receive additional certification.

• Required:

5200:330	Early Elementary Education I	3
5200:331	Early Elementary Education II	3
5200:340	Early Elementary Education I—Laboratory	1
5200:341	Early Elementary Education II—Laboratory	1
7400:265	Child Development	3

• Electives — 5 credits.

**Nursery Schools**

The student in the elementary program may also receive University recommendation as director of teaching in nursery schools by taking the following courses:

• Required:

5200:310	Introduction to Early Childhood Education	2
5200:311	Curriculum for Preschool Learning Centers	2
5200:312	Introduction to Early Childhood Education—Laboratory	1
5200:313	Curriculum for Preschool Learning Centers—Laboratory	1
5200:360	Nursery School—Laboratory	3
7400:265	Child Development	3

• Electives — 4 credits.

**Certification for Teaching Foreign Language in the Elementary School**

A person desiring certification to teach modern foreign language on the elementary level must meet the regular requirements for certification on the secondary level, plus these Ohio requirements:

- Child psychology or human growth and development.
- Purpose and practices of elementary education or equivalent.
- Methods of teaching the modern foreign language.

**Certification of Non-Professional Degree Holders for Elementary School**

To qualify for a Provisional Elementary Certificate, the holder of a baccalaureate degree in fields other than education should complete the coursework equivalent to that required for a major in elementary education.

• Pre-professional education and General Studies:

A student may be required to take courses from the pre-professional education and General Studies sections if previous transcripts reveal an insufficient background in those areas or in courses listed under elementary education.

• Professional education:

		<i>Credits</i>
<b>Basic:</b>		
5100:150	Introduction to Professional Education	3
5100:250	Human Development and Learning	3
5100:350	Educational Measurement and Evaluation	2
5100:450	Problems in Education	2
<b>Elementary Education*</b>		
5200:141	Handicrafts	2
5200:286	Children's Literature	3
5200:300	Student Participation	1
5200:321	Art for the Grades	2
5200:333	Science for Elementary Grades	3
5200:335	Teaching of Language Arts	5
5200:336	Teaching Elementary School Mathematics**	3
5200:337	Teaching of Reading	3
5200:338	Teaching of Social Studies	3
5200:339	Principles of Diagnostic Teaching of Reading	3
5200:343	Science for Elementary Grades—Laboratory	1
5200:346	Teaching Elementary School Mathematics—Laboratory	1
5200:347	Teaching of Reading—Laboratory	1
5200:348	Teaching of Social Studies—Laboratory	1
5200:349	Principles of Diagnostic Teaching of Reading—Laboratory	1
5200:350	Multicultural Education: Concepts, Programs and Practices	3
5200:365	Comprehensive Musicianship for the Elementary Classroom Teacher	3
5200:403	Seminar in Student Teaching	1
5200:495	Student Teaching	6
5200:496	Student Teaching	6
5550:334	Games and Rhythms—Elementary Grades	2
5570:101	Personal Health	2

• If certification for teaching kindergarten is desired, the following courses must be scheduled:

5200:330	Early Elementary Education I	3
5200:331	Early Elementary Education II	3
5200:340	Early Elementary Education I—Laboratory	1
5200:341	Early Elementary Education II—Laboratory	1

**Retraining from Secondary to Elementary Certificate**

- The holder of a provisional, professional, permanent high school or special certificate may obtain a Provisional Elementary Certificate valid for elementary teaching (grades one-eight) upon submitting evidence of the satisfactory completion of the following credits:

<b>Basic:</b>		
5100:250	Human Development and Learning	3
5200:336	Teaching Elementary School Mathematics	3
5200:337	Teaching of Reading	3
5200:346	Teaching Elementary School Mathematics—Laboratory	1
5200:347	Teaching of Reading—Laboratory	1

- Such a certificate shall be designated as a "retraining" certificate and shall be made standard upon evidence of the completion of the following coursework in elementary education:

5200:141	Handicrafts	2
5200:286	Children's Literature	3
5200:300	Student Participation	1
5200:321	Art for the Grades	2
5200:333	Science for Elementary Grades	3
5200:335	Teaching of Language Arts	5
5200:338	Teaching of Social Studies	3
5200:339	Principles of Diagnostic Teaching of Reading	3

\*An elementary education major is responsible for completing 300 field and clinical hours in addition to student teaching. It will be the responsibility of the department to assign these hours to the appropriate professional education course.

\*\*If a time period of four years has elapsed since taking this course, or its equivalent, a basic mathematics or mathematics education course must be completed.

		<i>Credits</i>
5200:343	Science for Elementary Grades—Laboratory	1
5200:348	Teaching of Social Studies—Laboratory	1
5200:349	Principles of Diagnostic Teaching of Reading—Laboratory	1
5200:350	Multicultural Education: Concepts, Programs and Practices	3
5200:365	Comprehensive Musicianship for the Elementary Classroom Teacher	3
5550:334	Games and Rhythms—Elementary Grades	2
5570:101	Personal Health	2

- If additional credits are needed in the social sciences, a choice should be made from the following:

3350:100	Introduction to Geography (if no previous geography credits are recorded)	3
3400:201	United States History to Civil War	4
3400:202	United States History since Civil War	4
3700:100	Government and Politics in the United States	4

- If the student desires certification for teaching kindergarten, the following eight credits must be scheduled:

5200:330	Early Elementary Education I	3
5200:331	Early Elementary Education II	3
5200:340	Early Elementary Education I—Laboratory	1
5200:341	Early Elementary Education II—Laboratory	1

- Student teaching is required in this program if evidence of teaching experience under the original certificate is lacking or it is deemed advisable by the dean of the college, the director of student teaching and the head of the Department of Elementary Education. A 2.50 grade-point average in professional coursework is required to enroll.
- Completion of the above credits does not necessarily constitute qualification for the Bachelor of Science degree in elementary education at The University of Akron. To qualify for the degree, certain additional requirements must be met.

### Certification for Teaching Music in the Elementary School

Any student who completes a regular four-year program qualifying him for a Four-Year Provisional Elementary Certificate\* may have that certificate validated for teaching music in the elementary school by completing the following courses:

5200:497	Independent Study (Music Student Teaching)	2
7500:107	Class Voice or	
7520:124	Applied Voice	2
7500:151.2	Music Theory I and II	6
7500:154.5	Music Literature I and II	4
7500:261	Keyboard Harmony I	2
7500:340	General Music	3
7500:341	Wind-Perussion Instrument Techniques	3
7500:356	Music: Teaching Handicapped or	
7500:358	Functional: Class Guitar	2
7500:497	Independent Study	2
7500:—	Music Organization	2

### Dual Certification Program Elementary and Secondary

This curriculum prepares teachers for both elementary and secondary school. A student completing this curriculum will receive the Four-Year Provisional Certificate to teach in the secondary school and a certificate which will qualify the holder to teach in grades one-eight in the elementary school.

A student in this program must meet the requirements for elementary education; must complete 5300:310 *Principles of Secondary Education* and 5200:311 *Instructional Techniques in Secondary Schools*; and must meet the requirements in the field or fields of teaching at the secondary level in which certifi-

cation is requested. For advisement in this area, contact the head of the department.\*\*

A combination elementary and special education program is offered; see "5610: Special Education."

## 5300: Secondary Education

The secondary program is for the student preparing to teach in middle, junior and senior high schools. A list of the specific requirements for the various teaching fields will be provided for the student by the college adviser or by the head of the Department of Secondary Education. For information regarding employment in non-school settings which capitalize on a teacher's skills, see the department head.

A student must have completed at least eight semester credits in the teaching fields before transferring to the upper college and must have at least a C grade in *English Composition* or its equivalent.

The general requirements for a major in secondary education are as follows:

- General Studies — 39 credits.
- Professional courses (courses must be taken in sequence):
 

5100:150	Introduction to Professional Education	3
5100:250	Human Development and Learning	3
5100:350	Educational Measurement and Evaluation	2
5100:450	Problems in Education	2
5300:265	Introduction to Secondary Education	1
5300:275	Exploratory Experience	1
5300:310	Principles of Teaching in the Secondary School	3
5300:325	Content Reading in Secondary School	3
5300:345	Human Relations in Secondary Education	1
5300:355	Managing Classroom Behavior at the Secondary Level	1
5300:375	Exploratory Experience	1
5300:411	Instructional Techniques Secondary Education	4
5300:445	Minicomputer Applications in Secondary Classroom or	
5300:455	Career Options in Secondary Education	1
5300:403	Student Teaching Seminar	1
5300:495	Student Teaching	8
- Courses in teaching field(s) and electives as determined by the department.

### Teaching Fields

Each student preparing for secondary school teaching must have at least two academic teaching fields. One field shall be at least six credits more than the minimum required by the Ohio State Department of Education, except where the state requirement in the teaching field is 30 credits or more. However, if a student chooses one of the comprehensive or special teaching fields, as listed below, preparation in a second field will not be required.

### Minimum Number of Credits Required for Approval in Various Teaching Fields†

#### Comprehensive Subjects by Field

Business Education (with shorthand)	57-60
Business Education (without shorthand)	49-52

\*\*Student teaching in both fields is required.

†Many fields require more than the minimum. Please see the department for specific program.

\*Such certificates may also be validated in the following fields: visual arts, educational media, reading, outdoor education, physical education. Consult the Department of Elementary Education for details.

	<i>Credits</i>
Communications	60
Consumer Homemaking and Multi-area Vocational	55
Data Processing	55
Family Life Education	60
Science	71-72
Selling and Merchandising	52-55
Social Studies	60

### Special Fields K-12

Art — as determined by Department of Art	50
Health Education — as determined by Department of Health and Physical Education	30
Music — as determined by Department of Music	50
Physical Education (Men and Women) — as determined by Department of Health and Physical Education	47
Speech and Hearing Therapy — as determined by Department of Communicative Disorders.	
Special Education — as determined by Department of Counseling and Special Education	31-36

### Specific Subjects by Field

	<i>First Field Credits</i>	<i>Second Field Credits</i>
Biology	52	33
Bookkeeping Basic Business		22
Chemistry	52	30-32
Consumer Homemaking Vocational	52	
Earth Science	50	43
Economics		22
English	37	31
General Science	38	27
Geography		21
Health Education (7-12)		23
History	31	30
Home Economics		31
Home Economics — Non-Vocational	47	
Foreign Languages	30	30
Mathematics	27	20
Physics	51	43
Political Science		27
Sales Communication		22
Social Psychology		20
Sociology		20
Speech and Theatre (K-12)	43	
Speech and Theatre Arts	35	31
Stenography and Typing	26	22
Visual Art		49

## 5400: Technical Education

The undergraduate program in technical education is designed to prepare instructors and including personnel for post-secondary educational institutions, industry and public and private agencies engaged in the education and training of technicians. The program is divided into the following major classifications: business technologies, engineering technologies, health technologies, natural science technologies and public service technologies. The baccalaureate program is intended to produce instructors primarily for teaching subjects within a technical specialty and is not intended to produce post-high school teachers in mathematics, physics, chemistry, English or other general education offerings. Graduates of this program would be awarded the degree of Bachelor of Science in Technical Education.

A student may elect other areas when the courses are available and the adviser approves.

The technical education program includes work in four areas: General Studies; the technical specialty; professional education; and occupational experience. Specific course requirements may be secured from the Department of Secondary Education or from the advisers in technical education.

## Requirements for Graduation

In addition to the general requirements of the College of Education, a student in technical education must obtain at least a 2.00 average in all major departmental professional courses (5400), all professional education courses and a 2.50 average in all technical courses directly related to the student's teaching field.

## 5550: Physical Education

5550: Physical Education\*; 5560: Outdoor Education\*\*; and 5570: Health Education\*.

Physical education prepares students for careers in teaching, coaching and related recreation fields, and health education prepares students for careers in teaching and related health fields. Laboratory experiences are provided in local schools, and special programs are provided at the University. Specific experiences include: learning disabilities, movement education, outdoor education, handicapped education, elementary, secondary school education and adult leisure. In addition, the department offers students the opportunities for courses and experiences in athletic training, outdoor education and recreation. All health and physical education programs are applicable to governmental and business recreational situations, but certification is not required for these areas.

## Outdoor Education

The outdoor education program is designed for students in elementary or secondary education, biology, environmental studies, health, physical education or recreation. Students may become involved with existing outdoor education programs in the public schools, metropolitan, state and national park programs or private and public agencies which conduct outdoor/environmental education programs.

1830:201	Man and the Environment	2
1830:401	Seminar in Environmental Studies	2
5560:450	Outdoor Education: Curriculum Application	4
5560:452	Outdoor Education: Methods and Materials	3
5560:454	Resident Outdoor Education	2
5560:456	Outdoor Pursuits	4
5560:460	Practicum in Outdoor Education	2
5560:497	Independent Study	1-2

## Athletic Training

To be eligible to take the National Athletic Trainer's Association certification test, the student must complete a course of study at The University of Akron and compile at least 1800 hours of practical field and clinical experience during a two-year period.

## 5610: Special Education

This program involves in-depth preparation in the areas of mental retardation, learning disabilities and orthopedically handicapped. The program incorporates courses from secondary education, elementary education, counseling and educational foundations. Components include the General Studies, general professional education, special education studies (the major field), student teaching and related competency studies.

\*Certification through the state of Ohio.

\*\*Certification through department or the University.

Completion of this program enables one to be certified in special education at both elementary and secondary levels for each of the areas of preparation.

### Comprehensive Programs

Three plans for preparation in special education:

**Plan A:** Dual Certification — learning disabilities and educable retarded.

		<i>Credits</i>
5610.201	Student Participation: EMR/LD	1
5610.446	Developmental Characteristics of Behaviorally Disordered Individuals	3
5610.495	Student Teaching	4-8
	Electives*	5

**Plan B:** Dual Certification — educable and moderately-severely-profoundly retarded.

5610.203	Student Participation: EMR/TMR	1
5610.454	Educational Adjustment for Moderate, Severe and Profound Mentally Retarded Individuals	3
5610.458	Interdisciplinary Programming for MSPR	3
5610.460	Working with Parents of MSPR Individuals	3
5610.495	Student Teaching	8
	Electives*	1

**Plan C:** Dual Certification — educable retarded and orthopedically handicapped.

5610.202	Student Participation: EMR/OH	1
5610.445	Developmental Characteristics of Orthopedically Handicapped Individuals	3
5610.495	Student Teaching	8
	Electives*	5

In addition, the student must complete the following:

• General Studies — 39 credits.

• Professional education:

5100.150	Introduction to Professional Education	3
5100.250	Human Development and Learning	3
5100.350	Educational Measurements and Evaluation	2
5100.450	Problems in Education	2
5300.310	Principles of Secondary Education	3
5610.403	Student Teaching Seminar	1
5610.495	Student Teaching EMR	8

• Related competency studies:

3750.100	Introduction to Psychology	3
5200.335	Teaching the Language Arts	5
5200.336	Teaching of Elementary School Mathematics	3
5200.337	Teaching of Reading	3
5600.410	Personnel Services in Schools	2
7700.430	Aspects of Normal Language Development	3
Choose one of the following:		
5550.211	First Aid	2
5570.101	Personal Health	2
Choose two of the following:		
5200.321	Art for the Grades	2
5200.365	Comprehensive Musicianship for the Elementary Classroom Teacher	3
5550.334	Games and Rhythms — Elementary Grades	2

• Special education studies:

5610.440	Developmental Characteristics of Exceptional Individuals	3
5610.441	Developmental Characteristics of Mentally Retarded Individuals	4
5610.443	Developmental Characteristics of Learning Disabled Individuals	3
5610.450	Educational Adjustment for Preschool and Primary Level Exceptional Individuals	3
5610.451	Educational Adjustment for Intermediate Level Exceptional Individuals	3
5610.452	Educational Adjustment for Secondary Level Exceptional Children	3
5610.456	Classroom Behavior Management for Exceptional Children	2
5610.457	Clinical Teaching Practicum: Children with Learning Problems**	3

\*Chosen in consultation with Special Education adviser.

\*\*Final course before student teaching. advanced permission required.

In addition, the student must complete the following:

### Combination Special Education — Elementary Education Program

The addition of 18 to 33 special education credits, including student teaching, to the standard elementary education program in lieu of elementary education elective credits will provide the student a special area of preparation in the form of a non-certification minor, or certification minor in the areas of mental retardation, learning and/or behavioral disorders or in the area of teaching orthopedically handicapped children. Completion of any of these latter minors in the elementary program will lead to a teaching certificate valid in the regular and in a specified special classroom.

### Special Education as a Secondary Teaching Field

The addition of 31-36 special education credits, including student teaching, to the professional education courses required of secondary teachers may comprise a second teaching field in mental retardation, learning disabilities or orthopedically handicapped.

Specific program details for the above combinations with elementary or secondary can be obtained from the Department of Counseling and Special Education.

### Speech and Hearing Therapy

A baccalaureate degree certification program in the area of speech and hearing therapy is available to students enrolled in the program prior to fall semester 1983.

Students who enter the program during fall semester 1983, can complete a certification program only as part of a masters degree. Specific program details can be obtained from the Department of Counseling and Special Education and/or the Department of Communicative Disorders.

## 5630: Bilingual Multicultural Education

This program provides education majors with the knowledge, skills and attitudes necessary to teach bilingual students. The program incorporates coursework in the history and philosophy of bilingual multicultural education, linguistics, English as a second language instruction, culture and theories and practices for teaching bilingual students language arts, reading, mathematics, social studies and science. Students may become certified in bilingual multicultural education at either the undergraduate or graduate levels in conjunction with certification in elementary education, secondary education, special education or physical education. Students must demonstrate proficiency in English and a language other than English in order to meet the certification requirements of the Ohio State Department of Education.

• Requirements:		<i>Credits</i>
3300.489	Seminar in English: Introduction to Bilingual Linguistics	3
5630.482	Characteristics of Culturally Different Youth	3
5630.484	Principles of Bilingual Multicultural Education	3
5630.485	Field experience of bilingual classrooms/ settings	3
	Teaching Reading and Language Arts to Bilingual Students	4
	or	
5630.486	Teaching Mathematics, Social Studies, and Science to Bilingual Students	3
5630.487	Techniques for Teaching English as a Second Language in the Bilingual Classroom	4

# College of Business Administration

James W. Dunlap, Ph.D., *Dean*

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## Objectives

The College of Business Administration is a professional college of the University that is dedicated to teaching, business research and public service. The college, a member of the American Assembly of Collegiate Schools of Business, the national accrediting agency for colleges of business administration, offers undergraduate and graduate degree programs during the day and evening.

The purpose of the College of Business Administration is to further the objectives of The University of Akron by providing a quality program of collegiate education in business to prepare the student for a professional career in commerce, industry and government. This is to be secured with the following aims:

- To instill in the student competence in the basic functional areas of business enterprise.
- To develop in the student an analytical ability and balanced judgment in the solution of business problems.
- To promote in the student an understanding of human behavior and the impact of social, political and economic forces in the decision-making process.
- To cultivate in the student a facility for the use of management tools of accounting, quantitative techniques and communications.
- To encourage in the student the development of a business code of ethics.
- To foster in the student a desire to continue the pursuit of knowledge and the achievement of excellence in the area of administration.

Additional objectives of the college are: to act as a service division by offering courses in another college; to serve the business community of the state and region by sponsoring conferences, short courses and management development programs; to foster and encourage research in business; to offer graduate instruction and opportunities for research to the student at the master's level; to prepare the student for entering law school; and to prepare the student for advanced research and study in business and economics.

At The University of Akron there has been a long and eventful history of education relating to the field of commerce and industry. Beginning in 1919, courses were offered in the Department of Commerce. Eventually the department became the nucleus of the College of Business Administration, which was established in 1953.

Since its inception, the college curriculum has been designed with equal emphasis on broad basic principles as well as immediate practices. Classroom knowledge is consistently made more significant by field trips and inspection tours to witness business operations.

Similarly, the college maintains a sound balance between education in the arts, humanities and sciences and professional

business courses. Half of the courses of study at the undergraduate level are in the areas of liberal arts and sciences; the remaining courses are divided between general business subjects and the student's indicated area of specialization.

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## College Requirements

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### Requirements for Admission

The college will accept the student who has completed sufficient coursework to indicate possession of the necessary ability and desire to earn a business administration degree. The number of credits to have been completed will vary from student to student, but will be at least 30 credits at the time of acceptance.

Enrollment in upper college business courses is limited to a student who has:\*

- Applied for transfer to the college.
- Successfully completed at least 60 credits.
- Earned at least a 2.00 overall grade-point average and at least a 2.00 grade-point average in business administration and economics courses.

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### Cooperative Education Program

A student may voluntarily participate in the University-wide Cooperative Education Program.

The requirements are as follows:

- Attain college admissions status.
- Complete 45 credits with at least a 2.00 overall grade-point average.
- Complete 3250:201,2 and 6200:201,2 with at least a 2.00 grade-point average.
- Apply for participation in the program through the University's director of Cooperative Education.

A student may select one of two employment plans which he may secure from the office of the Dean of the College.

Three employment experiences are required, with no more than one work period in a summer. The work experience must relate to the business administration area.

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### Transfer of Courses and Advanced Standing

In order for courses taken outside of the University College or the College of Business Administration to be accepted as part of an approved program of study in lieu of college and departmental requirements, the courses to be transferred must be of an equivalent level. The College of Business Administration will consider the following in granting credit: the content, complexity and grading standards of courses taken elsewhere and the

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\*Exceptions to any or all of these may be granted by the dean.

suitability of courses taken elsewhere for the program of study chosen here. Subject matter reserved for junior- and senior-level courses in this college will not be transferable through courses taken in any two-year institution. All work transferred may be subject to examination to validate credits.

## Degrees

The College of Business Administration, organized on a departmental basis, offers programs of study in accounting, finance, management, marketing and international business. Five baccalaureate degrees are offered; the Bachelor of Science in Accounting, Bachelor of Science in Business Administration, Bachelor of Science in Industrial Management, Bachelor of Science in Business Administration/Finance and the Bachelor of Science in Business Administration/Marketing.

## Requirements for Graduation

To receive a baccalaureate degree from the College of Business Administration, a student must meet the following requirements:

- Complete a minimum of 128 semester credits with a minimum 2.00 grade-point average. Not more than one credit of physical education may be included.
- Obtain at least a 2.00 grade-point average in all courses in the major as well as in all courses in business administration and economics.
- Obtain the recommendation of the department head.
- Complete other University requirements listed in **Section 3** of this *Bulletin*.
- General Studies — 36 credits.\*
- Complete the following courses:

	<i>Credits</i>
3250:201 Principles of Macroeconomics	3
3250:202 Principles of Microeconomics	3
6200:201.2 Accounting	8
One of the following three options:	
3450:111,2,3,4 Modern University Mathematics	4
3450:121,2,3 Modern University Mathematics	3
3450:138 Mathematics of Finance	
or	
3450:138 Mathematics of Finance	1
3450:149 Pre-Calculus Mathematics	3
3450:221 Analytic Geometry-Calculus I	4
or	
3450:138 Mathematics of Finance	1
3450:149 Pre-Calculus Mathematics	3
3450:211.2 Calculus for Life Sciences I and II	8
Two sequential courses in psychology or sociology; or two courses chosen from psychology, sociology and/or cultural anthropology (minimum:)	6
The following core program in business administration:	
6200:355 Accounting Information Processing	3
6400:320 Legal Environment of Business**	4
or	
6400:321 Business Law I	3
6400:371 Business Finance	3
6500:301 Management: Principles and Concepts	3
6500:321.2 Quantitative Business Analysis I and II	6
6500:323 Computer Applications for Business**	3
6500:409 Business Policy	4
6600:300 Marketing Principles	3

\*These are pre-business administration requirements.

\*\*An accounting major must take 6200:355 and 6400:321, other majors must take 6500:323 and 6400:320.

## Programs of Instruction

### 6200: Accounting

The functions of accounting are essential to the decision-making process in commerce, industry and government. Because of the important role it plays in economic affairs, accounting has attained the professional status of law and medicine.

Three major fields of employment for accountants are public, private and governmental accounting. Regardless of the areas of concentration, standards, ethics and the mastery of accounting concepts and procedures are essential. An accounting graduate who chooses public accounting may become a senior, manager, principal or partner in public accounting firms. A student who chooses an accounting career in private industry may hold the position of accountant, cost accountant, senior accountant, budget director, internal auditor, treasurer or controller. Federal, state and local governments provide a wide variety of job opportunities at the professional level for well-educated accountants. There are exceptional opportunities for professional advancement regardless of the type of institution a graduate may choose.

The accounting curriculum is designed to prepare the student for professional service, including sitting for the uniform certified public accounting examination and other professional accounting examinations and to prepare the student to undertake advanced study. To receive the Bachelor of Science in Accounting degree, a student must complete the college requirements and the following departmental requirements:

	<i>Credits</i>
6200:301 Cost Accounting	3
6200:317 Intermediate Accounting I	4
6200:318 Intermediate Accounting II	4
6200:355 Accounting Information Processing†	3
6200:420 Advanced Accounting	3
6200:430 Taxation I	3
6200:431 Taxation II	3
6200:440 Auditing	3
6400:322 Business Law III††	3
6400:320 Legal Environment of Business	4
or	
6400:321 Business Law I	3
and	
6400:322 Business Law II	3
6200:454 Information Systems	3

Communication skills are vital, so a major is urged to take 3300:275, *Specialized Writing in Business*, and to participate in the Student Toastmasters organization. Because of the increasing demand for accountants with a knowledge of computer usage, additional courses in mathematics and computer science are strongly recommended. A major preparing for an industrial accounting career should take electives in management.

### 6400: Finance

Courses in the Department of Finance are designed to develop a student's ability to gather, organize, analyze and utilize finan-

†Required for the accounting major as well as in the college core program. Grade is not included in the major grade-point average.

††Grade not included in major grade-point average.

**cial data.** This requires that the student be familiar with the institutional setting in which firms operate, and, within this framework, they must understand the present state of financial theory, its uses and limitations. When a student majors in finance, the goal is not a specific entry job but rather a state of readiness to provide flexible response to new areas of opportunities in the financial area.

**Career opportunities** exist in three major fields. The financial management of non-financial institutions area offers employment in profit as well as non-profit firms where the emphasis is on the uses and sources of financial funds. The area of management of financial institutions offers opportunities to those who choose careers in commercial banking and other credit-granting institutions. Those interested in investments management find opportunities with brokerage firms and specialized departments in many financial as well as non-financial organizations. In most cases it is not possible to select direct entry at a level one desires; on-the-job training is required in allied fields. It is for this reason our suggested preparation is broad in scope.

To receive a Bachelor of Science in Business Administration/Finance, the college and the following departmental requirements must be completed:

	<i>Credits</i>
Finance core courses:	
6400:338 Financial Intermediaries	3
6400:343 Investments	3
6400:479 Problems in Finance	3
6400:320 Legal Environment of Business**	4
or	
6400:321.2 Business Law I and II	6
Four finance electives from the following:	
6200:317 Intermediate Accounting I*	4
6200:318 Intermediate Accounting II*	4
6400:318 Risk Management and Insurance	3
6400:373 Financial Statement Analysis	3
6400:400 Real Estate Principles: A Value Approach	3
6400:419 Property and Liability Insurance	3
6400:424 Legal Concepts in Real Estate: A Managerial Approach	3
6400:426 Commercial Bank Management	3
6400:447 Security Analysis	3

## 6500: Management

The University of Akron was one of the first institutions of higher learning to establish an industrial management curriculum. Important factors in the decision to establish such a program were the location of the University in a major industrial area and the recognition of an emerging educational need.

The emphasis on education for management is the result of several factors. First, managers are becoming increasingly aware that a professional approach to management requires understanding of quantitative methods and the behavioral sciences. Second, the management task is becoming much more complex in terms of the number of activities, volume of work and the broader impact of managerial decisions. Third, the practice of management in any setting requires a measure of specific preparation and qualification.

\*Completion of both (eight credits) will be counted as one three-hour elective in finance.

\*\*An accounting major must take 6200:335, 6400:321 and 322. Other majors must take 6500:323 and either 6400:320 or 321.

Events of the past several years have brought about a rapid and sweeping change in the business and industry of our society. The major in industrial management recognizes the unique directional problems of the firm involved in manufacturing producers' goods.

The graduate with an industrial management degree finds many employment opportunities with industrial firms in staff, supervisory and other management positions. The graduate possesses, in addition, the required basic understanding for effectively managing facilities, equipment and personnel in a variety of activities such as transportation, warehousing, research or institutional management. Also, the graduate has the fundamental preparation to undertake advanced study leading to a master's degree.

Departmental philosophy decrees that the student entering the field of management will have a solid basic liberal background within the framework of the management curriculum.

To receive the Bachelor of Science in Industrial Management with a major in management, a student must complete the college requirements and an option. The common departmental requirements are as follows:

		<i>Credits</i>
6500:331	Production Systems	3
6500:332	Production Operations	3
6500:341	Personnel Management	3
And one of the following:		
6500:471	Management Problems	3
6500:472	Management Problems-Production	3
6500:473	Management Problems-Personnel	3

The student, then, must select one of the options listed below:

### Production Option

6500:433	Operations Planning	3
6500:434	Production Planning and Control	3

### Personnel Option

6500:342	Personnel Management	2
6500:443	Advanced Personnel	3

### Industrial Accounting Emphasis

The industrial accounting emphasis jointly administered by the Department of Accounting and the Department of Management is designed to benefit the student who may wish to pursue a career in the field of accounting but does not wish to become a C.P.A. The courses selected are those which will furnish the student with a background in the operational management of production activities as well as in the accounting and budgeting procedures utilized in the control of these activities. The curriculum leads to the Bachelor of Science in Industrial Management degree.

The student selecting the industrial accounting emphasis must successfully complete the college requirements and the following courses:

6200:301	Cost Accounting	3
6200:355	Accounting Information Processing	
or		
6500:323	Introduction to Computer Applications for Business	3
6200:460	Controllorship Problems	3
6500:331	Production and Systems Management	3
6500:332	Production and Operations Management	3
6500:341	Personnel Management	3
6500:433	Business Operational Planning	3
6500:434	Production Planning and Control	3
Recommended electives:		
6200:317	Intermediate Accounting I	4
6200:318	Intermediate Accounting II	4

## 6600: Marketing

The chief marketing executive in the firm is responsible for sustaining customer acceptance of the firm's products and services, and for finding new opportunities for the firm through the development of new and improved products and services; effective advertising and other communications programs; efficient physical distribution of the firm's products and services so that they are accessible to present and prospective users; and pricing of the firm's offerings. The marketing executive is also responsible for organizing the various functions involved in the marketing effort. The executive attempts to allocate the resources of the firm for maximum impact in the markets which the executive feels are most profitable in order to provide the firm with a high and continuing flow of money income.

The marketing curriculum is designed to provide the student with the basic understanding and insight required for the successful performance and management of the marketing activities of either profit-making or non-profit organizations. It is also organized to provide the student who has an interest in a specific area of marketing study with alternative approaches to marketing knowledge by means of five specific marketing tracks and one general marketing studies option. The marketing tracks are:

Industrial Marketing	Marketing Communication
Retail Marketing	Physical Distribution
International Marketing	

The general marketing studies option allows the student to tailor-make the curriculum to individual needs, to engage in an exploratory study which will provide the basis for future studies, to facilitate access to a wider range of entry-level employment opportunities or to enable the student to relate the curriculum to the needs of a small or family business.

To receive a Bachelor of Science in Business Administration/Marketing the student must successfully complete 18 credits in one of the five marketing tracks or the general marketing option as follows:

### Industrial Marketing Track

Required:		Credits
6600:360	Industrial Marketing	3
6600:370	Purchasing	3
6600:380	Sales Management	3
6600:460	Marketing Research	3
Electives*:		
6600:320	Physical Distribution	3
6600:390	Management of Marketing Channels	3
6600:440	Product Planning	3
6600:465	Forecasting and Quantitative Methods in Marketing	3

### Retail Marketing Track

Required:		Credits
6600:310	Buyer Behavior	3
6600:340	Retail Management	3
6600:460	Marketing Research	3
Electives*:		
6200:301	Cost Accounting	3
6600:350	Advertising and Marketing Communications	3
6600:380	Sales Management	3
6600:390	Management of Marketing Channels	3
6600:465	Forecasting and Quantitative Methods in Marketing	3

### International Marketing Track

Required:		Credits
6600:330	International Marketing	3
6600:429	International Business Enterprise	3
6600:460	Marketing Research	3
Electives*:		
3250:450	Comparative Economic Systems	3
3250:461	Principles of International Economics	3
6600:310	Buyer Behavior	3
6600:465	Forecasting and Quantitative Methods in Marketing	3
Not more than one course to be selected from this group:		
6600:320	Physical Distribution	3
6600:390	Management of Marketing Channels	3
6600:440	Product Planning	3

A moderate fluency in a foreign language is strongly recommended.

### Marketing Communications Track

Required:		Credits
6600:310	Buyer Behavior	3
6600:350	Advertising and Marketing Communications	3
6600:430	Promotional Campaigns	3
6600:460	Marketing Research	3
Electives*:		
6600:340	Retail Management	3
6600:380	Sales Management	3
6600:440	Product Planning	3
6600:465	Forecasting and Quantitative Methods in Marketing	3

### Physical Distribution Track

Required:		Credits
6600:320	Physical Distribution	3
6600:420	Logistics Systems Analysis	3
6600:460	Marketing Research	3
Electives*:		
6200:301	Cost Accounting	3
6600:360	Industrial Marketing	3
6600:370	Purchasing	3
6600:390	Management of Marketing Channels	3
6600:465	Forecasting and Quantitative Methods in Marketing	3

### General Marketing Studies Option

Any 18 credits from the 6600 listings, including one departmental requirement of 6600:460 *Marketing Research* will complete the general marketing studies option.

To further guide the student, the department has available a brochure detailing the program, career opportunities and electives from other colleges and departments recommended for and tailored to each of the tracks.

\*In addition, three credits of 6600:490 *Workshop in Marketing*, 6600:495 *Internship in Marketing*, 6600:497 *Honors Project* or 6600:499 *Independent Study in Marketing* may be substituted for any one option with the permission of the department head.

# College of Fine and Applied Arts

Gerard L. Knieter, Ed.D., *Dean*  
Kelvie Comer, Ed.D., *Assistant Dean*

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## Objectives

The purpose of the College of Fine and Applied Arts is to further the objectives of the University by providing a quality program of undergraduate and graduate education in the artistic, technological, clinical and studio experience in speech, the dramatic arts, music, social welfare, the visual arts and the family life arts, as well as:

- To maintain curricula for the preparation of a student majoring in these areas.
- To prepare a student for graduate study and career opportunities on a professional competence level.
- To provide instruction designed to meet specific curricular needs of all the colleges of the University.
- To serve the elective interests of the student seeking diversity; enrichment in academic programs.
- To encourage the development of technical knowledge and professional skills which underlie the communicative functions of human expression.
- To nurture and expand, through this congregation of the arts, not only a knowledge of man's creative and cultural heritage but also a perceptual and aesthetic awareness of direct sensory experience through creation and performance.

The college recommends each student for the appropriate bachelor's or master's degree in accordance with the student's specialization.

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## College Requirements

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### Requirements for Admission

To be admitted to the College of Fine and Applied Arts, the student must have completed at least 30 credits of work with at least a 2.00 grade-point average or above and have the approval of the dean. A student transferring to the Department of Art from another institution must submit a portfolio of work for approval before admission. A student transferring from another college or institution into the Department of Music must submit to a departmental placement examination. The longer and more professionally-oriented majors should be started during the first or second year when the student is still under the guidance of the Office of Academic Advising. The shorter majors need not be declared before the student is ready for transfer to the college.

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### Requirements for Baccalaureate Degrees

- Compliance with University requirements, **Section 3** of this *Bulletin*.
- Electives consisting of courses offered for credit in the University's four-year degree programs, provided that the prerequisites as set forth in this *Bulletin* are met, and further provided that not more than two credits of physical education activities, eight credits of applied music or four credits of music organizations are included. (Credit limitations on applied music and music organizations do not apply to the Bachelor of Music degree.) While credits from another institution or college may be accepted, application toward graduation will depend upon the nature of the student's program of study.
- The recommendation of the head of the student's major department.
- Demonstrated ability to use English. One other language depending upon the degree program.

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### Degrees

The following baccalaureate degrees are granted in the College of Fine and Applied Arts:

Bachelor of Arts  
Bachelor of Arts in Business and Organizational Communication  
Bachelor of Arts in Communication and Rhetoric  
Bachelor of Arts in Communicative Disorders  
Bachelor of Arts in Dance  
Bachelor of Arts in Dietetics  
Bachelor of Arts in Family and Child Development  
Bachelor of Arts in Foods and Nutrition  
Bachelor of Arts in General Speech  
Bachelor of Arts in Mass Media-Communication  
Bachelor of Arts in Textiles and Clothing  
Bachelor of Arts in Theatre Arts  
Bachelor of Arts/ Social Work  
Bachelor of Fine Arts  
Bachelor of Music

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### Graduation Requirements

A student must earn a major in a department of the college. A major consists of 24 to 62 credits in addition to the required General Studies and, in the case of the Bachelor of Arts degree, foreign language courses. Part or all of these credits may be taken in specifically required courses depending upon the major. The exact requirements for each major will be found on the following pages in the section headed "Programs of Instruction." At the time of admission to the college, the student is assigned an adviser by the department head.

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## Programs of Instruction

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### 7100: Art

#### Bachelor of Arts

- General Studies and completion of a second year of a foreign language — 53 credits.
- Completion of studio art or history of art option.
- Electives — 23-25 credits.

### Studio Art Option

- Studio art coursework including one course in each of six different areas of emphasis: i.e., printmaking, sculpture, etc. — 41 credits.
- *Survey of History of Art I and II* (7100:100,1) plus one additional advanced-level art history course — 11 credits.

### History of Art Option

- History of art including one history of art seminar, one special problems in history of art course and one special topics in history of art course. 7100:100,1 *Survey of History of Art* (eight credits) included — 38 credits.
- Studio art coursework to include at least four different areas of emphasis: i.e., painting, photography, etc. (7100:275 recommended) — 12 credits.

### Bachelor of Fine Arts

- General Studies — 39 credits.
- Foundations Curriculum in Art

	<i>Credits</i>
7100:100 Survey of History of Art I	4
7100:101 Survey of History of Art II	4
7100:121 Three-Dimensional Design	3
7100:131 Introduction to Drawing	3
7100:144 Two-Dimensional Design	3
or	
7100:286 Commercial Design Theory	3
7100:232 Instrument Drawing	3
7100:233 Life Drawing	3

- Electives — 13 credits.
- Two advanced level art history courses (one in graphic design, three credits).
- Major program: 50 credits for graphic design, 47 credits for all others.
- Senior exhibition.
- Portfolio review as specified for student's area of emphasis.

### Areas of Major Emphasis

- Studio art courses must include one area of major emphasis as described below, plus studio electives to total no less than 62 credits.

#### Ceramics

Prerequisites before first major course:	
7100:100 Survey of History of Art I	4
7100:121 Three-Dimensional Design	3
7100:131 Introduction to Drawing	3
Major courses:	
7100:254 Ceramics I	3
7100:354 Ceramics II	3
7100:454 Advanced Ceramics (to be repeated)	15
Additional required courses:	
7100:101 Survey of History of Art II	4
7100:144 Two-Dimensional Design	3
7100:222 Introduction to Sculpture	3
7100:231 Drawing II	3
7100:232 Instrument Drawing	3
7100:233 Life Drawing	3

#### Crafts

Prerequisites before first major course:	
7100:100 Survey of History of Art I	4
7100:131 Introduction to Drawing	3
Additional prerequisite courses depending on which beginning craft courses are taken.	

Major courses:  
A minimum of 36 credits in the craft areas of ceramics, fibers, metalsmithing and enameling to include at least nine credits in three of these areas.

Additional required courses:	
7100:101 Survey of History of Art II	4
7100:121 Three-Dimensional Design	3
7100:144 Two-Dimensional Design	3
7100:221 Design Applications	3

#### Drawing

Prerequisites before first major course:	
7100:100 Survey of History of Art I	4
7100:131 Introduction to Drawing	3

Major courses:		<i>Credits</i>
7100:—	Printmaking	3
7100:231	Drawing II	3
7100:232	Instrument Drawing	3
7100:233	Life Drawing	3
7100:282	Architectural Presentation	
	or	
7100:283	Drawing Techniques	3
7100:331	Drawing III	3
7100:333	Advanced Life Drawing*	3
7100:431	Drawing IV*	3
Additional required courses:		
7100:101	Survey of History of Art II	4
7100:121	Three-Dimensional Design	3
7100:144	Two-Dimensional Design	3

#### Graphic Design

Prerequisite before first major course:		
7100:131	Introduction to Drawing	3
7100:232	Instrument Drawing	3

Major courses:		
7100:283	Drawing Techniques	3
7100:284	Introduction to Graphic Design	3
7100:286	Commercial Design Theory	3
7100:288	Letter Form and Typography	3
7100:387	Advertising Layout Design	3
7100:388	Advertising Production and Design	3
7100:389	Corporate Identity and Graphic Systems	3
7100:480	Advanced Graphic Design	
	(may be repeated to 12 credits)	3
7100:484	Illustration	3
7100:485	Advanced Illustration	
	(may be repeated to nine credits)	3
7100:486	Packaging Design	3
7100:488	Publication Design	3

Additional required courses:		
2240:222	Advertising Photography	3
7100:100	Survey of History of Art I	4
7100:101	Survey of History of Art II	4
7200:121	Three-Dimensional Design	3
7100:231	Drawing II	
	or	
7100:233	Life Drawing	3
7100:275	Introduction to Photography	3

NOTE: A student whose major program is graphic design may substitute 7100:284 *Introduction to Graphic Design* wherever 7100:144 *Two-Dimensional Design* is indicated as a prerequisite; waive 7100:100 *Survey of History of Art I* as a prerequisite to either 7100:275 *Introduction to Photography* or 7100:231 *Drawing II*

#### Metalsmithing

Prerequisites before first major course:		
7100:100	Survey of History of Art I	4
7100:101	Survey of History of Art II	4
7100:121	Three-Dimensional Design	3
7100:131	Introduction to Drawing	3
7100:144	Two-Dimensional Design	3
Major courses:		
7100:266	Introduction to Metalsmithing	3
7100:268	Enameling on Metal	3
7100:366	Metalsmithing II	3
7100:466	Advanced Metalsmithing (to be repeated)	12

Additional required courses:		
2920:247	Technology of Machine Tools	3
7100:222	Introduction to Sculpture	3
7100:232	Instrument Drawing	3
7100:233	Life Drawing	3
7100:283	Drawing Techniques	3

#### Painting

Prerequisites before first major course:		
7100:100	Survey of History of Art I	4
7100:131	Introduction to Drawing	3
7100:144	Two-Dimensional Design	3
Major courses:		
7100:245	Introduction to Polymer Acrylic Painting	3
7100:246	Introduction to Watercolor Painting	3
7100:247	Introduction to Oil Painting	3
7100:348	Painting II (to be repeated in different media)	6
7100:449	Advanced Painting (to be repeated)	6

\*Required to be repeated twice for drawing majors only.

Additional required courses:		Credits
7100:101	Survey of History of Art II	4
7100:121	Three-Dimensional Design	3
7100:231	Drawing II	3
7100:232	Instrument Drawing	3
7100:233	Life Drawing	3

### Photography

Prerequisites before first major course:		Credits
7100:100	Survey of History of Art I	4
7100:131	Introduction to Drawing	3
7100:144	Two-Dimensional Design	3

Major courses:		Credits
7100:275	Introduction to Photography	3
7100:375	Photography II	3
7100:376	Photographics	3
7100:475	Advanced Photography (to be repeated)	12

Additional required courses:		Credits
3650:137	Light-Color-Camera and Perception	3
7100:—	Printmaking	6
7100:101	Survey of History of Art II	4
7100:121	Three-Dimensional Design	3
7100:231	Drawing II	3
7100:232	Instrument Drawing	3
7100:233	Life Drawing	3
7100:300	Art since 1945	3
7100:317	Printmaking II	3

### Printmaking

Prerequisites before first major course:		Credits
7100:100	Survey of History of Art I	4
7100:101	Survey of History of Art II	4
7100:131	Introduction to Drawing	3
7100:144	Two-Dimensional Design	3
7100:231	Drawing II	3

A minimum of two of these four major courses:		Credits
7100:213	Introduction to Lithography	3
7100:214	Introduction to Screen Printing	3
7100:215	Introduction to Relief Printing	3
7100:216	Introduction to Intaglio Printing	3

Additional major courses:		Credits
7100:232	Instrument Drawing	3
7100:317	Printmaking II (may be repeated)	3
7100:418	Advanced Printmaking (may be repeated)	3

Additional required courses:		Credits
7100:121	Three-Dimensional Design	3
7100:233	Life Drawing	3
7100:275	Introduction to Photography	3
7100:375	Photography II	3

A choice of one of these painting courses is required:		Credits
7100:245	Introduction to Acrylic Painting	3
7100:246	Introduction to Watercolor Painting	3
7100:247	Introduction to Oil Painting	3

### Sculpture

Prerequisites before first major course:		Credits
7100:100	Survey of History of Art I	4
7100:121	Three-Dimensional Design	3

Major courses:		Credits
7100:221	Three-Dimensional Design Application	3
7100:222	Introduction to Sculpture	3
7100:322	Sculpture: Molding and Casting	3
7100:422	Advanced Sculpture (to be repeated)	9

Additional required courses:		Credits
7100:101	Survey of History of Art II	4
7100:131	Introduction to Drawing	3
7100:144	Two-Dimensional Design	3
7100:231	Drawing II	3
7100:232	Instrument Drawing	3
7100:233	Life Drawing	3
7100:254	Introduction to Ceramics	3
or		
7100:266	Introduction to Metalsmithing	3

### Honors Program

As a participant in the program, the student must complete a minimum of 12 credits of honors work, to be divided in such a way that not more than eight credits are received in either

coursework (7100:499) or research project (7100:405,9,90). Thus, the maximum number of credits possible would be sixteen.

The student must complete a written or studio project with a grade of "B" or better.

### Art Education

A student wishing state teachers certification has several degree options; further information can be obtained from the department and in the College of Education.

Bachelor of Fine Arts — College of Fine and Applied Arts/Certification in Teacher Education
Bachelor of Fine Arts — College of Fine and Applied Arts/Graphic Design Emphasis and Certification in Teacher Education
Bachelor of Arts — College of Fine and Applied Arts/Certification in Teacher Education
Bachelor of Science — College of Education/Certification in Teacher Education
Bachelor of Science — College of Education/Certification in Visual Arts for the Elementary School

## 7400: Home Economics and Family Ecology\*

The mission of the Department of Home Economics and Family Ecology is to prepare professionals to take leadership positions as generalists and specialists in the areas of home economics. These include dietetics, family and child development, foods and nutrition and textiles and clothing. Graduates are employed in public and private sectors in retailing, health and human services, dietetics, nutrition education and counseling, commercial and interior design, child care in hospital and community settings and food product development.

- General Studies — 39 credits.\*\*
- Home Economics and Family Ecology Core:  
All students enrolled in baccalaureate programs in the Department of Home Economics and Family Ecology are required to complete the following core of requirements:

	Credits
7400:147 Home Economics Survey	1
7400:447 Critical Issues in Home Economics	1

One course to be chosen from each of the following divisions outside the area of specialization.

Clothing, Textiles and Interiors	
7400:121 Textiles	3
7400:159 Family Housing	3
7400:419 Clothing Communication	3
Family and Child Development	
7400:201 Relational Patterns in Marriage and Family	3
7400:265 Child Development	3
Foods and Nutrition	
7400:133 Nutrition Fundamentals	3
7400:141 Food for the Family	3
Management	
7400:362 Home Management Theory	3

\*The second year of a foreign language is an optional requirement for the Department of Home Economics and Family Ecology. Please consult with the adviser in the proper degree area for options available.

\*\*The University College's requirement for general studies for the Bachelor of Arts in Dietetics is 42 credits. The additional three credits come from the use of 3150:129,130 General Chemistry (8 credits) to meet the natural science requirements, and from the use of 3850:100 Introduction to Sociology (4 credits) and 3250:100 Introduction to Economics (3 credits) to meet the Social Studies requirement. The above mentioned courses are required by the American Dietetic Association.

## Bachelor of Arts in Dietetics

Both the Coordinated Undergraduate Program (CUP) and the Traditional Program in general dietetics lead to a Bachelor of Arts degree. The Coordinated Undergraduate Program integrates clinical experiences within the junior and senior years, allowing American Dietetic Association membership and eligibility to take the registration examination after graduation from the four-year program. The Traditional Program requires an approved internship following graduation (or an advanced degree) to become eligible for membership in the American Dietetic Association and to take the registration examination.

### Basic American Dietetic Association Requirements for Coordinated Undergraduate and Traditional Dietetics Programs

		<i>Credits</i>
2420:211	Basic Accounting I (3 credits) or 6200:201 Accounting I (4 credits)	3-4
3100:130	Principles of Microbiology	3
3100:206	Anatomy and Physiology	3
3100:207	Anatomy and Physiology	3
3150:203	Nutritional Biochemistry	3
3750:100	Introduction to Psychology	3
5400:351	Consumer Homemaking Methods	4
6500:301	Management: Principles and Concepts or 6500:480 Introduction to Health Care Management	3
6500:341	Personnel Management	3
7400:245	Basic Nutrition and Foods	5
7400:313	Introduction to Food Systems Management	3
7400:316	Science of Nutrition	4
7400:328	Introduction to Nutrition in Medical Science	4
7400:413	Food Systems Management	3
7400:416	Quantity Food Preparation	3
7400:420	Experimental Foods	3
7400:428	Nutrition in Medical Science	5
<b>Additional coordinated undergraduate program requirements:</b>		
7400:314	Introduction to Food Systems Management- Clinical	1
7400:329	Introduction to Nutrition in Medical Science- Clinical	2
7400:380	Introduction to Community Nutrition	1
7400:414	Food Systems Management-Clinical	3
7400:429	Nutrition in Medical Science-Clinical	3
7400:480	Community Nutrition I	3
7400:481	Community Nutrition I-Clinical	1
7400:482	Community Nutrition II	3
7400:483	Community Nutrition II-Clinical	1
7400:486	Staff Relief	1
<b>Additional traditional dietetics requirements:</b>		
2420:212	Basic Accounting II (3 credits) or 6200:202 Accounting II (4 credits)	3-4
7400:301	Consumer Education	3

## Bachelor of Arts in Family and Child Development

This degree offers the following emphases: Family development, child development and child life specialist.

### Requirements for all emphases:

3750:100	Introduction to Psychology	4
3750:130	Developmental Psychology	4
7400:201	Relational Patterns in Marriage and Family	3
7400:265	Child Development	3
7400:401	Family Life Patterns in Economically Deprived Home	2

### Requirements for family development and child development:

5200:360	Nursery School Laboratory	3
7400:141	Food for the Family	3
7400:204	Survey of Applied Home Economics in the Community	1
7400:218	Family Health and Home Nursing	2
7400:255	Fatherhood: The Parent Role	2
7400:201	Consumer Education	3
7400:395	Community Involvement in the Home Economics	1-2
7400:422	Advanced Home Management	3
7750:276	Introduction to Social Welfare	4

Additional requirements for family development: — 25 credits.

### Additional requirements for child development:

		<i>Credits</i>
7400:132	Early Childhood Nutrition	2
7400:275	Play and Creative Expression Activities	4
7400:290	Administration of Child Care Centers	3
7400:460	Organization and Supervision of Child Care Centers	2

Additional requirements: 16 credits in family and child development area approved by adviser.

### Requirements for child life specialist:

2200:250	Observing and Recording Children's Behavior	3
3750:340	Social Psychology	4
3750:350	Psychology of Small Group Behavior	3
3850:342	Sociology of Health and Illness	3
5610:400	Developmental Characteristics of Exceptional Individuals	3
5610:453	Recreational Programs for Exceptional Individuals	1
7400:275	Play and Creative Expression Activities	4
7400:285	Orientation to the Hospital Setting	2
7400:350	The Child in the Hospital	4
7400:355	Practicum: Establishing and Supervising a Child Life Program	3
7400:485	Seminar: Parent-Child Relations	2
7400:495	Internship: Guided Experience in a Child Life Program	6
7400:496	Parenting Skills	3

## Bachelor of Arts in Foods and Nutrition

2280:236	Menu Planning and Cost Controls	3
2280:243	Food Equipment and Plant Operations	3
2440:120	Introduction to Information Processing	3
3750:100	Introduction to Psychology	3
6500:341	Personnel Management	3
6600:300	Marketing Principles	3
6600:340	Merchandising	3
7400:204	Survey of Applied Home Economics in the Community	1
7400:245	Basic Nutrition and Foods	5
7400:301	Consumer Education	3
7400:316	Science of Nutrition	5
7400:340	Meal Service	2
7400:415	Household Equipment	2
7400:416	Quantity Food Preparation	4
7400:420	Experimental Foods	3
7400:422	Advanced Home Management	3
7400:450	Demonstration Techniques	2
7600:203	Radio and Television News Writing	2
7600:281	Introduction to Radio and Television	2
7600:282	Communication Media: Radio	2
7600:283	Communication Media: Television	3
7600:288	Communication Media: Film	3

## Bachelor of Arts in Textiles and Clothing

### • Requirements for all options in textiles and clothing:

7400:121	Textiles	3
7400:123	Clothing Construction	3
7400:158	Introduction to Interior Design and Furnishings	3
7400:159	Family Housing	3
7400:301	Consumer Education	3
7400:305	Advanced Construction and Tailoring	3
7400:311	Contemporary Needle Arts	3
7400:317	Historic Costume	3
7400:422	Advanced Home Management and/or Elective in Textiles and Clothing	5
7400:419	Clothing Communication	3
7400:439	Fashion	3
7400:449	Design and Draping	3

### Completion of one of the following options:

#### • Business option:

6200:201	Accounting I or Basic Accounting I	4
6600:300	Marketing Principles or Elements of Distribution	3
2520:101	Merchandising or Retailing Fundamentals	4

6600:350	Advertising and Marketing Communications	
	or	
2520:103	Principles of Advertising	Credits 3
7100:144	Two-Dimensional Design	3
• Communication option:		
7100:144	Two-Dimensional Design	3
7600:190	Public Speaking	2
7600:281	Introduction to Radio and Television	2
7600:282	Communication Media: Radio	2
7600:283	Communication Media: Television	3
7600:288	Communication Media: Film	3

### Home Economics Education

Home economics education majors receive training and preparation to each in grades 7 through 12. Options are available in vocational consumer homemaking, vocational job training and non-vocational home economics. Vocational job training specialization classes are available in food service; fabric service, child care service, health and community service and multi-area. Home economics education students may elect to graduate from the College of Education or the College of Fine and Applied Arts.

### Certificate Program in Interior Design

A full description of the certificate program may be found in "Interdisciplinary and Certificate Programs," in this *Bulletin*.

### Senior Honors Program

Senior honors project in home economics and family ecology is one to three credits per semester and may be repeated for a total of six credits. Prerequisite: Senior standing in the honors program and approval of honors project by faculty preceptor.

## 7500: Music

Prior to entrance to the University, a written and aural/oral examination in the fundamentals of music and an audition in a performance area are administered to the student who intends to follow a music degree program. Contact the Department of Music to arrange for the examination.

### Bachelor of Arts

- General Studies and the second year of a foreign language — 53 credits.
- Core curriculum in music:
 

7500:151	Theory I	3
7500:152	Theory II	3
7500:154	Music Literature I	2
7500:155	Music Literature II	2
7500:161	Aural/Oral Music Reading Skills	4
7500:251	Theory III	3
7500:252	Theory IV	3
7500:261	Keyboard Harmony I	2
7500:262	Keyboard Harmony II	2
7500:351	Music History I	3
7500:352	Music History II	3
- Performance courses:
 

7500:157	Student Recital (four semesters)	0
7510:—	Music Organization (four semesters)	4
7520:—	Applied Music	8
- Electives — 33 credits.

The Bachelor of Arts program is intended as a cultural course or as a preparation for graduate study but not as professional preparation for a performance or teaching career.

## Bachelor of Music

### Accompanying for Keyboard Majors

- General Studies — 39 credits.
- Core curriculum in music:
 

7500:151	Music Theory I	3
7500:152	Music Theory II	3
7500:251	Music Theory III	3
7500:252	Music Theory IV	3
7500:154	Music Literature I	2
7500:155	Music Literature II	2
7500:161	Aural/Oral Music Reading Skills	4
7500:261	Keyboard Harmony I	2
7500:262	Keyboard Harmony II	2
7500:264	Beginning Piano Pedagogy	2
7500:351	Music History I	3
7500:352	Music History II	3
- Other Music Courses:
 

7500:325	Research in Music	2
7500:361	Conducting	2
7500:365	Song Literature	2
7500:371	Analytical Techniques	2
7500:451	Intro to Musicology	2
7500:452	Composition	2
7500:497	Ind. Study (Chamber Music)	2
- Elective
- Applied Music and Performance
 

7520:—	Applied Piano (jury out of "400's" level)	32
	Applied Voice	2
7510:114	Keyboard Ensemble	8
- Senior recital (to include works as soloist, accompanist and in chamber ensembles).

### History and Literature

- General Studies — 39 credits.
- Core curriculum in music (see B.A.) — 30 credits.
- Performance courses:
 

7500:157	Student Recital (eight semesters)	0
7510:—	Music Organization	8
7520:—	Applied Music — primary instrument (passage to 300 level)	16
- Additional music courses:
 

7500:325	Research in Music	2
7500:361	Conducting	2
7500:371	Analytical Technique	2
7500:451	Introduction to Musicology	2
7500:452	Composition	2
7500:454	Orchestration	2
7500:455	Advanced Conducting: Instrumental	2
- Electives:
 

7500:497	Independent Study (In topics specifically related to history and literature of music)	8
	Cognate area such as history, language or other arts	8
	Electives	7

### Performance

- General Studies — 39 credits.
- Core curriculum in music (see B.A.) — 30 credits.
- Additional performance courses:
 

7500:157	Student Recital (eight semesters)	0
7510:—	Music Organization (eight semesters)	8
7520:—	Applied Music — primary instrument*	32
- Additional music courses:
 

7500:325	Research in Music	2
7500:361	Conducting	2
7500:371	Analytical Techniques	2
7500:451	Introduction to Musicology	2

\*Passage to the 500 level in the primary applied levels is required prior to graduation.

		Credits
7500:452	Composition	2
7500:454	Orchestration	2
7500:455	Advanced Conducting: Instrumental* or Advanced Conducting: Choral	2

- Electives — 6 credits.
- Senior recital (full recital required).\*\*

#### Theory-Composition

- General Studies — 39 credits.
- Core curriculum in music (see B.A.)
- Additional performance courses:
 

7500:157	Student Recital (eight semesters)	0
7510:—	Music Organization (eight semesters)	8
7520:—	Applied Music — primary instrument†	
7520:—	Applied Music — composition	

- Additional music courses:
 

7500:325	Research in Music	2
7500:361	Conducting	2
7500:362	Choral Arranging	2
7500:371	Analytical Techniques	2
7500:372	Techniques for Analysis: Twentieth Century Music	2
7500:451	Introduction to Musicology	2
7500:452	Composition	2
7500:454	Orchestration	2
7500:455	Advanced Conducting: Instrumental or	2
7500:456	Advanced Conducting: Choral	
7500:471	Counterpoint	2
7500:472	Advanced Orchestration	2

- Senior recital of original composition.
- Electives — 7 credits.

#### Jazz Studies††

- General Studies — 39 credits.
- Core curriculum in music (see B.A.)
- Additional music courses:
 

7500:361	Conducting	2
7500:371	Analytical Techniques	2
7500:454	Orchestration	2
- Additional jazz courses:
 

7500:210.1	Jazz Improvisation I and II	4
7500:212	The Music Industry: A Survey of Practices and Opportunities	2
7500:307	Techniques of Stage Band Performance and Direction	2
7500:308	Jazz History and Literature	3
7500:309	Jazz Keyboard Techniques	2
7500:310	Jazz Improvisation III	2
7500:311	Jazz Improvisation IV	2
7500:407	Jazz Arranging and Scoring	2
7500:497	Independent Study (Practicum in Jazz Studies)	2
- Performance courses:
 

7500:157	Student Recital (eight semesters)	0
7510:—	Music Organization Major Conducted Jazz Ensembles	4 8
7520:—	Applied Music — primary instrument (passage to 300 level) Saxophone major must pass flute and clarinet proficiency (promotion to 200 level)	16 32

- Electives — 8 credits.
- Senior recital.

#### Music Education

- General Studies — 39 credits.
- Core curriculum in music (see B.A.)
- Performance courses:

\*For those with piano as their major performing instrument 7500:264 is taken in place of 7500:455.

\*\*A junior recital is recommended but not required.

†Passage to the 300 level in the primary applied area is required before graduation.

††Acceptance in the jazz program by permission of director of Jazz Studies.

		Credits
7500:157	Student Recital (eight semesters)	0
7510:—	Music Organization (eight semesters)	8
7520:—	Applied Music - primary instrument★	16

#### Additional music courses:

7500:254	String Instruments I	2
7500:340	General Music	3
7500:342	Wind/Percussion Techniques	3
7500:361	Conducting	2

#### Additional music courses by major:

Vocal and Keyboard		
7500:340	General Music (second semester)	3
7500:362	Choral Arranging	2
7500:456	Advanced Conducting: Choral Approved electives	2 4

Instrumental (non-keyboard)		
7500:342	Wind/Percussion Techniques (second semester)	3
7500:454	Orchestration	2
7500:455	Advanced Conducting: Instrumental Approved electives	2 4

String major		
7500:255	String Instruments II	2
7500:454	Orchestration	2
7500:455	Advanced Conducting: Instrumental Approved electives	2 5

- Professional education and psychology including student teaching — 25 credits.
- One-half recital during 12 months prior to graduation but not during the semester of student teaching.
- Minimum vocal, keyboard and conducting proficiencies must be attained before assignment to student teaching.

For details of the above music requirements and minimum standards of achievement, please see the *Department of Music Handbook* available from the Department of Music, Guzzetta Hall.

## 7600: Communication

### Bachelor of Arts

- General Studies and second year of a foreign language — 53 credits.
- Departmental core curriculum — 18 credits.
 

7600:102	Survey of Mass Communication	3
7600:115	Introduction to Communication Theory	3
7600:201	Newswriting or	
7600:206	Feature Writing	3
7600:245	Argumentation	3
7600:280	Media Production Techniques	3
7600:384	Communication Research	3
- Concentration in business and organization communication, communication and rhetoric or mass media-communication — 15-18 credits.
- Elective mass media-communication courses — 12-15 credits.
- Electives — 27 credits.

### Bachelor of Arts in Business and Organizational Communication Bachelor of Arts in Communication and Rhetoric Bachelor of Arts in Mass Media-Communication

- General Studies and the second year of a foreign language — 53 credits★
- Departmental core curriculum — 18 credits.

★Passage to the 300 level in the primary applied area is required before graduation.

★★B.A. tag degree program substitute 14 credits of "tag" courses for the foreign language requirement.

- Area of specialization (see below) — 15-18 credits.
- Elective mass media-communication courses — 12-15 credits.
- Electives — 27 credits.

### Business and Organizational Communication

	<i>Credits</i>
7600:235 Interpersonal Communication	3
7600:309 Publications Production	3
7600:335 Organizational Communication	3
7600:344 Public Decision Making	3
7600:345 Business and Professional Speaking	3
7600:403 Communication in Public Relations	3

### Communication and Rhetoric

7600:225 Module: Listening	1
7600:226 Module: Interviewing	1
7600:227 Module: Nonverbal Communication	1
7600:235 Interpersonal Communication	3
7600:252 Persuasion	3
7600:335 Organizational Communication	3
or	
7600:454/554 Group Processes	3
or	
7600:471/571 Theories of Rhetoric	3
7600:344 Public Decision Making	3
7600:357 Speech in America	3
or	
7600:470/570 Analysis of Public Discourse	3

### Mass Media-Communication

#### Management

7600:282 Radio Production	3
or	
7600:283 TV Production	3
7600:388 History and Structure of Broadcasting	3
7600:395 Radio Station Operations	3
7600:396 TV Station Programming and Operations	3
7600:484 Regulations	3
7600:486 Broadcast Sales and Management	3
Optional: other mass media-communication courses	12

#### News

7600:201 News Writing	3
or	
7600:206 Feature Writing	3
7600:204 Editing	3
7600:282 Radio Production	3
7600:283 TV Production	3
7600:301 Advanced News Writing	3
7600:484 Regulations	3
Additional journalism courses	6
Other mass media-communication courses	6

#### Production

7600:282 Radio Production	3
7600:283 Television Production	3
7600:288 Film Production	3
7600:387 Radio and TV Writing	3
7600:388 History and Structure of Broadcasting	3
Additional production courses	9
Non-production mass media-communication courses	6

## Certificate Program in Manual Communication

A full description of this program may be found in "Interdisciplinary and Certificate Programs," **Section 4** of this *Bulletin*.

## 7700: Communicative Disorders

### Bachelor of Arts

#### Bachelor of Arts in Communicative Disorders

- Completion of the General Studies and the second year of a foreign language — 54 credits.\*

- Completion of the following:

	<i>Credits</i>
7700:110 Introduction to Speech Disorders	3
7700:111 Introduction to Phonetics	2
7700:130 Bases and Structure of Languages	3
7700:140 Introduction to Audiology	3
7700:210 Applied Phonetics	3
7700:211 Introduction to Speech Science	2
7700:230 Speech and Language Development	3
7700:240 Aural Rehabilitation	4
7700:241 Principles of Audiometry	3
7700:250 Observation and Clinical Methods	2
7700:271 Language of Signs I	3
7700:321 Speech Pathology I	4
7700:322 Speech Pathology II	4
7700:330 Language Disorders	4
7700:340 Audiologic Evaluation	2
7700:350 Clinical Practicum: Articulation	1
7700:351 Clinical Practicum: Language	1
7700:352 Clinical Practicum: Aural Rehabilitation	1
7700:450 Introduction to Speech and Hearing Diagnostics	3
7700:451 Clinical Practicum: Hearing Diagnosis	1

- Electives — 22 credits.

Over forty percent of the practicing therapists in the field of Communicative Disorders are working in public school settings. A therapist must be certified by the State Department of Education in order to work in the public schools. Therefore it is recommended that undergraduate students complete the requirements for educational certification, except for student teaching which can only be taken at the graduate level. These requirements can be taken as electives. Each student should consult with an adviser about this option.

## 7750: Social Work

### Program Description

The social work curriculum is an accredited undergraduate program preparing students for entry-level professional practice in health, mental health, mental retardation, family service, public welfare, corrections, juvenile justice, child welfare, aging and in alcohol and drug abuse.

Programs can be designed for the student wishing to prepare specifically for practice in the above mentioned areas. Students will also be prepared for entry into graduate schools of social work for completion of the Master of Social Work Degree.

There is a direct relationship between the social work program and the two-year associate in community services technology and associate in criminal justice programs offered in the Community and Technical College.

The Bachelor of Arts degree requires completion of two years of a foreign language (Spanish is recommended). The Bachelor of Arts Social Work degree does not require a language. It requires some additional coursework in social work and the social sciences as well as an extended field placement.

Certificate programs can be designed in Afro-American Studies and Gerontology (aging) within the framework of the curriculum.

\*Courses in the Department of Biology are required to fulfill the natural sciences requirement (3100.264.5). A B.A. in Communicative Disorders substitutes a core of courses in psychology and related disciplines for the foreign language (see adviser for specific courses)

## Bachelor of Arts

- Completion of the General Studies and the second year of a foreign language — 53 credits\*
- Social Work courses:
 

	<i>Credits</i>
3750:420	3
7750:270	3
7750:276	4
7750:401	3
7750:402	3
7750:403	3
7750:410	3
7750:421	2
(two semesters, one credit each)	
7750:430	3
7750:440	3
7750:445	3
7750:495	6
(two semesters, three credits each)	
7750:—	3
7750:—	3
- Electives should be selected in consultation with an adviser — 30 credits.

## Bachelor of Arts (2+2) with C&T

- General studies:
 

1100:321.2	8
1100:22-	3
1100:33-	4
Mathematics	4
Natural Science	3
- Foreign language:
 

Complete second year	14
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- Social work:
 

3750:420	3
7750:401.2,3	9
7750:410	3
7750:421	2
7750:425	3
7750:430	3
7750:440	3
7750:445	3
7750:470	3
7750:495	8
Social Science Electives	6

## Bachelor of Arts (2+2) with Wayne College

- General studies:
 

1100:320.1	8
1100:33-	4
Mathematics††	4
- Foreign language:
 

Complete second year	14
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- Social work:
 

3750:420	3
7750:401.2,3	9
7750:410	3
7750:421	2
7750:430	3
7750:440	3
7750:455	3
7750:495	6
Social Work Electives	6

\*The student must complete 3850:100 *Introduction to Sociology* as part of the social sciences requirement and 1100:221 *Natural Science: Biology* or some other human biology course as part of the natural sciences requirement and 3450:112 *Algebraic Functions and Graphing*, 3470:251 *Descriptive Statistics and Probability* and 3470:252 *Distributions* as the mathematics requirement.

\*\*3750:100 *Introduction to Psychology* and 3750:130 *Developmental Psychology* should be completed as prerequisites to *Abnormal Psychology*.

†3750:100 *Introduction to Psychology* and three additional credits in psychology are prerequisites.

††3450:111.2; 3470:251.2 are prerequisites for 7750:440 *Social Work Research*.

## Bachelor of Arts/Social Work

- General Studies — 40 credits.\*
- Social work courses:
 

	<i>Credits</i>
3750:420	3
7750:270	3
7750:276	4
7750:401.2,3	9
7750:410	3
7750:425	3
or	
7750:470	3
7750:430	3
7750:440	3
7750:445	3
- Field experience:
 

7750:421	2
7750:495	8
- Electives:‡
 

7750:4—	6
Social Work Electives	6
Social Sciences Electives	6
- Other electives — 32 credits.

## Bachelor of Arts/Social Work (2+2) with C&T

- General studies:
 

1100:221	3
1100:320.1	8
1100:33-	4
Mathematics‡‡	4
Natural Science	3
- Social work:
 

3750:420	3
7750:401.2,3	9
7750:410	3
7750:421	2
7750:425	3
or	
7750:470	3
7750:430	3
7750:440	3
7750:445	3
7750:495	8
Social Science Electives	6

## Bachelor of Arts/Social Work (2+2) with Wayne College

- General studies:
 

1100:320.1	8
1100:33-	4
Mathematics‡‡	4
- Social work:
 

3750:420	3
7750:401.2,3	9
7750:410	3
7750:421	2

\*The student must complete 3850:100 *Introduction to Sociology* as part of the social sciences requirement and 1100:221 *Natural Science: Biology* or some other human biology courses as part of the natural sciences requirement and 3450:112 *Algebraic Functions and Graphing*, 3470:251 *Descriptive Statistics and Probability* and 3470:252 *Distributions* as the mathematics requirement. The student must complete a third social science course from another of the sets of options available to fulfill the General Studies Social Science requirement.

\*\*3750:100 is a prerequisite. 3750:130 is recommended as the second course fulfilling the seven credit psychology course prerequisite for enrollment in *Abnormal Psychology*.

‡Six credits only required of student with community services, social service or criminal justice technology degrees.

‡‡3450:111.2; 3470:251.2 are prerequisites for 7750:440 *Social Work Research*. §3750:100 *Introduction to Psychology* and three additional credits in psychology are prerequisites.

7750.425	Social Work Ethics or		Credits 3
7750.470	Law for Social Workers	3	
7750.430	Human Behavior and Social Environment	3	
7750.440	Social Work Research	3	
7750.445	Social Policy Analysis for Social Work	3	
7750.495	Field Experience in Social Agency	8	
	Social Work Electives	6	
	Social Science Electives	6	

7800.265	Basic Stagecraft I		Credits 3
7800.271	Directing I		3
7800.330	Theatre Arts/Dance Participation		4
7800.367	History of Theatre I: Gr. to Renaissance		4
7800.368	History of Theatre II: Rest. to Pres.		4
7800.445.6	Movement for Actors I, II		6

- Electives (with approval of adviser) — 10 credits.

#### Design/Technology

- General Studies — 39 credits.

- Basic preparation:

7800.262	Stage Makeup	3
7800.264	Introduction to Technical Theatre	3
7800.265.6	Basic Stagecraft I, II	6
7800.362	Advanced Stagecraft	3

- Studio courses:

7800.263	Scene Painting	3
7800.334	Stage Costume Construction	3
7800.335	Introduction to Stage Costume History/Design	3
7800.336	History/Construction of Period Furnishing for the Stage	3
7800.364	Introduction to Stage Design	3
7800.464	Stage Lighting	3

- Design/Technology:

7800.365	Stage Design	3
7800.435	Stage Costume Design	3
7800.436	Styles of Scenic Design	3
7800.437	Styles of Stage Costume Design	3
7800.465	Stage Lighting Design	3
7800.469	Problems in Lighting Design	3

- Production practice courses:

7800.470	Practicum in Production Design/Technology	1-3
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- Theatre

7800.261	Introduction to Theatre	3
7800.271	Directing I or	3
7800.272	Acting I	4
7800.330	Theatre Arts/Dance Participation	4
7800.367	History of Theatre I: Greek to Renaissance	4
7800.368	History of Theatre II: Restoration to Present	4

- Electives (with approval of adviser) — 16-19.

#### Musical Theatre

- General Studies — 39 credits.

- Theatre:

7800.251	Voice for the Stage	3
7800.261	Intro. to Theatre	3
7800.262	Stage Makeup	3
7800.265	Basic Stagecraft I	3
7800.272	Acting I	4
7800.330	Theatre Arts/Dance Participation	4
7800.367	History of Theatre I: Greek to Renaissance	4
7800.368	History of Theatre II: Restoration to Present	4
7800.373.4	Acting II, III	4
7800.421	Musical Theatre Production	3
7800.475	Acting for the Musical Theatre	3

- Dance:

7800.119	Introduction to Contemporary Dance I	2
	or	
7800.229	Contemporary Technique I	3-6
7800.122	Ballet Technique I	5
	or	
7800.222	Ballet Technique II	5
7800.124	Introduction to Ballet	2
	or	
7800.224	Fundamentals of Ballet Technique	3
7800.323	Jazz Dance Technique I	2
7800.324	Tap Technique I	2
7800.329	Contemporary Technique II	3-6
7800.377	Jazz Dance Technique II	2
7800.378	Tap Technique II	2

- Music:

7500.101	Introduction to Musical Theory	2
7500.161	Aural/Oral Music Reading Skills	4

## 7800: Theatre Arts and Dance

### Bachelor of Arts

### Bachelor of Arts in Theatre Arts

### Bachelor of Arts in Dance\*

- General Studies program and second year of a foreign language — 53 credits.\*\*

- Core curriculum:

7800.330	Theatre Arts/Dance Participation	4
7800.367	History of Theatre I: Greek-Renaissance	4
7800.368	History of Theatre II: Restoration to Present	4

- Theatre Electives — 33 credits.

- Other Electives — 30 credits.

### Areas of Concentration

#### Theatre Arts

The concentration is designed to prepare the student for competency in all areas of theatre — acting/directing, theatre history/criticism and design/technical theatre — in order that the student can acquire the skills to teach theatre, to undertake graduate work in theatre or to undertake professional work in commercial or regional theatre. Consult an adviser.

#### Acting

- General Studies — 39 credits.

- Acting:

7800.272	Acting I	4
7800.373	Acting II	4
7800.374	Acting III	4
7800.474	Acting IV	4

- Voice:

7700.111	Introduction to Phonetics	2
7700.211	Introduction to Speech Science	2
7800.251	Voice for the Stage	3
7800.350.1	Advanced Voice for the Stage I, II	6
7520:—	Applied Voice (Music)†	8

#### Theatre Arts and Dance

- Dance:

7800.119.20	Introduction to Contemporary Dance I, II	4
7800.124.5	Introduction to Ballet I	4
7800.323	Jazz Technique I	2
7800.328	Period Movement/Dance	2

- Theatre:

7800.261	Introduction to Theatre	3
7800.262	Stage Makeup	3

\*See Areas of Concentration listing below for B.A. in Dance requirements.

\*\*The student in B.A. in Theatre Arts and B.A. in Dance program substitutes a related sequence of 14 additional credits either from departmental offerings or offerings of other departments, approved by adviser for the second year of a foreign language.

†See Department of Music regarding audition for placement.

7500:107.8	Class Voice I, II or	Credits 4
7520:124	Applied Voice*	4
7510:—	Choral Organizations	4

- Electives (with approval of adviser) — 10-12 credits.

#### Dance

The dance major is designed for the student who wishes to continue professional training in dance with the Bachelor of Arts degree. It is expected that the student will be able to work as a performer or teacher on a professional level upon completion of the degree.

Admission to the program is by *audition only*.

Every student must pass a sophomore jury in ballet technique at the end of two years' study in order to be admitted to upper-

division standing in the dance area. All students are required to study ballet technique every semester they are enrolled and to complete two semesters of *Ballet Technique IV* for graduation.

- General Studies — 39 credits.
- Required Dance Courses

		Credits
7800:115	Dance As An Art Form	2
7800:116.7	Dance Analysis I, II	4
7800:122, 222	Ballet Technique I, II	20
7800:229	Contemporary Technique I	6
7800:316.7	Choreography I, II	4
7800:320	Dance Notation	2
7800:322, 422	Ballet Technique III, IV	20
7800:329	Contemporary Dance Technique	6
7800:423	History of the Dance	2
7800:424	Twentieth Century Dance	2
7800:425	Development of Ballet	2
7800:426.7	Techniques of Teaching Ballet I, II	4

- Sophomore Jury taken by all majors at the end of two years' study.
- Electives (with approval of adviser) — 15 credits.

\*See Department of Music regarding audition for placement.

# College of Nursing

Lillian J. DeYoung, R.N., Ph.D., *Dean*

Phyllis A. Fitzgerald, Ph.D., *Assistant Dean*

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## Philosophy

The College of Nursing,\* an integral part of The University of Akron, accepts the responsibility for promoting the general mission of the University, which is the dissemination and pursuit of knowledge, the nurturing of intellectual curiosity, the search for truth and a conscious effort to serve the (nursing) student in the urban community.

The primary focus of professional nursing is man; a complex, holistic being having physiological, psychosocial, spiritual and cultural dimensions. Man is unique and universal. Man is further defined as a thinking, interacting, adapting, valuing being constantly in the process of becoming and whose goal is self-actualization. Man is an ecological being who affects and is affected by the total environment. The individual is a part of a diverse and dynamic society which possesses structure. As such, man functions as a facilitator of thoughts, values, beliefs, attitudes and actions which affect the health care system.

Health is viewed as a purposeful adaptive response to internal and external stimuli in order to maintain stability. Diminished health is viewed as a disturbed adaptive response which results in disequilibrium and inability to utilize effectively the usual health-promoting resources. Health and the various degrees of health are viewed as a continuum. Quality health care is the right of individuals, families, groups and communities. Consumers of health care are participants in the decisions which affect their status on the health/diminished health continuum.

The goal of the professional nurse is to assist individuals, families, groups and communities to attain, maintain and/or regain an optimal level of health and to be supportive when optimal levels of health can no longer be achieved. Professional nursing practice is germane to any setting where health maintenance or support is a goal.

The professional practitioner utilizes the nursing process as a series of progressive steps which unite nursing action with critical thinking, integration of knowledge and decision making. This process is a dynamic methodology which is scientifically based and goal-directed with feedback mechanisms in the form of continuous evaluation and modification. The professional nurse utilizes theories and research from nursing and other disciplines to add to the body of nursing knowledge and to improve health care services to clients. The professional nurse is accountable to clients and colleagues in the health professions and accepts responsibility for quality nursing care in any environment.

The emerging role of the professional nurse includes the exercise of social responsibility and independence in decision-making processes which affect the delivery of nursing care

within the existing and changing social system. An important dimension of the emerging role of the professional nurse is to support the client who assumes the responsibility for making those decisions necessary for optimal health.

The faculty views general education at the baccalaureate level as the base for rational thinking, which provides the student with an inquiring approach to life and self with an opportunity to become a contributing member of the community.

Baccalaureate nursing education provides opportunities for a student to apply concepts, knowledge and skills from the biological, social, behavioral sciences and nursing science to professional practice. This education prepares a generalist who is capable of practicing in any environment and provides a foundation for research, continued study and leadership. Research is viewed as a quest for new knowledge pertinent to an identified area of interest through the application of the scientific process. Leadership is viewed as the ability to facilitate the movement of a person, group, family or community toward the establishment and attainment of a goal.

The faculty defines education as a life-long process which implies that the concept of learning is an essential part of the educational process. The student and faculty work in concert to achieve learning goals. The student is self-directed in meeting learning goals. Both faculty and students have a responsibility to collaborate in the planning, implementation and evaluation of the education program.

It is the faculty's responsibility to facilitate an environment conducive to learning. A student has varied experiences and needs, therefore, the educational program must make provisions for the learner's individuality which includes variable progression and opportunities to practice new behaviors. The faculty recognizes that positive reinforcement motivates learning and, therefore, endeavors to design experiences with expectations for success.

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## Objectives

The undergraduate program in nursing is designed to prepare the graduate to do the following:

- Utilize the nursing process to move the client toward a higher level of functioning, to maintain stability, to restore equilibrium and/or to be supportive when optimal levels of health cannot be achieved.
- Initiate and/or adapt to changes affecting the health care system.
- Accept responsibility for own nursing interventions and be accountable to clients and colleagues in the health professions for nursing practice.
- Demonstrate personal growth by participating in self-directed learning activities.
- Utilize relevant nursing theories and concepts from the physical, biological, social and behavioral sciences in the application of the nursing process.
- Utilize political, cultural and social processes to affect the health of man and the environment.
- Utilize research findings to promote the practice of nursing and to extend nursing research.
- Utilize leadership skills for the advancement of professional nursing and health care.
- Share in the responsibility for optimal health care of clients by collaborating, consulting and coordinating with clients and members of the health team.
- Clarify own values in relation to nursing practice.
- Utilize concepts from human ecology in the practice of nursing.

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\*The basic collegiate program is approved by the State of Ohio Board of Nursing Education and Nurse Registration and is accredited by the National League for Nursing.

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# Requirements

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## Admission

Four classifications of students will be considered for admission to the college: a) the generic student (entering freshman), b) the registered nurse, c) the postbaccalaureate student and d) the transfer student from other colleges and universities. A transfer student may receive credit for quality work earned in approved colleges. Enrollment of a transfer student is contingent upon availability of University facilities and an assessment of the sufficiency of prior academic work. Transfer course grades shall be taken into account in placing students in rank order for admission purposes.

A registered nurse (RN) who receives preparation in hospital or associate degree programs is evaluated individually. An RN student is expected to meet the same course requirements as the generic student and those of The University of Akron. In addition, anatomy and physiology must have been completed within the past 10 years at the time of admission to the College of Nursing.

A student who wishes to be considered for admission must meet the following requirements:

- Complete all University College requirements and College of Nursing prerequisites by the end of spring semester of the sophomore year.
- Have a 2.50 grade-point average or better.
- All grades of transfer work will be combined with those earned at The University of Akron in the computation of a GPA for admission ranking purposes to the College of Nursing.

All applicants will be considered at once and will be selected each spring. Applicants will be rank ordered from the highest grade-point average (GPA) to 2.50. Therefore, it cannot be assured that having a GPA of 2.50 will guarantee admission to the college. A student will be notified of provisional admission to the College of Nursing prior to fall scheduling requirements and will be given final approval at the end of spring semester.

Of students selected, one half will begin in the summer and with the other beginning half in the fall. The program consists of four academic years and one semester. Students admitted to the college in the summer would complete the program (five semesters) for graduation in May, and those entering fall semester would complete the program (five semesters) for graduation in December. An active alternative list of students will be selected to take the place of students who choose not to continue.

Applications for the college are only effective for the current academic year.

Acceptance of the student into the college is the responsibility of the dean in consultation with the dean of the University College and the Admissions Committee of the College of Nursing. Admission to the program in nursing does not guarantee the student's placement in the nursing courses at the time the student may wish to pursue them. The college reserves the right to approve admission to those individuals whose abilities, attitudes and character promise satisfactory achievement to the college objectives.

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## Reapplying to the College of Nursing

Students seeking re-enrollment must submit their request by mid-term prior to the semester desired by writing to the Student Admissions, Promotion and Graduation Committee. The letter must include the student's social security number, the reasons for withdrawal and the date of desired re-entry. The committee will evaluate the situation and communicate the decision to the student by letter.

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## Probation and Retention

A student must achieve and maintain a grade-point average of 2.50 or higher on a 4.00 scale in the nursing major. A student who fails to maintain the 2.50 average will be placed on probation. Failure to raise the average to 2.50 in a period of two semesters or one semester plus one 10 week summer session will result in dismissal from the program.

A student receiving a "D" or "F" in any clinical nursing course (theory and/or practice) will be required to repeat the course. A student may repeat the course only once.

Upon completion of the repeated course, the student shall withdraw from the college if a grade of 2.50 is not attained. The student may not apply for readmission for at least one semester.

A student may be on probation only twice in the College of Nursing, and each academic probation period is to be no longer than one semester, or one ten-week summer session.

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## Requirements for Graduation

- Complete all University requirements as listed in **Section 3** of this *Bulletin*.
- Complete a minimum of 131 semester credits for the degree and earn a minimum of 2.50 grade-point average in the nursing major and a 2.00 grade-point average for all collegiate work attempted at The University of Akron.
- Complete all courses required in the *Program of Study for Nursing Students*.

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## Program of Studies

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### Generic Student

#### Freshman Year

Semester I		Credits
1100:111	English Composition	4
1100:115	Institutions in the United States*	3
3150:129	Introduction to General, Organic and Biochemistry I	4
3450:111,2	Mathematics Modules	2

\*The six-credit requirement in the social sciences area usually designated by 1100:115,6 *Institutions in the United States* can be met through several options as listed in the University College requirements. A nursing student who elects to use 3850:100 *Introduction to Sociology* as one part of the social sciences requirement for University College MUST complete an additional three or four-credit sociology requirement to meet the prerequisites for the College of Nursing. This *must be completed* prior to application to the college.

3470:251.2	Descriptive Statistics	2
8200:100	Introduction to Nursing	1

**Semester II**

1100:—	Physical Education	1
1100:112	English Composition	4
1100:116	Institutions in the United States*	3
3150:130	Introduction to General, Organic and Biochemistry II	4
3850:100	Introduction to Sociology*	4

**Sophomore Year****Semester I**

1100:106	Effective Oral Communication	3
3100:130	Principles of Microbiology	3
3100:206	Anatomy and Physiology	3
3600:101	Introduction to Philosophy or	
3600:120	Introduction to Ethics or	
3600:170	Introduction to Logic	3
3750:100	Introduction to Psychology	3

**Semester II**

3100:105	Ecology and Biological Resources	2
3100:207	Anatomy and Physiology	3
3100:381	Human Genetics	2
3750:130	Developmental Psychology	4
3850:340	The Family or	
7400:201	Relational Patterns in Marriage and Family	3

**Summer Session**

8200:200	Nursing Theories and Concepts	5
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**Junior Year****Semester I**

1100:320	Western Cultural Traditions	4
8200:300	Nursing: Health	12

**Semester II**

1100:321	Western Cultural Traditions	4
8200:320	Nursing: Diminished Health I	12

**Senior Year****Semester I**

1100:—	Eastern Civilizations	2
8200:400	Nursing: Diminished Health II Elective	10 5

**Semester II**

1100:—	Eastern Civilizations	2
8200:420	Nursing: Synthesis Elective	10 4

Students may use courses numbered 100 and up as electives. Students planning to fulfill their elective requirements prior to admission to the college may contact the college for assistance in selecting appropriate electives.

The student shall satisfy the course criteria for safe nursing practice before being permitted to participate in clinical learning experiences. The student will be informed of these criteria for safe practice by the instructor.

It is mandatory that the student provide transportation to meet requirements of the nursing courses.

\*The six-credit requirement in the social sciences area usually designated by 1100:115.6 *Institutions in the United States* can be met through several options as listed in the University College requirements. A nursing student who elects to use 3850:100 *Introduction to Sociology* as one part of the social sciences requirement for University College MUST complete an additional three or four-credit sociology requirement to meet the prerequisites for the College of Nursing. This must be completed prior to application to the college.

**Registered Nurse**

(limited to licensed registered nurses)

**Freshman Year****Semester I**

1100:111	English Composition	4
1100:115	Institutions in the United States**	3
3150:129	Introduction to General, Organic and Biochemistry I	4
3450:111.2	Mathematics Modules	2
3470:251.2	Descriptive Statistics	2
8200:101	Introduction to Nursing for RN	1

**Semester II**

1100:—	Physical Education (or for student over the age of 24, any other general studies course equalling one credit)	1
1100:112	English Composition	4
1100:116	Institutions in the United States**	3
3150:130	Introduction to General, Organic and Biochemistry II	4
3850:100	Introduction to Sociology	4

**Sophomore Year****Semester I**

1100:106	Effective Oral Communication	3
3100:130	Principles of Microbiology	3
3100:206	Anatomy and Physiology	3
3600:101	Introduction to Philosophy or	
3600:120	Introduction to Ethics or	
3600:170	Introduction to Logic	3
3750:100	Introduction to Psychology	3

**Semester II**

3100:105	Ecology and Biological Resources	2
3100:207	Anatomy and Physiology	3
3100:381	Human Genetics	2
3750:130	Developmental Psychology	4
3850:340	The Family or	
7400:201	Relational Patterns in Marriage and Family	3

**Option #1****Summer**

1100:33-	Eastern Civilizations	2
8200:305	Nursing Theories, Concepts and Research Elective	6 5

**Fall**

1100:320	Western Cultural Traditions	4
1100:33-	Eastern Civilizations	2
8200:405	Health Maintenance Nursing	6
8200:415	Diminished Health Nursing	5

**Spring**

1100:321	Western Cultural Traditions	4
8200:420	Nursing: Synthesis Elective	10 4

\*\*The six-credit requirement in the social sciences area usually designated by 1100:115.6 *Institutions in the United States* can be met through several options as listed in the University College requirements. A nursing student who elects to use 3850:100 *Introduction to Sociology* as one part of the social sciences requirement for University College MUST complete an additional three or four-credit sociology requirement to meet the prerequisites for the College of Nursing. This must be completed prior to application to the college.

†Bypass credit will be granted for the following courses upon successful completion of 8200:420 *Nursing: Synthesis*:

8200:320	Nursing: Diminished Health I	12
8200:400	Nursing: Diminished Health II	10

## Option #2

### Summer

1100:305	Nursing Theories, Concepts and Research	6
1100:33-33-	Eastern Civilizations	2
	Electives	5

### Fall

1100:320	Western Cultural Traditions	4
1100:33-	Eastern Civilizations	2
8200:405	Health Maintenance Nursing	6

### Spring

1100:321	Western Cultural Traditions	4
8200:415	Diminished Health Nursing Elective	5

### Fall

8200:420	Nursing: Synthesis*	10
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Students may use courses numbered 100 and up as electives. Students planning to fulfill their elective requirements prior to admission to the College of Nursing may contact the College of Nursing for assistance in selecting appropriate electives.

\*Bypass credit will be granted for the following courses upon successful completion of 8200:420 *Nursing: Synthesis*.

8200:320	Nursing: Diminished Health I	12
8200:400	Nursing: Diminished Health II	10

## Agencies

The agencies cooperating in providing the laboratory experiences in the courses in nursing are:

Akron City Health Department  
Akron City Hospital  
Akron General Medical Center  
American Diabetes Association  
Americana Healthcare Center  
Barberton Citizens Hospital  
Canton Preschool Day Care Center  
Children's Hospital Medical Health Center  
Cuyahoga Falls General Hospital  
CYO Adult Day Care Center  
Edwin Shaw Hospital  
Evangel Child Development Center  
Fallsview Psychiatric Hospital  
Hattie Larlham Foundation  
Henry Center for Child Care and Learning  
Rockynol Presbyterian Home  
St. Thomas Hospital Medical Center  
Salvation Army  
Stow Day Care Center  
Summit County General Health District  
The University of Akron Nursery and Day Care Center  
Tudor House  
Visiting Nurse Service  
Weaver School  
West Knoll-Eldercare Home

# Northeastern Ohio Universities College of Medicine

William A. Rogers, Ed.D., *Liaison Officer*

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## History and Purpose of the College of Medicine

The Northeastern Ohio Universities College of Medicine was created by an act of the 110th General Assembly of Ohio and was officially established as a new public institution of higher learning on November 23, 1973. The college is governed by a board of trustees appointed by the boards of trustees of The University of Akron, Kent State University and Youngstown State University. All three universities are accredited by the North Central Association of Colleges and Secondary Schools. The college is presently classified as a "Medical College of Development" by the Association of American Medical Colleges and the Council on Medical Education of the American Medical Association. The college was established to provide new opportunities in medical education by preparing well qualified physicians who are oriented to the practice of medicine at the community level, especially primary care and family medicine.

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## Admission

High school seniors and recent high school graduates, having demonstrated appropriate academic competence and motivation toward a career in medicine, will be considered for admission into year one of the program. These students, who have not attended college, should write to the Office of Admissions, The University of Akron, Akron, OH 44325 for application forms. Complete application indicating interest in the Phase I, BS/MD Program and return prior to December 31.

Other applicants with a conventional college background, including premedical requirements and at least three years of college-level work, will be considered by the college for admission to Phase II (year three of the program). These students should contact the College of Medicine, Rootstown, OH 44272, for application to Phase II, or year three of the six-year program. Applicants to Phase II should have taken the new MCAT test by May.

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## Program

The curriculum\* requires that the student be enrolled for 11 months in each of six academic years. The first two years (Phase I) are spent on one of the university campuses. The coursework during this period focuses chiefly on studies in the humanities and basic premedical sciences but will also include orientation to clinical medicine. Progress through Phase I will be based on academic performance and development of personal maturity appropriate to assumption of professional responsibility. The Phase I Academic Review and Promotion Committee, including University and college faculty, will assess these factors and will recommend the Phase I student for promotion and formal admission to Phase II, or the third year of the program.

The third year of study is devoted primarily to the basic medical sciences, e.g., anatomy, physiology, microbiology, etc., and will be conducted at the campus in Rootstown.

In years four, five and six, the student will develop competence in the clinical aspects of medicine through instruction provided principally at one or more of the associated community hospitals. The student will return to the University campus for part of one term in each of these last three years to complete the requirements for the Bachelor of Science degree at that university by enrolling in courses in the humanities and social sciences.

Successful completion of the six-year program leads to the award of the Bachelor of Science degree by one of the universities and the Doctor of Medicine degree by the College of Medicine.

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## Cost

Normal undergraduate fees will be assessed for years one and two. Fees for years three through six are set by the College of Medicine Board of Trustees and are commensurate with those at publicly supported medical schools elsewhere in this state.

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## Location

The campus is located on S.R. 44 in Rootstown just south of the I-76 intersection, across from the Rootstown High School.

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\*See BS/MD program, **Section 4** of this *Bulletin* for a description of the requirements for the Bachelor of Science part of this program.

# University Honors Program

Arno K. Lepke, Ph.D., *Master*

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## Introduction

The University of Akron's Honors Program is designed to recognize and to support the highly motivated and achievement-oriented student in any major program. In order to help the participant discover the inherent potential, capabilities and sense of direction this unique learning experience emphasizes a close student-faculty relationship.

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## Admission

The requirements for admission to the University Honors Program are:

- A high school grade-point average of 3.50 or better.
- Scores on the Scholastic Aptitude Test (SAT) or American College Test (ACT) which place the applicant in the 90th percentile or higher of freshman college norms in the field of interest.
- An interview with a member of the University Honors Council.
- Enrollment in a baccalaureate degree program.

For information on the annual deadline for applications call (216) 375-7423 or the Office of Admissions (216) 375-7100.

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## Program

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### General Studies

An honors student is not required to complete the General Studies except for physical education. Instead, each student completes an individualized distribution requirement which includes a balanced amount of diversified coursework in the humanities, the social sciences and the natural sciences. The major objective of this requirement is to expose the student to a broad spectrum of knowledge which is both reasonable and appropriate to the student's major field. The student and preceptor plan the components of this requirement which is subject to the approval of the Honors Council.

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### Colloquia

Beginning at the sophomore level, an honors student attends one colloquium per year: one in the humanities; another in the

social sciences; the third in the natural sciences. These one-semester, two-credit lecture and discussion sessions are interdisciplinary in scope. They provide an opportunity for all honors students to meet together and to explore the breadth and the interrelations of academic studies. The intent of these colloquia is to provide significant insights, especially in areas which lie outside the student's major field and may have been excluded from the previous sphere of intellectual curiosity.

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## Major Requirements

An honors student completes all requirements for a departmental or divisional major. If honors work exists in the major department, at least one of the contributing honors courses must be completed.

A faculty preceptor serves as a special adviser for the student in each department. The preceptor assists in the development of the student's major program, the selection of courses which are appropriate for the distribution requirement and in all other aspects of academic and professional planning.

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## Senior Honors Project

The honors student is expected to complete a senior honors thesis, an original or creative work which reflects the student's area of interest in the major field. This senior project may well become the basis for a future master's thesis in graduate school. Study abroad or field experience may be recognized as part of the project.

The citation "University Scholar" will appear on the diplomas and the transcripts of the student who completes the University Honors Program. At commencement exercises, they will be properly recognized as University Scholars.

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## Other Features

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### Scholarships

An honors student who maintains a minimum 3.40 cumulative grade-point average is eligible for substantial honors scholarships which are renewable annually.

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### Acceleration

To meet degree requirements, an honors student may use credits awarded for satisfactory achievement on Advanced Placement high school tests (AP), the College Level Examination Program (CLEP) and/or other approved placement procedures — including bypass credits — to a maximum of 20 credits. Credits may also be earned through "credit by examination" when approved by the department in which the examination is to be administered.

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## **Open Classroom**

An honors student may attend undergraduate classes or lectures for which the student is not formally enrolled. Free access is available.

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## **Access to Graduate Courses**

With the permission of the student's preceptor and the instructor, an honors student may be enrolled in graduate courses for either undergraduate or graduate credit. This provision applies especially to graduate courses which may be of immediate benefit to the completion of the senior honors project and/or the specific requirements for a given research paper.

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## **Credit/Noncredit Option**

Upon completion of one-half of all degree requirements, an honors student may enroll in one course per semester on a credit/noncredit basis. All elective credits thus earned are not considered in calculating grade-point average, but they count as credits completed toward graduation requirements.

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## **University Honors Council**

Seven faculty members representing the degree-granting colleges and two honors students serve on the University Honors Council which regularly reviews existing policies and introduces such additional and/or innovative options as may be desirable in response to manifest needs.

# Interdisciplinary and Certificate Programs of Study

complete at least 11 semester credits and four courses with a minimum 2.00 GPA from the list of acceptable courses or other courses identified by the director. The following are required:

		Credits
1810:401	General Seminar in Afro-American Studies (a research paper in Afro-American Studies will be written in this course)	3
3400:220	Black People of the United States	3

## Acceptable Courses

1100:335	Eastern Civilizations -- Africa	2
1810:401	General Seminar in Afro-American Studies	3
2020:254	The Black American	2
3250:486	Ghetto Economic Development	3
3300:350	Black American Literature	3
3300:389	United States Dialects: Black and White	3
3350:363	Africa South of the Sahara	3
3400:220	Black People of the United States	3
3400:413	Black Social and Intellectual History	3
3700:327	African Politics	3
3850:421/521	Racial and Cultural Intergroup Relations	3
7750:270	Poverty in the United States	3
7750:276	Introduction to Social Welfare	4
7750:410	Minority Issues in Social Work	3

## Research Paper

The research paper will be written under the direction of a faculty member most suitable to the area of concern of the student's research interest; shall be one semester in duration; and shall be approved by that faculty member. The director of Afro-American Studies, in consultation with the faculty member, will approve the topic for the research paper.

A student undertaking the Afro-American Studies Certificate Program must have prior consultation with the director of Afro-American Studies.

## Cartographic Specialization

This program of professional and scientific education is intended to enhance cartographic training in data handling, analysis and graphic communication of simple and complex geographic data and information. The program is not limited to geography majors and is designed to introduce automated and traditional cartographic skills to the student in a wide spectrum of disciplines offered through the laboratory for cartographic and spatial analysis housed in the Department of Geography. These training opportunities provide for specialized study in the rapidly changing and significant area of cartography as a method of graphic communication. The program is flexible in order to meet the varied backgrounds and interests of the individual student.

In addition to cartographic courses in the Department of Geography, many useful courses are found in other departments. The program is designed to permit the student to combine interesting and useful elements of art, science and technology.

Cartography has a very long and rich history and, while it is eminently practical, has a strong component of theory. For this reason, a student may elect to take cartographic courses simply because they are focused on an interesting and exciting liberal arts subject. Other students choose cartography courses with the thought of increasing their potential of finding a position subsequent to graduation. There is a well documented need for persons trained in cartographic awareness and skills in business, industry and government, as well as the academic community.

## Overview

In order to add to the dimensions of the traditional disciplines, the University has established interdisciplinary and interdepartmental programs of study. In addition to a major, the student may elect to pursue one of these programs.

Upon completion of any of these programs, a statement will be placed on the student's permanent record indicating the area of concentration. The certificate indicating the area of concentration will be awarded when the student completes requirements for a degree.

All programs are open to undergraduates except those so noted. Further information may be obtained from the following:

- Afro-American Studies, Mr. N. Holmes, assistant director.
- Cartographic Specialization, Dr. A. Noble, Head, Department of Geography.
- Computer Physics, Dr. D. Galehouse, Dr. E. VonMeerwall, codirectors.
- Computer Science, Dr. W. Beyer, Head, Department of Mathematical Sciences
- Environmental Studies, Dr. J. Jackson, director.
- Higher Education, Dr. W. Frye, director, Center for Higher Education.\*
- Interior Design, Mrs. C. Albanese, assistant professor of home economics.
- Latin American Studies, Dr. H. Lijeron, program coordinator.
- Life-Span Development: Adulthood and Aging, Dr. H. Sterns, director.\*\*
- Life-Span Development: Gender Identity and Roles, Dr. H. Sterns, director; Mrs. F. Dambrot, administrative assistant.
- Linguistic Studies, Dr. A. Palacas, director.
- Manual Communication, Dr. T. Black, coordinator.
- Mid-Careers Program in Urban Studies, Dr. E. W. Hanten, coordinator.
- Peace Studies, Dr. W. Kuehl, director, Center for Peace Studies.
- Planning City or Regional Resource Studies, Dr. A. Noble, Head, Department of Geography.
- Professional Communication, Dr. Joseph F. Ceccio; Dr. James V. Fee, codirectors.
- Public Policy, Dr. C. Lieberman, chairman, coordinating committee.\*
- Secretarial Science, Mrs. A. West, coordinator.
- Soviet Area Studies, Dr. T. Mackiw, program coordinator. Soviet Area Studies

## Afro-American Studies

### Requirements

To satisfy the requirements for the certificate, a student must

\*Graduate only.

\*\*Undergraduate and graduate.

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## Requirements

### Core Courses

Complete five of the following basic courses:

		Credits
3350:240	Maps and Map Reading	3
3350:340	Cartography	3
3350:442	Thematic Cartography	3
3350:444	Map Compilation and Reproduction	3
3350:447	Introduction to Remote Sensing	3
3350:448	Automatic Computer Mapping	3
3350:449	Advanced Remote Sensing	3

### Elective Courses

Each student must complete at least seven credits distributed between professional, technical and research offerings in departments other than the Department of Geography. These courses will be selected in consultation with the program's director. Similar courses completed at other universities, up to five years prior to admission to candidacy, may be approved by the director.

The electives help develop a diverse cartographic skill and perspective which is significant and useful for persons working with data systems management, urban planning and environmental impact studies. To be truly effective and comprehensive in a career, the student must know a variety of professional and technical approaches in order to cope with social, economic, political, geographical, physical design and governmental problems. Selection of courses which duplicate or continue topical interests already well established in a particular student's background will be discouraged.

### Internship

Internship in an agency, firm or office engaged in related graphic and cartographic work; or an internship in the University's Laboratory for Cartographic and Spatial Analysis.

### Final Examination and Defense of Cartographic Works

After the completion of coursework each student undergoes an oral examination covering samples of the student's cartography, conducted by two members of the department and one from the elective area. Questions cover the specific projects and topics covered in the coursework completed specifically for the program. One week before the scheduled examination, the student submits samples of cartographic work.

The works must be acceptable by the examination committee and reduced photographic copies will be kept for permanent record in the laboratory's file. After passing the oral examination and the acceptance of the samples of cartography, the student is considered to have completed the program.

A minimum grade of "C" is required in all elective courses taken as part of the certificate program. In the five core courses, an average grade of "B" is required.

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## Computer Physics Certificate

Any student completing the 56 credits of technical courses in

physics, mathematics and computer science specified below will receive a formal certificate.

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## Technical Course Requirements

Physics:		Credits
3650.291.2	Elementary Classical Physics I, II	8
3650.301	Elementary Modern Physics	3
3650.410	Electronics	3
3650.411	Intermediate Laboratory I	2
3650.436	Electricity and Magnetism	3
3650.458	Laboratory Data Analysis	3
3650.468	Digital Data Acquisition	2
Mathematics:		
3450.221.2,3	Analytic Geometry-Calculus I, II, III	12
3450.235	Differential Equations	3
3450.427	Introduction to Numerical Analysis	3
3450.428	Numerical Linear Algebra	3
Computer Science, Engineering Computer Science		
3460.210	Introduction to Computer Concepts	3
3460.316	Introduction to Data Structures	
	or	
3460.455	Data Communications	
	or	
3460.457	Computer Graphics	
	or	
4450.306	Assembler Programming	3
4450.206	Fortran (SCI/ENGR) or equivalent	2
4450.410	Computer Methods	3

The certificate has been structured so as to be accessible to students working toward both the B.S. and B.A. degrees in physics. Contact program directors for specific requirements.

This certificate may also be earned by students working toward the B.S. in natural science. The major area of concentration would be physics, with one minor area in mathematics. The other minor area(s) could be computer science, engineering or another discipline.

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## Computer Science

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### Requirements

#### Entrance

To qualify for the Computer Science Certificate Program, a student must be in good academic standing in the major department, must have completed three credits of mathematics in the Department of Mathematical Sciences and must submit to the director of the program a written request for admission to the program. The request will outline the student's reasons and goals for enrolling in the program. A student undertaking the program must have prior consultation with the director. The area of concentration adds a further dimension of both mathematics and computer science to the student's major in one of the traditional academic disciplines.

#### Courses

3460.201	Introduction to Fortran Programming	
	or	
4450.206	Fortran (Science and Engineering)	2

One language from the following:		<i>Credits</i>
3460.202	Introduction to Cobol Programming (highly recommended)	2
3460.203	Introduction to APL Programming	2
3460.204	Introduction to PL/1 Programming	2
3460.205	Introduction to Pascal Programming	2
All of the following:		
3460.210	Introduction to Computer Concepts	3
3460.420	Structured Programming	3
3460.416	Introduction to Data Structures	3
4450.306	Assembler Programming	3
	Computer Science Elective	3

interior design emphasizing an interdisciplinary approach between the Department of Home Economics and Family Ecology and the Department of Art. The program is designed to add another dimension to the four-year baccalaureate degree in clothing and textiles and the four-year baccalaureate degree in graphic design. The certificate program is open to undergraduates in other disciplines as well as persons with baccalaureate degrees from the University or other accredited institutions. The certificate must be issued simultaneously with a baccalaureate degree or to those already holding a baccalaureate degree. The following requirements must be met:\*

		<i>Credits</i>
7100.121	Three-Dimensional Design	3
7100.244	Color Concepts	3
7100.282	Architectural Presentations	3
7400.331	Applied Home Furnishings	3
7400.333	Interior Design I	3
7400.334	Interior Design II	3
7400.335	Fundamentals of Buying Home Furnishings	3

## Environmental Studies

### Requirements

To qualify for the certificate program, a student must be in good academic standing with the major department and submit to the director a written request for admission. The request will outline the student's reasons and goals for enrolling in the program.

The student will take a minimum of six courses from a list approved by the committee on environmental studies. Two of these courses will be:

1830.201	Man and the Environment	2
1830.401	Seminar in Environmental Studies	2

The student will be required to select courses from areas other than the major since the purpose of the program is to broaden the student's background. It is expected that courses from at least two disciplines will be selected.

The student's plan of study for this certificate will be developed in consultation with an environmental studies adviser; the adviser, if other than the environmental studies director, will be approved by the director.

### Courses

1830.201	Man and the Environment	2
1830.401	Seminar in Environmental Studies	2
3100.105	Ecology and Biological Resources	2
3100.217	General Ecology	3
3100.422/522	Conservation of Biological Resources	3
3100.424/524	Limnology	3
3100.426/526	Applied Aquatic Ecology	3
3250.385	Economics: Natural Resources and Environment	3
3350.314	Climatology	3
3350.335	Recreational Resource Planning	3
3350.436/536	Urban Land Use Analysis	3
3350.447/547	Introduction to Remote Sensing	3
3350.495/595	Soil and Water Field Studies	3
3370.200	Environmental Geology	3
3370.474/574	Ground Water Hydrology	3
3370.678	Urban Geology	3
3400.434/534	American Environmental History	3
3850.321	Population	3
3850.425/525	Sociology of Human Life	3
4100.201	Energy and Environment	2
4100.202	Atmosphere Pollution	2
4200.463/563	Pollution Control	3
4300.421	Environmental Engineering	3
4300.425	Environmental Engineering Laboratory	2
5800.491/591	Workshop: Arithmetic or in Physical Science	3

## Interior Design

This certificate program represents a concentration of study in

## Latin American Studies

### Requirements

The student in the Latin American Studies Certificate Program will major in the respective disciplines (economics, geography, history, political science, sociology and Spanish).

In addition, the student will take 12 credits in the three separate disciplines chosen from the following list:

Political Science:		
3700.425	Latin American Politics	3
History:		
3400.415/515	Latin America: National Origins	3
3400.416/516	Latin America: Twentieth Century	3
3400.417/517	United States, Latin America and Imperialism	3
3400.418/518	Mexico	3
Geography:		
3350.353	Latin America	3
Sociology (Anthropology):		
3870.257	Indians of South America	3
3870.356	New World Prehistory	3
Economics:		
3250.460	Economic Development and Planning for Underdeveloped Countries	3

The student is also required to study three years of Spanish or the equivalent.

## Linguistic Studies

### Requirements

Completion of six linguistically-oriented courses as follows: the foundation course, two core courses and at least three elective

\*Some prerequisites to these courses are core courses that are sequenced. The other courses that are prerequisites are presently part of the clothing and textiles and graphic design curricula. The student opting to take the certificate program who is from other disciplines is required to take the prerequisite to raise the level of competency to that of a major in clothing and textile and/or graphic design.

courses. Three or more of the courses must be at the 300/400 level. (Subject to approval by the program director, other theoretically-oriented linguistics courses may substitute for core courses.)

To obtain the certificate, the student must have at least two semesters of language. A student entering the program should discuss plans with the director.

Foundation:*		Credits
3300:270	Introduction to Linguistics	3
<b>Core Courses:**</b>		
3300:370	Intermediate Linguistics	3
3600:481	Philosophy of Language	3
3870:461	Language and Culture	3
7700:230	Speech and Language Development	3
	or	
7700:430	Aspects of Normal Language Development	3
<b>Electives:</b>		
3300:389	Special Topics (any linguistically-oriented course offered under this number, e.g., <i>United States Dialects: Black and White</i> )	3
3300:400	Anglo Saxon	3
3300:470	History of the English Language	3
3460:460	Artificial Intelligence and Heuristics Programming	3
3460:470	Automata, Computability and Formal Language	3
3580:409	Linguistics (Spanish)	3
3580:410	Linguistics (Spanish)	3
3600:170	Introduction to Logic	3
3600:374	Symbolic Logic	3
3600:418	Analytic Philosophy	3
3600:471	Introduction to Metaphysics	3
5200:335	Teaching of Language Arts	5
5630:481	Multicultural Education in the United States	3
7600:310	Intercultural Communication	2
7600:351	Survey of Speech Communication	3
7700:111	Introduction to Phonetics	2
7700:271	Language of Signs I	3

## Manual Communication

### Requirements

This certificate, designed for those who communicate with the deaf population, is open to undergraduate majors in any discipline as well as persons with a baccalaureate degree from the University or any other accredited institution. The following requirements must be met.

#### Required Courses

2210:104	Sign Language, Gesture and Mime	3
7700:100	Manual Communication I	5
7700:120	Introduction to Audiology/Aural Rehabilitation	3
7700:150	Manual Communication II	4
7700:200	Manual Communication III	4
7700:222	Introduction to the Deaf Culture and Its Origins	2
7700:271	Language of Signs	3

#### Electives

7700:121	Psychosocial Aspects of Deafness or	3
7700:223	Speech and Language of the Deaf Child and Adult	4

\*Required.

\*\*At least two required.

## Peace Studies

### Requirements

To satisfy the requirements for a certificate in peace studies, an undergraduate student at The University of Akron must complete at least 15 credits from the list of acceptable courses. These must be distributed so that work will be included from three separate departments. The student will major in one of the traditional disciplines, but the area concentration is meant to add a further dimension of depth through concentrated work focusing on peace studies. Where specialized training is relevant to a particular student's interest, alternatives to those on the list of acceptable courses may be approved by the director. A paper or project is to be completed in conjunction with one of the 300/400-level courses chosen and in consultation with the instructor involved. The student undertaking the Peace Studies Certificate Program must have prior consultation with the director of the Center for Peace Studies.

The following two courses are required for everyone in the program:

		Credits
1860:301	Value Concepts on Peace and War	3
3400:340	Peace, War and Mankind	3

### Courses

1860:300	Special Topics in Peace Studies	1-3
1860:301	Value Concepts on Peace and War	3
1860:350	Independent Study in Peace Studies	1-3
1860:378	Human Rights Concepts	3
1860:390	Workshop on Peace Studies	1-3
3250:450	Comparative Economic Systems	3
3250:460	Economic Development and Planning for Underdeveloped Countries	3
3520:461	Principles of International Economics	3
3300:489	Seminar in Twentieth Century Literature and History	3
3350:100	Introduction to Geography	3
3400:340	Peace, War and Mankind	3
3400:407	Diplomatic History of the United States, 1776-1919	3
3400:408	Diplomatic History of the United States, 1914-present	3
3400:417	United States-Latin American Relations	3
3400:460	War and Western Civilization	3
3700:220	American Foreign Policy: Process and Problems	3
3700:310	International Politics and Institutions	4
3700:415	Comparative Foreign Policy	3
3870:150	Cultural Anthropology	4
6800:330	International Marketing	3

## Planning with an Emphasis on City or Regional Resource Studies

This program is intended to enhance understanding of the planning function and to increase the research and analytical abilities of the person preparing for work in, or who is currently engaged in, city, urban, regional, environmental and resource planning. The program is open to the undergraduate, as well as a person with a baccalaureate degree, employed in local agencies doing related work, e.g., urban renewal, community redevelopment, community action, environmental protection

and private industry. The person with a degree can enroll as a postbaccalaureate or special student.

## Requirements

- Employment or internship in a planning agency or in an office engaged in related work; or a sincere intention to pursue a professional career in some aspect of government work or planning after graduation.
- A statement by the applicant giving reasons for wishing to participate in the planning certificate program.

## Courses

### Core

Complete five of the following:		Credits
3250:244	Introduction to Economic Analysis	3
3350:220	Economic Geography	3
3350:433	Urban, Regional and Resource Planning	3
3350:438	World Metropolitan Areas	3
3400:436	The American City	3
3700:380	Metropolitan Politics	4
3850:425	Sociology of Urban Life	3
4300:450	Urban Planning	2

### Electives

Each student's program (subject to the program director's approval) is to include six elective courses distributed between professional, technical and research offerings. Three courses will be from the professional listing and three from the technical-research listing. In consultation with the program director, elective courses will be selected from University offerings either in the city planning or regional resource planning emphasis areas. Similar courses completed at other universities, up to five years prior to admission to candidacy, may be approved by the director.

The intent of the elective requirements is to facilitate the development of a diverse perspective which is significant for a person who will be or is already engaged in planning for present and changing future urban, regional, environmental, resource, energy and societal needs. The truly comprehensive planner must have academic acquaintance with a variety of professional and technical approaches in order to cope with social, geographical, physical design, economical and governmental problems. Selection of courses which duplicate or continue interests already well established in a student's background will be discouraged.

### Project

Upon completion of the core and elective course requirements, the student will take 3350:385 *Planning Seminar* (one credit). In this seminar the student will produce a final paper covering a city or regional resource planning topic chosen by the student and approved by the director of the program. Each project will be presented to the seminar class and critically analyzed.

A grade of "C" or better is required in all courses undertaken as part of the certificate program. In the five core courses an average grade of "B" is required.

## Professional Communication

The program will help meet our technological society's growing

need for educated people who can develop sophisticated strategies for effective communication of business and technical information. People in the business community increasingly depend on communication to solve complex management, sales and information-processing problems. The communication demands of business and industry are significant, and in many ways, different from those dealt with in traditional courses and majors. Undergraduates in various fields and those who already possess a baccalaureate degree will wish to study specifically to meet communication demands. A formal certificate will recognize their preparation for handling the communication needs of business and industry.

## Program

	Credits
3300:390 Professional Writing I	3
3300:391 Professional Writing II	3
7600:309 Publications Production	3
7600:345 Business and Professional Speaking	3

The two 3300 courses listed cannot count toward the 35 credits in English required of English majors.

## Secretarial Science

### Administrative Secretarial

#### Requirements

The administrative secretarial program provides intensive administrative secretarial training in two 15-week semesters. It is designed for the individual who has completed at least two years of college and who wishes to add administrative secretarial skills to enhance career opportunities. Training is provided to type at 50-65 net words-a-minute and to transcribe accurately business correspondence dictated at 70-90 net words-a-minute. The student will develop effective letter writing ability, use new office machines and correlate secretarial skills and administrative ability.

To enroll in this option, a student must have completed at least two years of college.

#### Courses

Core		Credits
2420:211	Basic Accounting I	3
2540:121	Office Problems	3
2540:125	Business Machines	2
2540:151	Intermediate Typewriting	3
2540:241	Information Management	3
2540:263	Business Communications	3
2540:286	Keyboarding on Word Processing Equipment	3

#### Administrative Secretarial Option

2420:103	Role of Supervision in Management	3
2540:150	Beginning Typing	3
2540:171	Shorthand Principles	4
2540:173	Shorthand and Transcription	4

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## Word Processing

### Requirements

The word processing option is designed to enable the student who has some beginning typing skills to prepare for an entry-level job in word processing. The program is a study of the applied use of word processing procedures and equipment in a simulated word processing office environment. The total work flow of office communications will be covered from input through output. Using automated typewriting equipment, the student will produce office documents from machine transcription, handwritten copy and typewritten copy. All courses taken may be applied toward an associate degree in secretarial science.

### Courses

Core		Credits
2420:211	Basic Accounting I	3
2540:121	Office Problems	3
2540:125	Business Machines	2
2540:151	Intermediate Typewriting	3
2540:241	Information Management	3
2540:263	Business Communications	3
2540:286	Keyboarding on Word Processing Equipment	3
	Total	20

### Word Processing Option

2540:119	Business English	3
2540:253	Advanced Typewriting	3
2540:280	Word Processing Concepts	3
	Electives	5
	Total	14

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## Soviet Area Studies

### Requirements

The student in this program will major in the respective disciplines (economics, geography, history, philosophy, political science and Russian).

In addition to the requirements for the major, the student will take 12 credits in three or more separate disciplines with a concentration in the area of Soviet studies.

Economics:		
3250:450	Comparative Economic Systems	3
Geography:		
3350:358	U.S.S.R.	3
History:		
3400:458/558	Russia to 1801	3
3400:459/559	Russia since 1801	3
Political Science:		
3700:200	Comparative Politics	4
3700:322	Soviet and East European Politics	3
Russian:		
	Three years of study or the equivalent.	

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## Life-Span Development: Adulthood and Aging

This certificate represents a concentration of study involving current knowledge and research in adulthood and aging. It

adds another dimension to the knowledge and skills a student is able to offer in the many professions that are becoming specialized in adapting the student's training, research and service to the needs of adults and older adults. This program coordinates the training of personnel in adult development and aging and helps to meet the critical shortage of trained manpower in the field of gerontology.

The graduate curriculum committee of the institute will oversee this certificate program and certify through the director of the institute that all requirements for the certificate have been completed.

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## Admission

To participate in the program, a student should:

- be formally admitted to The University of Akron as an associate, undergraduate, postbaccalaureate or graduate student;
- receive permission from the faculty adviser;
- have an interview with a designated graduate faculty member of the Institute for Life-Span Development and Gerontology; and,
- make formal application to the program.

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## Program

### Graduate\*

Required courses:

1850:680	Interdisciplinary Seminar in Life-Span Development and Gerontology	Credits 1
1850:695	Practicum/Internship	3

Electives:\*\*

3100:686	Research in the Biology of Aging	3
3750:620	Methods and Theories of Human Development	4
3750:727	Psychology of Adulthood and Aging	4
3850:678	Social Gerontology	3
3980:620	Social Services Planning	3
3980:681	Special Topics: Urban Gerontology	3
5400:541	Educational Gerontology Seminar	3
5400:661	Current Issues in Higher Education: Life-Span and Community Education	2
7400:603	Family Middle and Later Years	2
7700:583	Communication Disorders: Geriatric Population	3
7750:550	Social Needs and Services: Aging	3
8200:589	A Survey: Health Care and the Aged	3

### Undergraduate\*\*

Required courses:

1850:450	Interdisciplinary Seminar in Life-Span Development and Gerontology (to be repeated two times at one credit each)	2
1850:495	Practicum/Internship (within institute individual department)	2
3100:192	Biology of Aging	3
5550:300	Physiology of Exercise for the Adult and Elderly	2

Electives:†

	Two of the following:	
3750:480	Special Topics: Adulthood and Aging	3

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\*Twelve credit minimum.

\*\*Seventeen credit minimum.

†Select a minimum of three courses. A student is required to take two of the three electives outside the major or degree department.

		<i>Credits</i>
3850:343	Sociology of Aging	3
7400:485	Seminar in Home Economics Family: Middle and Later Years	3
7700:483	Communication Disorders: Geriatric Population	3
One of the following:		
5400:440	Life-Span and Community Education	2
5400:541	Educational Gerontology Seminar	3
7750:450	Social Needs and Services in Later Adulthood and Aging	3
8200:489	A Survey: Health Care and the Aged	3

## Life-Span Development: Gender Identity and Roles

This program centers on investigating the origins and functions of gender — the designations male and female — in human life. The primary objective is to provide the student with the opportunity to do multi-disciplinary and interdisciplinary investigations of this fundamental aspect of human development. The student examines gender as a biological, psychological, political, sociological, historical and intellectual phenomenon; the biological roots of sexual and gender differences; the ways societies mold these differences into the division between male and female; and the historical changes gender definitions have undergone and their functioning in the contemporary world. By looking at gender, the student looks at human society in a new way. This specialized area of study enriches the student's major and aids those preparing for human service careers.

### Admission

To participate in the program, the student must:

- be formally admitted to The University of Akron as an undergraduate seeking a baccalaureate degree or as a postbaccalaureate student;
- make written application to the program after consulting a representative of the major department;
- receive notification of admission from the director of the institute; and,
- have an interview with a faculty member to formulate program. The faculty member thus designated will continue to act as the student's certificate program adviser until the student has completed the program.

### Program

#### Requirements

Minimum credits: 18 credits.

Required courses:

1850:300	Perspectives on Gender Identity and Roles	3
1850:493	Independent Study in Gender Identity and Roles	3

Electives: 12 credits.\*

No more than four credits can come from a single department including the student's major department. Only one course of 200-level work will be permitted for elective credit toward the

certificate. Only two workshops will be permitted for elective credit toward the certificate. A course not included in the suggested list may be used for elective credit if the course is appropriate and if the student obtains prior approval from the faculty adviser and the Curriculum Committee of the Institute for Life-Span Development and Gerontology.

		<i>Credits</i>
1850:490	Workshop: Women and the Law	2
1860:300	Topics in Peace Studies: Human Rights and Ideas in History, Literature and Philosophy	3
1860:378	Introduction to Human Rights Concepts	3
2220:290	Special Topics: Women in Crime	4
3100:428	Biology of Behavior	2
3250:431	Labor and the Government	3
3250:440	Women in Labor Force	3
3300:275	Specialized Writing: Essential Self	3
3300:389	Special Topics in Literature and Languages: Women in Modern Novels	3
3300:389	Special Topics in Literature and Languages: Women Writers	3
3400:338	Women in the United States	3
3400:350	Selected Topics in History: Soviet and United States Women in the Twentieth Century	3
3400:350	Selected Topics in History: Women in Modern Europe	3
3400:437	American Family History	3
3750:480	Special Topics: Psychology of Sex Differences and Similarities	4
3750:480	Special Topics: Psychology of Adulthood and Aging	4
3850:340	The Family	3
3850:344	Sociology of Sex Roles	3
3850:412	A Socialization: Child to Adult	3
3870:455	Culture and Personality	3
3870:463	Types of Kinship and Social Organization	3
5100:490	Workshop: Men and Women, Equality of Educational Opportunities	3
5400:405	Vocational Education for Youth and Adults	2
5400:415	Vocational and Technical Training in Business and Industry	3
5400:440	Life-Span and Community Education	2
7400:201	Relational Patterns in Marriage and Family	3
7400:255	Fatherhood: The Parent Role	2
7400:485	Seminar: Human Sexuality	3
7400:490	Workshop: Women and Men in Transition	2
7600:310	Intercultural Communication	2
7750:480	Special Topics: Women's Issues i Social Work	3
8200:493	Workshop: Health of Women	3

## Public Policy

This program will assist the person in understanding, formulating and implementing decisions in the public realm. A person who is interested in government service, administration of publicly-supported institutions and the teaching of government at the college level should find such an interdisciplinary program to be of great value.

### Admission

Persons are eligible for admission to the graduate Certificate in Public Policy if they have been admitted to graduate study as special, non-degree students in the departments of economics, political science or sociology, or are pursuing a master's or doctoral degree in one of those three departments. Students who are pursuing a graduate degree in other departments at the University may be admitted upon the recommendation of the head of the department in which they are enrolled.

\*Minimum four courses from four academic departments.

## Requirements

### Core:

		Credits
3700:541	The Policy Process	3
	or	
3700:670	Seminar in the Administrative Process	3

Four courses from the areas listed below (one course must be in economics and one in sociology):

### Economics:

3250:531	Labor and Government	3
3250:606	Public Finance	3
3250:616	Economics of Regulation	3
3250:617	Anti-trust Economics	3
3250:635	Labor Law	3
3250:660	Seminar in Regional Economics Analysis and Development	3
3250:665	Seminar in Economic Planning	3
3250:683	Monetary Theory and Policy	3

### Political Science:

3700:515	Comparative Foreign Policy	3
3700:561	The Supreme Court and Constitutional Law	4
3700:580	Urban Policy Problems	3
3700:610	Seminar in International Politics	3
3700:641	Seminar in Intergovernmental Relations	3
3700:660	Seminar in Civil Liberties and the Judicial Process	3
3700:680	Seminar in Urban and Regional Politics	3

### Sociology:

3850:645	Social Organization	3
3850:646	Social Stratification	3
3850:648	Complex Organizations	3
3850:649	Sociology of Work	3
3850:679	Political Sociology	3
3850:686	Population	3
3850:687	Social Change	3
3850:708	Advanced Techniques in Research	1-3
3850:747	Urban Sociology	3
3850:750	Research in Community and Area Problems	3

The student must successfully complete an interdisciplinary seminar in public policy. Each student shall write and present a paper dealing with public policy during the seminar. Faculty members and other persons who have a knowledge of the policy-making process shall make appropriate presentations regarding the formulation and implementation of public policy.

All persons enrolled in the Graduate Certificate Program in Public Policy must successfully complete 3750:791 *Internship in Political Science*, a course which will permit a student to gain experience working with public officials, government agencies, political parties or interest groups. A student will normally enroll in this course after having completed at least 12 semester credits of work relating to public policy. A person with extensive administrative or governmental experience may be permitted, with the approval of the student's adviser, to substitute another course dealing with public policy in place of the *Internship in Political Science*.

At least two-thirds of the credits earned for this certificate must be in 600- or 700-level courses. No more than three courses in which the student enrolls, of the seven required for the Graduate Certificate in Public Policy, may also apply toward meeting requirements for a graduate degree at The University of Akron.

The student must maintain at least a "B" (3.00) average in coursework for the certificate.

## Administration of the Program

The Departments of economics, political science and sociol-

ogy shall each annually select a representative for a coordinating committee from among those members of the graduate faculty who have special knowledge or expertise in the area of public policy. The committee shall each year elect one of its members as chairperson. The chairperson shall be responsible for disseminating information about the certificate, certifying that a student has met requirements for the completion of the program and convening members of the coordinating committee whenever appropriate.

## Mid-Careers Program in Urban Studies

The program will require the completion of 16 graduate credits in a single area or in several areas in the urban field. Upon the completion of the program, a certificate will be granted.

## Admission

A student must satisfy the requirements for entrance in graduate programs or have a bachelor's degree and the equivalent of five years' experience in a professional, administrative or leadership position, in which case the student shall be admitted as a special non-degree student. A student may wish to pursue additional electives. However, a student admitted to this program will be limited to 20 credits. If the student wishes to pursue more than 20 credits, the student must be admitted to the M.A. program in urban studies.

## Program

The Mid-Careers Certificate Program in Urban Studies will require the successful completion of a plan of study which must include a minimum of 16 credits of work in existing courses offered by the Department of Urban Studies. The core program and areas of study are listed below. Electives will be chosen in consultation with the adviser from the approved list of courses. Courses offered by other departments will be accepted if they are urban-related and will specifically contribute to the student's objectives.

Core		Credits
3980:600	Basic Analytical Research*	
	or	
3980:601	Advanced Research and Statistical Methods*	3

## Options

### Urban Public Administration

3980:611	Urban Administration	4
3980:640	Fiscal Analysis	3
3980:681	Urban Policy Analysis	3
	Elective(s)	3

### Urban Research Methods

3980:670	Seminar in Urban Research Design	3
	Computer Applications	3
	Elective(s)	4

\*Both required in Urban Research Methods option.

<b>Urban Planning</b>		<i>Credits</i>
3980.630	Planning Concepts and Methods	3
3980.681	Urban Planning Design	3
3980.681	Planning Theory and Innovation	3
	Elective(s)	4

<b>Urban Service Systems</b>		<i>Credits</i>
3980.620	Social Services Planning	4
3980.621	Urban Society and Service Systems	3
3980.681	Program Evaluation	3
	Elective(s)	3

<b>Urban Studies</b>		<i>Credits</i>
398.602	Seminar in American Urban Development or	3
3980.681	Urban Theory and Value	3
	Elective(s)	10

## Higher Education

This certificate program in higher education requires a minimum of 15 credits. The program of studies has been designed to serve the practicing or prospective college or university administrator or instructor.

### Admission

All applicants to the program should have previously earned a master's degree. Special admission for concurrent studies toward a master's degree and the Higher Education certificate may be allowed for persons currently employed in Higher Education. Students interested in this admission category should first meet with the Director of the Center for the Study of Higher Education. The person wishing to pursue a doctorate in an academic department may concurrently undertake the certificate program as a cognate or minor. Such students must apply to the Graduate School for admission to the academic department and also apply for admission to the Center for the Study of Higher Education and must be admitted to both programs. Applicants wishing to pursue only the certificate program must apply to the Graduate School for admission as a Special Non-Degree student.

## Program

Courses and internships in Higher Education are directed toward the study of administrative and academic operations of colleges and universities. Specific program options include: administration, student services, curriculum and instruction. Each of the options requires an internship. In the case of the curriculum and instruction option, a higher education teaching internship developed in conjunction with the student's major academic adviser and the center staff may be anticipated. Internships may be completed at the University or at one of several cooperating institutions.

### Required:

		<i>Credits</i>
5100.703	Seminar: History and Philosophy of Higher Education	3
5900.700	Introductory Administrative Colloquium in Higher Education	1
5900.800	Advanced Administrative Colloquium in Higher Education	1
5900.801.2	Internship and Internship Seminar	2
	Independent Study or coursework to support concentration and bring total hours to a minimum of 15.	8

### Options

A student may select all three courses listed as "A" and omit "B" or may select an area of concentration and take one course from "A" under I, II or III and the supporting course from "B" from the same heading.

#### Organization and Administration in Higher Education (I)

5700.704	Administrative Organization in Education (A)	2
5900.715	Seminar in Higher Education: Administration in Higher Education (B)	3

#### Student Services in Higher Education (II)

5600.649	Counseling and Personnel Services in Higher Education (A)	2
5900.725	Seminar in Higher Education: Student Services (B)	3

#### Program Planning, Curriculum and Instruction in Higher Education (III)

5900.730	Higher Education Curriculum and Program Planning (A)	3
5900.735	Instructional Strategies and Techniques for the College Instructor: (B) or	
5700.710	Principles of Curriculum Development (B)	3

# Evening College and Summer Sessions

Caesar A. Carrino, Ph.D., *Dean*  
Elmore J. Houston, M.A., *Assistant to the Dean*

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## Evening College

The University of Akron has a rich and historic tradition of service to the student who attends classes after 5 p.m. Evening class offerings run the full range from the Community and Technical College through the Ph.D. level. Through evening and Saturday credit courses, the Evening College keeps its doors open throughout the year.

The Evening College is a continuation of daytime college campus life. Credit courses taken in the evening have the same high academic value and full-time faculty members teach and are available to the student in the evening. Part-time faculty are engaged to augment the full-time faculty; these part-time teachers represent a complete array of academic backgrounds and practical experiences to enrich the quality of coursework.

The president and his top-level administrators and the collegiate deans are vitally concerned and supportive of our effort to serve the needs of the evening student — some 7,500 strong.

Evening Student Council coordinates the extracurricular activities of the Evening College, which are similar to those of the day college and sometimes are part of the daytime activities. Organizations established for the Evening College student include Alpha Sigma Lambda, Scholastic Honorary; Gamma Beta, Evening College Social Sorority; Chi Sigma Nu, Evening College Social Fraternity; Alpha Epsilon, a service honorary dedicated to giving recognition to evening students who have made significant contributions to campus and community; AWARE (Association of Women for Awareness, Recognition and Enterprise); and *Nite Life*, the publication of the Evening Student Council.

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## Summer Sessions

The Summer Sessions reemphasizes the urban nature and mission of The University of Akron and the total involvement with our community. Curricular patterns reflect the vibrant interaction between "Town and Gown."

Summer study satisfies a myriad of student appetites and needs: the regular full-time student accelerating a program, a recent high school graduate, a transfer student from other institutions of higher learning, an older person with life-long learning interests, the part-time student and, equally important, those who rejuvenate their intellectual energies in summer study only.

Summer Sessions serve over 18,000 students, young and old, local and commuting, at all stages from noncredit avocational courses to the professional and Ph.D. levels. Faculty, students, administration and the community each contribute talents and resources to further the dynamics of the academic and cultural process.

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Graduate, Professional and  
Law Academic Programs

# Graduate School

Alan N. Gent, Ph.D., *Dean of Graduate Studies and Research*  
Joseph M. Walton, Ph.D., *Associate Dean of Graduate Studies and Research*  
John E. Mulhauser, M.A., J.D., *Associate Director of Research and Sponsored Programs*

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## Objectives

The purpose of the Graduate School is to provide a quality program of education by the following means:

- Advanced courses in various fields of knowledge beyond the baccalaureate level.
- Opportunities to develop and apply research techniques and to use the resources appropriate to various graduate programs.
- Advancement of student's knowledge for the benefit of mankind through the efforts of its faculty and students.

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## Nature of Graduate Education

The Graduate School provides a qualified student with education which may be required for the full development of scholarly and professional capacities, subject to the criteria developed by graduate departments.

Graduate education involves the extension of knowledge. However, it is by no means a mere continuation of undergraduate study. At its best, graduate education is characterized by an able and enthusiastic advanced student who joins faculty leaders to form a community of scholars dedicated to the common pursuit of truth. Critical analysis, independence of thought, originality of method, intensity of purpose, freedom from bias, thoroughness of inquiry, keenness of perception and vital creativity combine to produce in the successful student both the professional competence and the breadth of understanding essential to leadership in many areas of human endeavor.

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## History of the Graduate School

Graduate study began a few years after Buchtel College opened its doors, and the first earned master's degree was conferred in 1882. The College of Education awarded its first master's degree in 1924, the Colleges of Engineering and Business Administration in 1959, the College of Fine and Applied Arts in 1967 and the College of Nursing in 1979. The Department of Communicative Disorders (previously the Department of Speech), now housed in the College of Fine and Applied Arts, was formerly a part of the Buchtel College and conferred a master's degree in 1963. The first earned doctoral degrees were conferred in 1959. Professor Charles Bulger was appointed first dean of Graduate Work in 1933, and he continued in that capacity until 1950. Professor Ernest H. Cherrington, Jr. served as director of Graduate Studies from 1955 to 1960 and as dean of the Graduate Division from its establishment in 1960 to 1967. Dr. Arthur K. Brintnall was appointed dean of Graduate Studies and Research in 1967, being succeeded in

1968 by Dr. Edwin L. Lively. Dr. Claibourne E. Griffin succeeded Dr. Lively in 1974 and served in that capacity until 1977. Dr. Joseph M. Walton, associate dean of Graduate Studies and Research, was administrative head of the Graduate School during the 1977-78 academic year. Dr. Alan N. Gent is now dean of Graduate Studies and Research.

The administrative functions of the Graduate School include establishment of suitable entrance requirements, admission of qualified students, maintenance of high-quality instruction and approval of graduation requirements for advanced degrees.

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## Graduate Programs

A qualified student who has completed the baccalaureate program with sufficiently high grades may continue studies through the University's Graduate School in a program leading to the master's degree as well as to the doctor's degree. An undergraduate student who qualifies may enroll in certain graduate-level classes and apply the credits earned to the total required for the baccalaureate degree. To receive graduate credit for the courses, however, the student must first be admitted to the Graduate School.

The Graduate School offers programs of advanced study leading to the degree of Doctor of Philosophy in chemistry, history, polymer science, psychology, sociology, education (elementary, secondary and guidance and counseling) and engineering. The Doctor of Education degree is offered in educational administration. The Doctor of Philosophy program in sociology is a joint program with Kent State University.

The school also offers programs of study leading to the master's degree with majors in the following areas: accounting, biology, business administration (accounting, finance, international business, management, marketing and taxation), chemical engineering, chemistry, civil engineering, communicative disorders, earth science, economics, education (educational foundations, elementary, secondary, multicultural education, physical education, elementary or secondary school principal, school supervisor, local superintendent, counseling, special education, visiting teacher, reading specialist and school psychology), electrical engineering, engineering, English, French, geography, history, home economics and family ecology, management, communication, mathematics, mechanical engineering, music, nursing, philosophy, physics, political science, polymer science, psychology, sociology, Spanish, speech, statistics, technical education, theatre arts and urban studies. In addition, the College of Education provides a year of study beyond the master's degree in the area of school superintendent.

Several departments offer a limited amount of work which may be taken on the graduate level. Such courses may supplement the major program of study for the student who does not wish to devote his entire attention to one field.

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## Graduate Faculty and the Graduate Council\*

The graduate faculty is comprised of those members of the faculty who hold appointments at the rank of assistant profes-

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\*An exclusive listing of graduate faculty and Graduate Council can be found in the "Directory" of the *Graduate Bulletin*.

sor or above and teach graduate courses, supervise theses and dissertations and are generally responsible for the graduate program in the University. They are appointed by the dean of Graduate Studies and Research after recommendation by the department, college dean and Graduate Council. Guidelines for recommendation and appointment include:

- Quality and experience in upper-level and graduate-level teaching.
- Possession of terminal degree in field.
- Scholarly publication record.
- Activity in research.
- Activity in profession or discipline.

The purpose of the graduate faculty is to encourage and contribute to the advancement of knowledge through instruction and research of highest quality, and to foster a spirit of inquiry and a high value on the scholarship throughout the University.

The graduate faculty recommends a student who has been nominated by the student's college faculty for the appropriate master's or doctor's degree.

Graduate Council is elected by the graduate faculty. Membership in the council presently includes two members from the College of Engineering, two members from the College of Business Administration, two members from the College of Education, four members from the Buchtel College of Arts and Sciences, two members from the College of Fine and Applied Arts, one member from the College of Nursing and one student member elected yearly by the Graduate Student Council Members serve three-year terms and may not succeed themselves. The dean of Graduate Studies and Research serves as chairman of both the graduate faculty and the Graduate Council.

The functions of the council include examination of proposed graduate programs and course offerings, recommendation of policy for all phases of graduate education, recommendation of persons for membership in the graduate faculty and advising and counseling the dean in administrative matters.

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## Regulations

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### Student Responsibility

A student assumes full responsibility for knowing the regulations and pertinent procedures of the Graduate School as set forth in this *Bulletin*. Normally, the degree requirements in effect at the time a student is admitted to a program will apply through graduation. However, if existing programs are revised, the student has the option of pursuing the revised program as long as all requirements in the revised program are met. Additional information pertaining to programs can be obtained from the appropriate department head.

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### Admission

Every person who desires to enroll in or audit any graduate credit must be first admitted or approved by the Graduate School.

Applications for admission to the Graduate School should be

filed in the Office of the Dean at least six weeks before registration (except for applications to the nursing and school psychologist programs, which must be submitted at earlier dates. These two programs have restricted admission; the department heads should be consulted for further information). Each application must be accompanied by an application fee of \$25 (unless previously paid). This fee is not refundable under any circumstances. Payment should be made by check or money order payable to The University of Akron.

An official transcript from each college or university attended must also be received by the Graduate School before the application will be processed. This applies to the complete academic record, both undergraduate and graduate. Transcripts should be sent from the institutions attended directly to the Graduate School. The applicant is responsible for seeing that the above conditions are met by the deadlines for filing of application.

All records, including academic records from other institutions, become part of the official file and cannot be returned for any purpose.

An offer of admission will normally be made to an applicant who meets all admission requirements. However, it must be recognized that staff, facilities and other resources are limited, so the number of students accepted will vary among departments and from term to term. An accepted applicant may begin graduate work in the fall, spring or summer semester. The offer of admission is void, however, if the applicant does not register for courses within two years from the time of admission. An individual whose offer of admission has lapsed must submit a new application to be reconsidered.

The student is admitted only for the purpose or objective stated on the application for admission. A new request for admission must be filed when the original objective has been attained or when the student wishes to change objectives. The admitted status terminates when the time limits have been exceeded or other conditions for continued admitted status have not been met.

No student will be admitted without approval and acceptance by a department within the University, but admission to a department does not necessarily imply admission to or candidacy for any graduate degree program in that department. Admission for graduate study in any program can only be granted by the dean of Graduate Studies and Research and staff.

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### Classification

A student is identified by the Graduate School as being in one of the following categories. Any change must be arranged through the Graduate School.

- *Full Admission* may be given to any applicant who desires to pursue a graduate degree and has a baccalaureate degree from an accredited college or university with an overall grade-point average of 2.75 or better or 3.00 for the last two years (64 semester credits or equivalent); or holds an advanced degree from an accredited college or university in or appropriate to the intended field; or holds a baccalaureate or master's degree from a foreign college or university with first class standing or its equivalent, plus satisfactory evidence of competence in English. Full admission may also be granted to applicants to the College of Business Administration who meet the college's admission requirements.
- *Special Non-Degree Admission* may be granted to a person who has not met all of the requirements for *full admission*, or to a person who

wishes to take particular courses but who is not working toward a graduate degree. This admission status permits a student to take up to 15 semester credits of graduate coursework. In some cases, it is limited to one semester. Graduate courses taken under this admission status may be applied later to a graduate degree program but only when the requirements for *full admission* have been met.

- **Special Workshop** status is for a person permitted to take workshops for graduate credit *without being admitted to Graduate School*. Such permission is granted by the workshop director upon receipt of a signed statement of possession of a baccalaureate degree by the applicant, and terminates upon completion of this workshop. A student admitted to special workshop status must apply through regular channels for any other category. A maximum of six workshop credits may be applied to degree work at a later date if the applicant is given *full admission* to the Graduate School.
- **Transient** status may be given to a person who is a regularly enrolled graduate student in good standing in a degree program at another accredited university and has written permission to enroll at The University of Akron. Such permission is valid only for the courses and semester specified, with a maximum of 10 semester credits allowable, and is subject to the approval of the instructor, department head and Graduate School. A transient student is subject to the same rules and regulations as a regularly enrolled student of the University.
- **Undergraduate** status is for an undergraduate student at the University who may be granted permission to take one or more graduate-level courses if all the following conditions are met:
  - Senior standing;
  - overall grade-point average of 2.75 or better through preceding term (if a student does not have a 3.00 or better in the major field, special justification will be required);
  - written approval is given by the instructor of the course and the student's adviser.

These courses may later be applied to a degree program if not used to satisfy baccalaureate degree requirements. The maximum number of graduate credits that may be taken by an undergraduate and applied later toward a graduate degree is 12.

- **Post-Doctoral** status is divided into three categories:
  - a *Fellow* is a person holding an earned doctorate who is engaged in advanced research. A fellow shall be considered a guest of the University and provided space and use of facilities within limits of practical need of the undergraduate and graduate programs. Tuition and fees shall be collected if allowed under sponsoring contract for any courses the fellow may choose to take;
  - a *Special* is a person holding an earned doctor's degree who desires an additional graduate degree. A special may be admitted to any program upon submission of application forms, application fee (if new student) and an official transcript from the institution awarding the doctorate. This student will be treated as a regular student subject to registration fees and program degree requirements;
  - a *Guest* is a person holding an earned doctorate who desires to attend courses and seminars relevant to individual work or interests without registering or receiving grades. A written application should be submitted to the dean of Graduate Studies and Research for each course taken, and approval of the instructor, department head and college dean shall be obtained. A guest is welcome to any course or seminar provided space is available. Normally, space and facilities for research cannot be provided for a post-doctoral guest but special requests will be considered. Requests should be submitted, in writing, to the dean of Graduate Studies and Research who will review such requests with the appropriate college dean and department head.

## Standards: International Students

An international student is normally admitted only in the fall, and all credentials should be received by the Graduate School by April 1. Inasmuch as The University of Akron, as a state institution, has an obligation to the residents of Ohio, only the best-qualified international applicants can be admitted. An interna-

tional student seeking admission should not plan to leave the home country until notice of admission has been received from the Graduate School.

An entering graduate student from a country other than the United States and one in which English is not the major language in daily life is required to demonstrate high-level competence in the use of the English language, including reading, writing, speaking and listening. This competence can best be established by achieving a score of at least 550 on the TOEFL (the Test of English as a Foreign Language) and submitting it by June 1 for September admission. Applicants should make arrangements to take the test as soon as study at The University of Akron is anticipated (TOEFL is administered by Educational Testing Service, Box 899, Princeton, NJ 08540, USA). If the TOEFL is not available, the applicant should contact the international student adviser, The University of Akron, for other arrangements. Personal letters certifying English competence are not acceptable as substitutes for test scores.

The completion of an English placement test after admittance will also be required. Based on the results of this test, a student may be required to take an English language course for credit.

An international student, coming to The University of Akron in good standing from an accredited American college or university, may have the English proficiency requirement waived upon written request.

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## Non-Accredited American School Graduates

A student holding a baccalaureate degree from a non-accredited American college or university, if otherwise qualified, is normally required to complete at least 10 semester credits of postbaccalaureate work at a 3.00 level before being considered for admission to the Graduate School. The accreditation status of the school at the time of the student's graduation shall apply. A student should consult with the department head in the major field to develop a postbaccalaureate program.

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## Grades

A student admitted to graduate study under any status at The University of Akron is expected to maintain a minimum 3.00 average (4.00 = "A") at all times. A grade-point average of 3.00 or better is required for graduation. Any student whose average falls below 3.00 is no longer in good standing in the Graduate School and considered on probation. In computing cumulative averages, "D" grades are treated as "F" grades. The dean of Graduate Studies and Research, with the approval of the department head, may dismiss anyone who fails to make satisfactory progress toward declared goals or who accumulates six semester credits of "C" or below. The accumulation of six semester credits of "F" will result in mandatory dismissal. A student dismissed from the Graduate School for academic reasons may not be readmitted for one calendar year, and then only if evidence for expecting improved performance is submitted and found acceptable.

Official academic records are maintained with a grade-point system as follows:

Grade	Quality Points	Key
A	4.0	
A-	3.7	
B+	3.3	
B	3.0	
B-	2.7	
C+	2.3	
C	2.0	
C-	1.7	
D+	1.3	
D	1.0	Grad Course Only
D	0.0	Grad Course Only
D-	0.7	
D-	0.0	Grad Course Only
F	0.0	Failure

The following grades may also appear on the term grade reports or on the official academic record. There are no grade points associated with these grades.

**I** — Incomplete: Indicates that the student has done passing work in the course but that some part of the work is, for good and acceptable reason, not complete at the end of the term. Failure to make up the omitted work satisfactorily by the end of the following term, not including summer sessions, converts the "I" to an "F." When the work is satisfactorily completed within the allotted time the "I" is converted to whatever grade the student has earned.\*

**IP** — In Progress: Indicates that the student has not completed the scheduled coursework during the term because the nature of the course does not permit completion within a single term, such as work toward a thesis.

**PI** — Permanent Incomplete: Indicates that the student's instructor and the instructor's dean have for special reason authorized the change of an incomplete ("I") to a permanent incomplete ("PI").

**W** — Withdraw: Indicates that the student registered for the course but withdrew officially sometime after the second week of the term.

**NGR** — No Grade Reported: Indicates that, at the time grades were processed for the present issue of the record, no grade had been reported by the instructor.

**INV** — Invalid: Indicates the grade reported by the instructor for the course was improperly noted and thus unacceptable for proper processing.

## Repeating Courses

Any graduate course may be repeated once for credit. However, the degree requirements shall be increased by the credit hour value of each course repeated. The hours and grades of both the original and the repeated section shall be used in computing the grade-point average. Required courses in which a "D" or "F" was received must be repeated.

## Transfer Students

A graduate student matriculated in the Graduate School of another college or university who wishes to transfer to The University of Akron to continue graduate education must be in good standing at the other school.

\*If instructors wish to extend the "I" grade beyond the following term for which the student is registered, prior to the end of the term they must notify the Office of the Registrar in writing of the extension and indicate the date of its termination. It is the responsibility of the student to make arrangements to make up the incomplete work. The faculty member should submit the new grade to the Office of the Registrar in writing.

## Course Load

A full load of coursework at the graduate level is normally 9-15 semester credits including audit.

## Registration

The responsibility for being properly registered lies with the student, who should consult with the assigned adviser in preparing a program of courses and/or research. A schedule of courses, hours, class location and registration procedures is obtainable from the registrar.

## Entrance Qualifying Examinations

The use of examinations to determine admissibility to enter a graduate program or eligibility to continue in one is the prerogative of the departments offering graduate programs. The department has the right to select the examination and minimum acceptable level of performance. Information and procedure may be obtained from the head of the appropriate department.

## Fees

All fees reflect charges in 1983-84 and are subject to change without notice.

### Application Fee

This fee is not refundable under any circumstances \$25

### Tuition Fees

Resident student per credit 64  
Non-resident student per credit 111  
(auditors pay same fees)

### General Fee

1-14 credits per semester 5.00 per credit  
14 credits and over per semester 70.00 per semester

### Parking Permit Fee

9 or more credits per semester 30  
8½ or fewer credits per semester 15  
One summer session 10  
Workshop participants 10

### Graduation Fees

Each degree 25  
In absentia (additional) 5  
Thesis and binding  
(payable at time of application for degree)  
binding per volume 9  
Microfilming (Ph.D. only)  
(payable at time of application for degree) 48  
Course schedule change fee (for each schedule  
change form processed) 10  
Transcripts (if more than one transcript of a student's  
academic record is ordered by a student at one time,  
the fee shall be \$3. for the first transcript and \$1. for  
each additional one.) 3

### Late Registration Fee

25

## Refunds

Registration does not automatically carry with it the right of a refund or reduction of indebtedness in cases of failure or inability.

ity to attend class or in cases of withdrawal. The student assumes the risk of all changes in business or personal affairs.

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## Fees Subject to Refund

- Instructional and nonresident surcharge.
- General fee.
- Parking (only if permit is returned).
- Student teaching.
- Laboratory breakage and late service deposit.

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## Amount of Refund

Amount of refund is to be determined in accordance with the following regulations:

- In full
  - if the University cancels the course;
  - if the University does not permit the student to enroll or continue;
  - if the student dies before or during the term or is drafted into military service by the United States; or if the student enlisted in the National Guard or Reserves prior to the beginning of the term called to active duty, presents notice of induction or orders to active duty. A student who enlists voluntarily for active duty should see "in part" below.
- In part
  - less \$5 per enrolled credit to a maximum of \$50 if the student requests in writing to the dean or designated official withdrawal from all credit courses on or before the second day of the term.
  - if the student requests in writing to the dean or designated official withdrawal after the second day of the fall or spring semesters, the following refund percentages apply:

3 through 12 calendar days*	70%
13 through 24 calendar days*	50%
25 through 33 calendar days*	30%
Thereafter	0%
  - if the student requests in writing to the dean or designated official withdrawal after the second day of any summer session the following refund percentages apply:

3 through 7 calendar days*	60%
8 through 15 calendar days*	40%
Thereafter	0%
- Refunds for course sections which have not been scheduled consistent with either the standard 15-week fall/spring semester or the five-week summer term scheduling pattern will be handled on a pro rata basis according to the number of days the section (class, institute or workshop) has been attended compared to the number of days said section has been scheduled to meet.
- Refunds will be determined as of the date of formal withdrawal unless proof is submitted that circumstances beyond control of the student prevented the filing of the formal withdrawal earlier, in which case the refund will be determined as of the last day of attendance. The student assumes responsibility for filing for a refund.
- Refunds will be mailed as soon as possible. Refund checks are subject to deduction for any amount owed to The University of Akron by the student.
- No refund will be granted to a student dismissed or suspended for disciplinary reasons.

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## Commencement

A student earning a graduate degree is expected to participate in the Commencement exercises. A degree candidate who has

\*If the 7th, 8th, 12th, 15th, 22nd, 24th, or 33rd day falls on Friday, Saturday or a holiday, the deadline will become the next business day.

legitimate reasons for graduating "In Absentia" should make a written request to the registrar within the established dates and pay the designated fee.

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## Financial Assistance

The University awards a number of graduate assistantships to qualified students. Assistantships are normally awarded for up to two years of master's study and up to four years of doctoral degree study. These assistantships provide a stipend of \$4,000 — \$6,150 plus remission of tuition and fees and are available in all departments with graduate degree programs. A graduate assistant renders service to the University through teaching, research and other duties. For information and/or applications, contact the head of the department.

A number of fellowships sponsored by industry and government agencies are available in some departments. Stipends range up to \$10,000. For information, contact the head of the department.

Information about student loans can be obtained from the Office of Student Financial Aid.

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## Master's Degree Requirements

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### Admission

When a student is admitted to graduate study, an adviser is appointed by the head of the major department. A student who is academically qualified in general but deficient in course preparation may be required to make up the deficiencies at the postbaccalaureate level. This may be recommended prior to beginning graduate work, or in some cases, can be done simultaneously.

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### Residence Requirements

There are no formal residence requirements for the master's degree. A student may meet the degree requirements of the Graduate School and the department through either full- or part-time study.

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### Time Limit

All requirements must be completed within six years after beginning graduate-level coursework at The University of Akron or elsewhere. Extension by up to one year may be granted in unusual circumstances by the dean of Graduate Studies and Research upon written request by the student and recommendation by the adviser and department head.

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### Credits

A minimum of 30 semester credits of graduate work is required in all master's degree programs. This includes thesis credit.

Some departments require more (see departmental requirements). A minimum of two-thirds of the total graduate credits required in any master's program must be completed at the University. A maximum of six workshop credits may be applied to a master's degree. Such credits must be relevant to the degree program, recommended by the student's adviser and approved by the dean of Graduate Studies and Research.

It should be noted that the requirements listed by department elsewhere in this section refer to the minimum necessary for a degree. It is entirely within the prerogative of the department to assign additional credits of coursework or other requirements in the interest of graduating a fully-qualified student.

No graduate credit may be received for courses taken by examination or for 500-numbered courses previously taken at the 400-number course level as an undergraduate without advance approval from the dean of Graduate Studies and Research.

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## Transfer

Up to one-third of the total graduate credits required may be transferred from an accredited college or university. All transfer credit must be at the "A" or "B" level in graduate courses. The credits must be relevant to the student's program and fall within the six-year time limit. A University of Akron student must receive prior approval for transfer courses taken elsewhere.

A student seeking to transfer credits must have full admission and be in good standing at The University of Akron and the school in which the credits were achieved. Transfer credit shall not be recorded until a student has completed 12 semester credits at The University of Akron with a grade-point average of 3.00 or better.

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## Optional Department Requirements

Each department may set special requirements with regard to entrance examinations, qualifying examinations, foreign language, required courses and thesis. Details are available from the head of the major department.

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## Advancement to Candidacy

A student should apply for Advancement to Candidacy after completion of one-half of the credits required for the degree in the student's program, but no later than September 15 for the May Commencement. A January degree conferral process is available for those students who complete degree requirements by the end of the fall semester and do not wish to participate in the May Commencement ceremony. If January conferral is elected, the Advancement to Candidacy form must be submitted no later than May 15.

Advancement to Candidacy forms are available in the Graduate School or from the department head. Advancement to candidacy will not be granted to a student who is not in good standing.

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## Graduation

To be cleared for graduation, a candidate must have completed coursework with a minimum average of 3.00; have been advanced to candidacy; filed an application for graduation with the registrar; paid all applicable fees; and met any other department and University requirements applicable.

If a thesis is required, two copies, properly prepared, are due in the Graduate School at least two weeks prior to commence-

ment. These copies must be signed by the adviser, faculty reader, department head and college dean prior to submission to the dean of Graduate Studies and Research. A manual entitled "Preparing a Thesis or Dissertation" is available in the Graduate School and all copies of the thesis must conform to these instructions.

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## Doctoral Degree Requirements\*

A master's degree is not a prerequisite for the doctorate; however, the first year of study after the baccalaureate will be substantially the same for both the master's and doctoral student. No specific number or sequence of courses constitutes a doctoral program or assures attainment of the degree. A formal degree program consists of a combination of courses, seminars and individual study and research that meet the minimum requirements of the Graduate School and those of the committee for each individual student.

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## Admission

Normally, a student is not officially considered as a doctoral student until completion of a master's program or its equivalent and approval for further study. Departments offering doctoral degree programs review each candidate carefully before recommending admission.

A minimum grade-point average of 3.00 is required for graduation of a candidate for all doctoral degrees.

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## Residence Requirements

A doctoral student may meet the degree requirements of the Graduate School and department by full-time study or a combination of full- and part-time study.

The minimum residence requirement for a doctoral candidate in all programs is at least two consecutive semesters of full-time study and involvement in departmental activities. Full-time study is defined as 9-15 semester credits, except for graduate teaching and research assistants for whom full-time study is specified by the assistantship agreements. No student holding a full-time job is considered as fulfilling the residence requirement. The summer sessions may count as one semester, provided that the candidate is enrolled for a minimum of *ten consecutive weeks* of full-time study and for a minimum of six semester credits per five-week session. Programs vary in their requirements beyond the minimum, e.g., credits or courses to be completed, proper time to fulfill the residence requirement and acceptability of part-time employment.

Before a doctoral student begins residency, the student's adviser and the student shall prepare a statement indicating the manner in which the residence requirement will be met. Any special conditions must be detailed and will require the approval of the student's committee, the departmental faculty members approved to direct doctoral dissertations, the collegiate dean and the dean of Graduate Studies and Research.

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## Time Limit

All doctoral requirements must be completed within 10 years of starting coursework at The University of Akron or elsewhere. This refers to graduate work after receipt of a master's degree

\*The doctoral program in engineering is an interdisciplinary program offered on a collegiate basis. In the descriptions of University doctoral degree requirements on the following pages, citations of department or departmental faculty should be interpreted as citations of college or collegiate faculty with specific reference to the doctoral program in engineering.

or the completion of 30 semester credits. Extensions of up to one year may be granted by the dean of Graduate Studies and Research under unusual circumstances.

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## Credits

A doctorate is conferred in recognition of high attainment and productive scholarship in some special field of learning as evidenced by the satisfactory completion of a prescribed program of study and research; the preparation of a dissertation based on independent research; and the successful passing of examinations covering the special field of study and the general field of which this subject is a part. Consequently, the emphasis is on mastery of the subject rather than a set number of credits. Doctoral programs generally encompass the equivalent of at least three years of full-time study at the graduate level. A minimum of 50 percent of the total credits above the baccalaureate required in each student's doctoral program must be completed at The University of Akron. A maximum of six workshop credits may be applied to a doctoral degree. Such credits must be relevant to the degree program, recommended by the student's adviser and approved by the dean of Graduate Studies and Research.

No graduate credit may be received for courses taken by examination or for 500-numbered courses previously taken at the 400-number course level as an undergraduate without advance approval from the dean of Graduate Studies and Research.

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## Transfer Credits

Up to 50 percent of the total graduate credits above the baccalaureate required in a doctoral program may be transferred from an accredited college or university. All transfer credit must be at the "A" or "B" level in graduate courses. The course must be relevant to the student's program and fall within the ten-year limit if beyond the master's level. A student already admitted to The University of Akron must receive prior approval for transfer courses taken elsewhere.

A student admitted with a master's degree or equivalent will have work evaluated in relation to the student's program to determine transfer credit. Credits transferable for a master's degree holder may be up to 30 semester credits.

A student seeking to transfer credits must have full admission and be in good standing at the University and the school in which the credits were achieved. Transfer credit shall not be recorded until a student has completed 12 semester credits at The University of Akron with a grade-point average of 3.00 or better.

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## Language Requirements

There is no University-wide foreign language requirement for the Ph.D. The student is required to demonstrate one of the following skills depending upon the particular program.

- Plan A: Reading knowledge, with the aid of a dictionary, of two approved foreign languages. At the discretion of the major department an average of "B" in the second year of a college-level course in a language will be accepted as evidence of proficiency in reading knowledge for that language; English may be considered as one of the approved foreign languages for a student whose first language is not English; and demonstrated competence in a research technique (e.g., statistics and/or computers) may be substituted for one of the two foreign languages. Under the last option, each department should define competence and publicize.

- Plan B: Comprehensive knowledge of one approved foreign language, including reading without the aid of a dictionary and such additional requirements as the department may impose.
- Plan C: In certain doctoral programs (counseling and guidance, elementary education, engineering, psychology, secondary education) the demonstration of competence in appropriate research skills may serve as a substitute for the foreign language requirements.

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## Optional Department Requirements

Each department may determine requirements for a doctoral student with regard to entrance examinations, qualifying examinations, preliminary or comprehensive examinations and course sequences.

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## Advancement to Candidacy

A student should apply for Advancement to Candidacy after completion of one-half of the credits required for the degree in the student's program, but no later than September 15 for the May Commencement. A January degree conferral process is available for those students who complete degree requirements by the end of the fall semester and do not wish to participate in the May Commencement ceremony. If January conferral is elected, the Advancement to Candidacy form must be submitted no later than May 15.

Advancement to Candidacy forms are available in the Graduate School or from the department head. Advancement to candidacy will not be granted to a student who is not in good standing.

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## Dissertation and Oral Defense

The ability to do independent research and demonstrate competence in scholarly exposition must be demonstrated by the preparation of a dissertation on some topic related to the major subject. It should represent a significant contribution to knowledge, be presented in a scholarly manner, reveal the candidate's ability to do independent research and indicate experience in research techniques.

A doctoral dissertation committee supervises and approves the dissertation and administers an oral examination upon the dissertation and related areas of study. This examination is open to the graduate faculty. The dissertation and oral examination must be approved by the committee before the dissertation is submitted to the Graduate School. Two copies of the dissertation are due in the Graduate School at least two weeks prior to Commencement. These copies must be signed by the adviser, faculty reader, department head and college dean prior to submission to the dean of Graduate Studies and Research. A manual entitled *Guidelines for Preparing a Thesis or Dissertation* is available in the Graduate School and all copies of the dissertation must conform to these instructions.

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## Graduation

To be cleared for graduation, a candidate must have completed the academic program with a grade-point average of at least 3.00; have been advanced to candidacy; submitted an approved dissertation and passed an oral examination; filed an application for graduation with the registrar; paid all applicable fees; and met any other department and University requirements.

# Buchtel College of Arts and Sciences

Claibourne E. Griffin, Ph.D. *Dean*  
Paul S. Wingard, Ph.D., *Associate Dean*  
William A. Francis, Ph.D., *Assistant Dean*

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## Doctor of Philosophy Degree

The following programs leading to the Doctor of Philosophy degrees are offered in the Buchtel College of Arts and Sciences: the Doctor of Philosophy degree in chemistry, the Doctor of Philosophy degree in history, the Doctor of Philosophy degree in psychology and Doctor of Philosophy degree in polymer science. The Doctor of Philosophy degree in sociology is offered jointly with Kent State University.

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## Doctor of Philosophy in Chemistry

In addition to satisfying the general requirements of the Graduate School, a student working toward the Doctor of Philosophy degree in chemistry must meet the following requirements:

- Take proficiency exams in organic, inorganic, physical and analytical chemistry. Results of these exams will be used for diagnostic purposes.
- Complete a course of study designed and accepted by the student's advisory committee. This course of study shall consist of a program deemed suitable to prepare the student in a designated area of chemistry and shall consist of a minimum of 24 credits in graduate courses. Eight credits per semester shall be considered a normal load. At least 12 credits of graduate coursework and all dissertation credits must be completed at the University.
- Earn credit for a dissertation, to be established by enrollment in 3150:899, such that course credits plus dissertation credits total at least 84 credits (exclusive of Master of Science credit).
- Pass cumulative examinations given approximately monthly. The candidate is urged to begin to take these examinations early in the graduate program and must pass seven cumulative exams, six written and one oral to meet the degree requirement.
- Pass an oral examination upon completion of the research dissertation.
- Pass the general requirements for the Doctor of Philosophy degree.

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## Doctor of Philosophy in History

The Doctor of Philosophy degree in history is granted primarily for high scholarly achievement in four fields of study selected by the student and for demonstrated ability to pursue independent research. Each student must:

- Fulfill admission requirements of the School.

Admission will not usually be considered unless the applicant has a master's degree, or the equivalent, with a grade-point average of "B" from an accredited institution. Those holding master's degrees from The University of Akron or other accredited institutions should not assume automatic permission to pursue doctoral studies. Prior to admission to the doctoral program, the applicant must present evidence of the likelihood of success in advanced study. A personal

letter from the applicant and three letters of recommendation from former professors are required to support an application for admission to the doctoral program. Special admissions examinations may also be required.

Prior to admission to doctoral study, the applicant must present evidence of a reading knowledge of one relevant foreign language, or knowledge of another research skill such as statistics or computer techniques. Those whose native tongue is not English must demonstrate proficiency in English.

After a student has completed at least 12 credits beyond the master's degree at the University, the student must apply to the Department of History for qualified status provided that the student's grade-point average in all graduate work is better than "B." If any doubt exists about the student's ability at this time, the department may require an examination.

After advancement to qualified status, the student, in consultation with the director of Doctoral Studies in history, will reach a final decision upon the fields the student wishes to offer for the comprehensive examinations and any additional research skills needed. At this point assignment of a major professor who shall direct the student's dissertation shall be made. The student's doctoral committee, to be chaired by the major professor, will also be appointed.

- Complete studies selected by the student in consultation with an advisory committee, including:
  - completion of 60 credits beyond master's degree requirements, including dissertation credit;
  - demonstration of competency in four fields of study selected from the following areas: ancient, medieval, modern Europe to 1815, modern Europe since 1789, England and the Empire, United States to 1865, United States since 1865, Latin America, Far East, (one of the four fields may be in the cognate area outside of history);
  - satisfactory performance in written and oral comprehensive examinations;
  - classroom teaching experience;
  - defense of the dissertation in an oral examination.
- A reading knowledge of two languages will be required, normally French and German. At the discretion of the student's doctoral committee, another language or computer techniques and statistics may be substituted for either language as outlined in the Graduate School requirements. An instructor may require specific language proficiencies before permitting a graduate student to enroll in any course for which credit is to be granted. An instructor may require additional languages before permitting a candidate to write a dissertation under the instructor's supervision.
- Complete all general requirements for the Doctor of Philosophy degree.
- Each Ph.D. candidate will have classroom teaching experience as a part of the program.

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## Doctor of Philosophy in Polymer Science

An interdisciplinary program leading to the Doctor of Philosophy in polymer science is administered by the Department of Polymer Science. Graduates from the three main disciplines (chemistry, physics and engineering) are guided into the appropriate courses of study and research in that field under the supervision of a staff member. Research facilities of the Institute of Polymer Science are available for thesis research.

In addition to satisfying the general requirements of the Graduate School, a student working toward the Doctor of Philosophy degree in polymer science must meet the following requirements:

- Complete a course of study prescribed by the student's advisory committee, based on the committee's judgment of the student's background and on the result of any special examinations they might impose. This course will consist of a minimum of, but usually more

than, 36 credits in graduate courses, as outlined below, or their equivalent. At least 12 credits of graduate coursework and all dissertation credits must be completed at the University.

- Credit for a dissertation, to be established by enrollment in 3940:899 such that course credits plus dissertation credits total 84 credits (exclusive of Master of Science thesis credit).
- Pass eight cumulative examinations which are given at intervals during the academic year. The candidate is urged to begin these examinations early in the graduate program.
- Pass an oral examination upon completion of the research dissertation.
- Pass the general requirements for the Doctor of Philosophy degree.

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## Doctor of Philosophy in Psychology

The Department of Psychology offers a doctoral degree in psychology with specialization in industrial/organizational psychology, developmental psychology, industrial gerontological psychology.

A degree will be awarded to a student who, besides fulfilling the general requirements, has met the following specific requirements:

- Fulfill admission requirements of the Graduate School and department requirements.
  - completion of master's degree including 30 graduate credits;
  - completion of master's core courses or equivalent;
  - attainment of a graduate grade-point average (GPA) of 3.25;
  - completion of Graduate Record Examination Aptitude and Advanced Psychology Test;
  - completion of Miller Analogies Test (MAT);
  - securing of three letters of recommendation;
  - successful performance on Department of Psychology first-year examination.
- Major field
  - a minimum of 90 graduate credits including a 30-credit master's program. A student may be required to complete additional credits beyond the 90 minimum credit requirement.
  - completion of Ph.D. core courses in industrial/organizational, developmental, industrial gerontological psychology. Core courses are specified in the *Department of Psychology Graduate Student Manual*. The student is required to maintain at least a 3.00 GPA in core courses;
  - completion of additional required and elective courses to be planned in conjunction with the student's faculty adviser and subject to approval by the department industrial/organizational, developmental, industrial gerontological committees.
- Written comprehensive examinations
  - satisfactory performance on doctoral written and oral comprehensive examinations in the major area of industrial/organizational psychology, developmental psychology, industrial gerontological psychology (refer to the department's *Graduate Student Manual*).
- Dissertation research
  - completion of 3750:899 *Dissertation Research*;
  - satisfactory performance on final oral examination and defense of dissertation research.
- Other requirements
  - refer to the department's *Graduate Student Manual* for other requirements or guidelines;
  - complete and fulfill general doctoral degree requirements of Graduate School.

Doctoral language requirements or appropriate alternative research skills and techniques may be prescribed by the stu-

dent's advisory committee, depending upon the career plans of the student and upon the academic and/or scientific requirements of the dissertation.

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## Doctor of Philosophy in Sociology Akron-Kent Joint Ph.D. Program

The University of Akron and Kent State University Departments of Sociology offer a joint program leading to the Ph.D. degree. Faculty and students engaged in the joint doctoral program are for all intents and purposes involved in a single graduate program. Coursework is offered at both campuses and faculty and students interchange freely.

The general objective of the Akron-Kent Ph.D. program is to train sociologists whose specialty also includes emphasis on urban processes.

### Admission to the Program

A student may apply with a completed master's degree or equivalent; or apply to the doctoral program after at least one year of full-time coursework or equivalent (18 credits) in the sociology Master of Arts program at Akron. The coursework must include the Master of Arts core sequence. This type of admission is limited to students whose records clearly indicate both scholarly and research potential.

### Degree Requirements (for a student admitted with the master's degree or equivalent)

In addition to meeting the general requirements of the Graduate School, a student working toward the Doctor of Philosophy degree in sociology must meet the following requirements:

- Take 3850:747 *Urban Sociology*.
- Take two doctoral-level courses in theory. These courses are to be selected from the predetermined group of courses (see *Department of Sociology Graduate Student Handbook*).
- Complete two doctoral-level courses in methods/statistics. These courses are to be selected from the predetermined group of courses (see the department's *Graduate Student Handbook*).
- Complete a specialty of at least 15 credits.
- Complete a minimum total of 30 credits (semester) in coursework.
- Pass the doctoral comprehensive examination. This examination is given in the specialty area and will include an evaluation of methodology, theory and urban process relevant to the specialty area.
- Fulfill residency requirement of the Graduate School.
- Complete foreign language requirement by one of four sequences as detailed in the department's *Graduate Student Handbook*:
  - foreign language;
  - computer science;
  - statistics;
  - philosophy.
- Register for a minimum of 30 credits of dissertation credit, complete a dissertation and successfully defend it in an oral examination.

### Degree Requirements (for a student admitted without the master's degree)

In addition to meeting the requirements for a student admitted with the master's degree, the student must meet the following requirements:

- Completion of the Master of Arts core coursework.
- Completion of a research practicum (3 credits). This may be waived for the student who already has sufficient research experience.

- Completion of a minimum of 60 credits of graduate-level (600 or higher) coursework beyond the bachelor's degree.

## Master's Degree

Programs of advanced study leading to the master's degree are offered by the Departments of Biology, Chemistry, Economics, English, Geography, Geology (Earth Science), History, Mathematical Sciences, Modern Languages (French and Spanish), Philosophy, Physics, Political Science, Polymer Science, Psychology, Sociology and Urban Studies. Before undertaking such a program, the student must show that the general requirements for admission to the Graduate School have been met; and the standard requirements for an undergraduate major in the area of the proposed graduate specialty have been met or that the student has performed work which the department approves as equivalent to an undergraduate major.

## Biology

### Master of Science

#### Thesis Option

The program is primarily for the student who will pursue a research career, including the student who intends to enter a doctoral program in the biological sciences.

- Coursework in addition to the master's research and seminars (must be approved by the student's advisory committee) — 24 credits.
- Research and thesis — minimum of 6 credits.
- Participation in seminars — 2 credits.
- The student's advisory committee may require the demonstration of reading proficiency in a foreign language appropriate to the field of study.

A minor may be taken in approved graduate courses including education. Summer study at a biological station is available.

#### Non-thesis Option

The curriculum is oriented to the needs of the student for whom the Master of Science degree will probably be the terminal scientific degree and who does not need extensive research experience.

The requirements are the same as the research option except that no thesis and research is undertaken, but a total of 38 credits of approved coursework (including two credits for seminar participation) is required.

For additional details concerning admission standards, degree requirements, and selection of options, refer to the *Department of Biology Graduate Student Guide*.

## Chemistry

### Master of Science

- Chemistry coursework — with the approval of the adviser, up to 12 credits may be taken in related areas — 24 credits.
- Research and thesis — 6 credits.

- Participation in departmental seminars.
- Demonstration of reading proficiency in a foreign language appropriate to the field of study prior to the last semester of enrollment.

## Economics

### Master of Arts

#### Thesis Option

A minimum of 30 credits of coursework including a thesis equivalent to six credits of the 30 is required. If elected, a thesis must be written in an area of specialization in which the individual has taken at least two courses. Students who elect the thesis option will not have to take departmental comprehensive examinations, provided they have completed all core courses with grades of "B" or better.

#### Non-thesis Option

A minimum of 30 credits of coursework is required.

In addition to a specialization (a list of which is available from the department), at least 21 credits under each option must be at the 600 level in economics. The following courses are required:

		Credits
3250.602	Macroeconomic Analysis I	3
3250.611	Microeconomic Theory I	3
3250.620	Applications of Mathematical Models to Economics*	3
3250.626	Statistics for Econometrics*	3

Exceptional departures from these requirements may be approved with the permission of the graduate faculty and department head. A comprehensive examination is intended to test the candidate's knowledge of economic theory and the chosen field of specialization.

#### Labor and Industrial Relations Option\*\*

• Core requirements:		
3250.530	Human Resource Policy	3
3250.610	Framework of Economics Analysis	3
3250.626	Statistics for Econometrics	3
3250.633	Theory of Wages and Employment	3
3250.634	Collective Bargaining I	3
3250.635	Labor Law I	3

#### Industrial Relations Track (for an individual interested in a career in industrial relations)

3250.636	Collective Bargaining II	3
3250.637	Labor Law II	3
• Electives:		
3250.606	Public Finance	3
3250.615	Industrial Organization	3
3250.616	Antitrust Policy	3
3250.617	Economics of Regulation	3
3250.639	Public Employee Bargaining	3
3750.610	Industrial Psychology	4
3850.649	Sociology of Work	3

- A total of 30 credits is required for the degree.

\*These courses may be waived for the student who can demonstrate, in a qualifying exam, an adequate preparation in mathematics and statistics.

\*\*The student should have a B.A./B.S. degree from an accredited college or university and some background in labor and industrial relations. An interested student who has no background may take the following courses:

3250.201	Principles of Macroeconomics	3
3250.202	Principles of Microeconomics	3
3250.330	Labor Problems	3
3470.251-7	Introductory Statistics	7

## English

### Master of Arts

A minimum of 32 credits is required, of which 17 (exclusive of thesis) must be at the 600 level. Of these 17 credits, 12 must be in literature or literary theory.

		Credits
3300:506	Chaucer*	3
3300:570	History of the English Language*	3
	or	
3300:670	Modern Linguistics*	3
3300:615	Shakespearean Drama*	3
3300:691	Bibliography and Literary Research	2
3300:699	Thesis	1-6

Before enrolling in the final semester, a student must demonstrate reading proficiency in a foreign language appropriate to English studies. However, the completion of one junior- or senior-level course in a foreign language will exempt the student from examination, provided that course was taken no more than five years before the student began graduate work.

## French

### Master of Arts

- Thirty-two credits of graduate work, which may include a thesis amounting to four credits.
- Core requirements:
  - literature — 16 credits;
  - culture — 8 credits;
  - linguistics — 8 credits.
- Admission requirement: proficiency in listening comprehension, speaking, reading and writing French.
- Second language requirement: the candidate will be required to demonstrate a reading knowledge of a modern foreign language other than French. Choice of the second language will be left to the student in consultation with an adviser.
- Final comprehensive examinations: the candidate will be required to pass both a written and oral final examination covering all areas of study included in the candidate's program.

## Geography

### Master of Arts Master of Science

- Complete a minimum of 30 credits\*\* (exclusive of research) of which 16 must be in geography courses. A minimum of 12 credits (exclusive of thesis) must be at the 600 level. The 30 credits must include the following:

3350:581	Geographic Research Methods	3
3350:583	Spatial Analysis	3
3350:687	History of Geographic Thought	3
- Thesis (Master of Arts only) — 4-6 credits.
- Statistics (Master of Science only) — 8 credits.
- Successful completion of a comprehensive examination administered by the departmental committee.

\*Unless the student has passed a comparable course at the undergraduate level with a grade of "B" or better.

\*\*In Master of Arts degree, at least 24 credits must be in coursework.

The student who has undergraduate deficiencies in cartography, geographic research techniques and spatial analysis will be expected to remedy these by taking appropriate courses with the advice of the head of the department.

Courses taken outside the department must be approved by the department prior to enrollment.

## Geology

### Master of Science

- Complete a minimum of 30 credits of which at least 10 credits shall be at the 600 level and no more than two in research problems and six in thesis research.
- Proficiency examination at the beginning of program to determine weaknesses in undergraduate preparation. The student who demonstrates a lack of basic knowledge will be required to take appropriate undergraduate courses. Field camp can be taken for graduate credit, however, it will not count toward the 30 credits for the Master of Science in the geology or geophysics options.
- Core requirements:

3370:680	Seminar in Geology	2
3370:699	Thesis Research	6
- Pass comprehensive examination after completion of 18 credits. Examination may be attempted twice.
- Oral presentation and defense of thesis.
- General areas of courses:
  - Solid Earth: 510, 532, 533, 537, 550, 570, 631, 632, 633, 634.
  - Earth History: 511, 525, 563, 623, 639, 660.
  - Applied Geology: 535, 574, 610, 636, 638, 674, 675, 678.
  - Geophysics: 504, 541, 546, 608, 645, 656.

### Degree Specialization

#### Geology

Equivalents of the geology, cognate science and mathematics requirements for the University's B.S. degree in geology are required. At least one course must be selected from each of the four general areas.

#### Earth Science

Equivalents of the geology courses for the University's B.A. degree in geology are required. At least one course must be selected from each of the four areas. Those who will be teachers must take 5300:780 *Seminar in Secondary Education: Earth Science* or equivalent.

#### Geophysics

Equivalents of the geology, cognate science and mathematics requirements for the University's B.S. degree in geophysics are required. At least two courses must be selected from the general area of applied geology and two from the general area of geophysics.

#### Engineering Geology

This program is for the graduate engineer and geologist who wishes to broaden expertise in the other field. The entering student who has some deficiencies in either engineering or geology may have to satisfy one or more of the following requirements while proceeding with graduate studies.

3370:101	Introductory Physical Geology	4
3370:210	Geomorphology	3
3370:350	Structural Geology	4
3450:221,2,3	Analytical Geometry Calculus I, II, III	12
4300:201	Statics	3
4300:202	Introduction to Mechanics of Solids	3

4300:311	Geotechnical Engineering	Credits 5
Required courses:		
3370:631	Rocks and Minerals	4
4300:611	Fundamentals of Soil Behavior	2
4300:614,5	Foundation Engineering I and II	6

### Environmental Geology

Equivalents of the science and mathematics requirements for The University of Akron Bachelor of Science degree in geology are required. A minimum of one course must be selected from the general area of applied geology and one from the general area of geophysics. (Strongly recommended: 3370:541, 570, 574, 678). As many as eight credits may be selected from engineering, biology and/or geography with the approval of a geology adviser.

- Student programs beyond the stated requirements will be designed in consultation and with the approval of an adviser.

## History

### Master of Arts

- Admission to the program requires completion of at least 15 semester or 22 quarter credits in history as an undergraduate. *Historical Methods* or an equivalent should be part of the entering student's preparation. If it is not, this course must be taken at the earliest opportunity but will not be counted toward fulfillment of the graduate credit requirement.
- Satisfactory completion of a minimum of 30 credits of graduate study in history, of which six may be in individual reading courses.
- Three fields of study, one of which must be unrelated to the other two, and two of which must be chosen from among the following fields:

Ancient	America to 1865
Medieval	United States Since 1865
Europe, Renaissance to 1815	Latin America
Europe, 1815 to the Present	Far East
England and the Empire	History of Science

The third field may be chosen from the above history fields or from an approved cognate discipline.

The student must pass an appropriate written examination in two of the three fields. The third field requirement will be met by at least seven credits of work at the graduate level. If the student does not pass an examination unconditionally, the examining faculty may reexamine the student orally or require the student to take another written examination after a lapse of three months. No written examination may be repeated more than once.

- A course in historiography (may be waived if such a course has been taken on the undergraduate level).
- An appropriate foreign language or other research skill shall be required by the student's master's committee if it is necessary to a student's program of study. A reading knowledge of a foreign language is desirable and may be necessary for admission to a doctoral program.
- At least 16 hours of 600-level work, exclusive of historiography and individual reading. May be fulfilled in one of the following ways:\*

### Option I

Three reading seminars and one writing seminar, with the writing seminar paper read and approved by two faculty members.

\*Where disagreement occurs between readers in Option I, II or III, the director of Master's Studies will choose a faculty member to arbitrate the disagreement.

### Option II

Two reading and two writing seminar sequences under different professors with the writing seminar paper of the student's choice read and approved by two faculty members.

### Option III

Two reading seminars, one writing seminar and a thesis read and approved by two faculty members.

### Special Summer Program

The department offers a special three-summer M.A. program. Designed primarily for public school teachers, this program makes it possible to schedule the requirement for an M.A. (Option I or Option II) over three summers and the two intervening years.

## Mathematical Sciences

### Master of Science — Mathematics

- Core requirements:

3450:611	Algebraic Theories I	Credits 3
3450:612	Algebraic Theories II	3
3450:621	Functions of a Real Variable I	3
3450:622	Functions of a Real Variable II	3
3450:692	Mathematics and Statistics Seminar	2

In addition, six credits in a single approved area of concentration in mathematics or statistics must be completed

### Thesis Option (30 credits)

In addition to the core requirements, six to eight credits of 500/600 level mathematical sciences courses and two to four credits in 3450:699 *Thesis Research* must be completed.

- With the consent of the department, up to six credits of approved graduate-level electives outside the department may be substituted in the thesis or non-thesis option.
- A comprehensive examination, taking the form suggested by the department, must be completed in the thesis or non-thesis option.

### Non-thesis Option (33 credits)

In addition to the core requirements, 13 credits in 500/600 level mathematical sciences courses must be completed.

### Master of Science — Statistics

- Core requirements:

3450:692	Mathematics and Statistics Seminar	Credits 2
3470:564	Experimental Design II	2
3470:651.2	Mathematical Statistics I and II	6
3470:655	Linear Models	3
3470:665	Regression and Correlation	3
3470:689	Advanced Topics in Statistics	3

### Thesis Option (30 credits)

In addition to the core requirements, seven to nine credits in 500/600 level mathematical sciences courses and two to four credits in 3450:699 *Thesis Research* must be completed.

- With the consent of the department, up to six credits of approved graduate-level electives outside the department may be substituted in the thesis or non-thesis option.
- A comprehensive examination, taking the form suggested by the department, must be completed in the thesis or non-thesis option.

### Non-thesis Option (33 credits)

In addition to the core requirements, 14 credits in 500/600 level mathematical sciences courses must be completed.

### Master of Science — Applied Mathematics

• Core requirements:

		Credits
3450.610	Matrix Algebra	3
3450.621	Functions of a Real Variable I	3
3450.627	Advanced Numerical Analysis I	3
3450.692	Mathematics and Statistics Seminar	2
3470.651	Mathematical Statistics I	3
	either	
3450.625	Analytic Function Theory	3
3450.633,4	Continuous Systems I and II	6
	or	
3450.635	Optimization	3
3450.636	Advanced Combinatorics and Graph Theory	3
3470.650	Advanced Probability and Stochastic Processes	3

### Thesis Option (30 credits)

In addition to the core requirements, three to five credits in 500/600 level mathematical sciences courses and two to four credits in 3450-699 *Thesis Research* must be completed.

- With the consent of the department, up to six credits of approved graduate-level work outside the department may be substituted for elective courses in the thesis or non-thesis option.
- A comprehensive examination, taking the form suggested by the department, must be completed in the thesis or non-thesis option.

### Non-thesis Option (33 credits)

In addition to the core requirements, 10 credits in 500/600 level mathematical sciences courses must be completed.

## Philosophy

### Master of Arts

- Attain a minimum of 2.75 grade-point average in undergraduate work, a minimum 2.75 grade-point average in major area, complete the Graduate Record Examination or Miller Analogies Test and secure three letters of recommendation.
- Have completed a least four quarter or semester courses in undergraduate philosophy or a major in some related area. A student with inadequate background will be expected to make up the deficiency.
- Complete at least 30 semester credits with a 3.00 cumulative grade-point average.
- Complete:

3600.615	Seminar in the History of Philosophy (3 credits) or equivalent in study of three different philosophers	9
	Value Theory	One course
	Logic	One course
- Pass a comprehensive examination in the history of philosophy and two others from the following fields:
  - logic, philosophy of science and methodology;
  - value theory, including ethics, aesthetics and social and political philosophy;
  - epistemology and metaphysics.
- Demonstrate mastery of a second language by written translation.
- Complete a thesis under departmental supervision after passing the comprehensive examination.

## Physics

### Master of Science

- Complete 30 credits with a 3.00 cumulative grade-point average.
- Courses normally include:

		Credits
3650.601,2	Atomic and Nuclear Physics I and II	6
3650.651,2	Theoretical Classical Physics I and II	6
3650.681	Quantum Mechanics I	3
- A comprehensive examination, taking the form suggested by the department must be passed; the fields covered will include classical mechanics, quantum mechanics, electricity and magnetism, atomic and nuclear physics, thermodynamics and optics.
- Graduate research participation is strongly encouraged. Up to five credits may be earned in 3650.697 *Graduate Research*, upon the satisfactory completion of a graduate research project. One additional credit may, upon approval by the department, be permitted in 3650.699, *Master's Thesis Research*, for the completion of a master's thesis based on such research. A successful thesis may thus account for up to six of the total of 30 graduate credits required.
- A student preparing for further graduate work in a physical science or for academic or industrial employment, should ordinarily include the following courses in the graduate programs:

3650.581,2	Methods of Mathematical Physics I, II	6
3650.681,2	Quantum Mechanics I, II	6
- A student preparing for teaching secondary school science should normally include the following courses in the graduate programs:

3650.500	History of Physics	3
3650.510	Electronics	3
3650.511,2	Intermediate Laboratory I, II	4
3650.590	Workshops (maximum credit)	6

Note: the 3650.590 courses are intended for secondary school science teachers, being specifically designed for in-depth analysis of general physics.

## Political Science

### Master of Arts

- Pass a comprehensive examination covering one field to be determined in conjunction with a departmental adviser.
- Complete 3700.640 *Seminar in Political Behavior* and at least one graduate seminar in each of the following areas:

American Government and Politics:		
3700.630	Seminar in National Politics	3
3700.641	Seminar in Intergovernmental Relations	3
3700.660	Seminar in Civil Liberties and the Judicial Process	3
3700.670	Seminar in the Administrative Process	3
3700.680	Seminar in Urban and Regional Politics	3
Comparative Politics:		
3700.620	Seminar in Comparative Politics	3
3700.626	Seminar in Politics of Developing Nations	3
International Politics:		
3700.610	Seminar in International Politics	3
Political Theory:		
3700.600	Seminar in Political Theory	3

In exceptional cases, with the approval of the graduate adviser, and the head of the department, the student may be permitted to omit a graduate seminar in one of these areas and to substitute another graduate-level course in its place.

In certain cases, at the discretion of the department head, a candidate may be asked to take undergraduate courses to overcome serious deficiencies.

### Thesis Option

Thirty credits of graduate work, at least 18 credits of which

(including six thesis credits) must be at the 600 level in political science. Thesis topic and completed thesis must be approved by student's thesis committee.

#### Non-thesis Option

Thirty credits of graduate work, at least 18 credits of which must be at the 600 level in political science. Each student must submit two high-quality seminar papers for approval by a departmental committee of three persons chosen by the department head.

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## Polymer Science

#### Master of Science

- A minimum of 24 credits in appropriate courses in biology, chemistry, mathematics, physics, polymer science and engineering as prescribed by the student's advisory committee.
- Completion of a research project (3940:699) and the resulting thesis — 6 credits.
- Attendance at and participation in seminar-type discussions scheduled by the department.

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## Psychology

#### Master of Arts

- Fulfill admission requirements of the Graduate School and the following departmental requirements:
  - equivalent of psychology undergraduate major including a general or introductory course, statistics course and experimental psychology course;
  - GPA of 3.00 in psychology courses;
  - Graduate Record Examination, Aptitude and Advanced Psychology Test;
  - Miller Analogies Test;
  - two letters of recommendation.
- Course requirements:
  - completion of a minimum of 30 credits of graduate psychology courses including the Master of Arts core courses or equivalents, Master of Arts required courses and electives as specified in the department's Graduate Student Manual;
  - a student is required to maintain at least a 3.00 grade-point average in Master of Arts core courses as well as overall.
- Master of Arts examination (first year):
  - thesis option: first year examination covering core course subject area;
  - non-thesis option: written and oral comprehensive examinations in the specialty area.
- Other requirements:
  - refer to the *Department of Psychology Graduate Student Manual* for additional guidelines;
  - complete and fulfill general master's degree requirements of the Graduate School.

#### Thesis Option

Completion of a minimum of 30 credits of graduate work including thesis in industrial/organizational or developmental psychology.

#### Non-thesis Option

Completion of a minimum of 30 credits of graduate work with no thesis required. Completion of coursework, practicum and examinations in either personnel, counseling or developmental psychology.

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## Sociology

#### Master of Arts

- Complete three required core courses with at least a 3.00 grade-point average:

		<i>Credits</i>
3850:603	Sociological Research Methods	3
3850:604	Social Research Design	3
3850:617	Sociological Theory	3

#### Thesis Option

This degree option is intended for the student who either plans on eventually pursuing a Ph.D. degree, or whose work will require the ability to conduct evaluation/research.

Completion of 32 credits of which at least 21 must be at the 600 level in sociology or anthropology (excluding 3850:699 *Thesis* and 3850:697 *Readings in Contemporary Sociological Literature*.)

Complete at least six credits in 3850:699 *Thesis*. No more than six credits will count toward the degree.

Completion of master's thesis and oral defense.

#### Non-thesis Option I

This option is intended for the student who wants intensive substantive training in a specialized area.

Completion of 32 credits of graduate work with no more than six credits taken at the 500 level.

Completion of at least 15 credits in a contracted specialty area. This area must be defined in consultation with the student's adviser and approved by the graduate studies committee. Courses from other departments may be taken to meet the specialty requirement.

Pass an oral examination on the specialty area.

#### Non-thesis Option II

This option is intended for the student who needs exceptional concentration in the methodology of social research.

3850:603	Sociological Research Methods	3
3850:604	Social Research Design	3
3850:607	Computer Applications in the Social Sciences	3
3850:631	Social Psychology	3
3850:645	Social Organization	3
3850:698	Directed Research	
3850:706	Multivariate Techniques in Sociology	3
3850:707	Measurement in Sociology	3
3850:711	Survey Research Methods	3
3850:750	Research in Community and Area Problems (Akron Area Survey)	3

One additional course as specified in the *Department of Sociology Graduate Handbook*.

Complete a research paper which demonstrates mastery of social research techniques. Details may be found in the handbook.

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## Anthropology

There is no graduate degree in anthropology. However, there are many graduate courses available. A student interested in taking such courses for graduate credit must be admitted to the Graduate School through an existing graduate program, or they may apply for *Special Non-Degree* status through the Department of Sociology. The student should enroll in graduate courses only for specific professional preparation or enhancement and with the permission of the instructor. Inquiries should be directed to the graduate director in the Department of Sociology.

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## Spanish

### Master of Arts

- Core requirements:  
Thirty-two semester credits of graduate work, which may include a thesis amounting to four credits:
  - literature — 16 credits;
  - culture — 8 credits;
  - linguistics — 8 credits.
- Requirement: proficiency level in listening comprehension, speaking, reading and writing Spanish.
- Second language requirement: the candidate will be required to demonstrate a reading knowledge of a modern foreign language other than Spanish. Choice of the second language will be left to the student in consultation with an adviser.
- Final comprehensive examinations: the candidate will be required to pass both a written and oral final examination covering all areas of study included in the candidate's program.

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## Urban Studies

### Master of Arts

Courses may be taken outside the Department of Urban

Studies for the purpose of fulfilling any of the requirements listed below but must be approved by the department prior to registration.

Each student will, upon entering the program and in consultation with a faculty adviser, plan a complete course of study.

- Core requirements:

		<i>Credits</i>
3980.600	Basic Analytical Research	3
3980.601	Advanced Research and Statistical Methods	3
3980.602	American Urban Development	3
3980.690	Urban Studies Seminar	3

### Basic Program

Complete 34 credits of coursework as follows:

- Core requirements — 12 credits.
- Selection of recommended courses — 6 credits.
- Urban related courses — 16 credits.

### Options

#### Public Administration

Forty credits of coursework (plus internship where applicable) as follows:

- Core requirements — 12 credits.
- Other urban studies required courses in public administration — 15 credits.
- Selection of recommended courses — 13 credits.
- Internship for the student without professional public employment experience — 1-3 credits.

#### Urban Planning

Forty-eight credits of coursework (plus internship where applicable) as follows:

- Core requirements — 12 credits.
- Urban studies required courses in urban planning — 17 credits.
- Selection of recommended courses — 19 credits.
- Internship for the student without professional planning experience — 1-3 credits.

# College of Engineering

Louis A. Hill, Jr., P.E., Ph.D., *Dean*  
 Glenn A. Atwood, P.E., Ph.D., *Assistant Dean*  
 Karen M. Mudry, Ph.D., *Assistant Dean*

		<i>Credits</i>
4700.621	Rheology and Polymer Processing	3
4700.631	Engineering Properties of Solid Polymers	2
4700.651	Polymer Engineering Laboratory	2
<b>Mathematics and Science:</b>		
3450	Approved Mathematics	3
3150.674	Physical Chemistry of Polymers I	2
3150.675	Physical Chemistry of Polymers II	2
3940.613	Polymer Science Laboratory	2
<b>Approved Electives (one of the following):</b>		
4300.681	Advanced Engineering Materials	3
4700.622	Analysis and Design of Polymer Processing Operations	3
4700.661	Polymerization Reactor Engineering	3
<b>Thesis:</b>		
4700.699	Thesis	6

## Doctor of Philosophy in Engineering

Interdisciplinary programs in environmental engineering, materials science, mechanics, systems engineering and transport processes are offered through the College of Engineering. In addition to the general requirements of the Graduate School, a student must hold a bachelor's degree in a curriculum accredited by the Accreditation Board for Engineering and Technology at the time of graduation, or provide evidence of an equivalent academic background\* to the satisfaction of the dean of the College of Engineering and the department head. An applicant must have completed the equivalent of Differential Equations, Elementary Classical Physics, Principles of Chemistry and demonstrate proficiency at the undergraduate level in courses related to the area of intended study. The student must also:

- Successfully complete a qualifying examination before completing either 10 credits of coursework after admission in the program or within two semesters after admission into the program. The examination shall cover graduate courses that the student has completed and basic undergraduate topics.
- Complete courses in the plan of study developed by the student advisory committee on the basis of the qualifying examination. A minimum of 90 credits of graduate work, generally 60 for coursework and 30 for dissertation, must be earned.
- Pass a candidacy examination which may be taken after 90 percent of the coursework specified in the plan of study has been completed.
- Register for dissertation credits according to the schedule available from the dean of engineering.
- Pass an oral examination in defense of the dissertation.

The student advisory committee shall specify the student's language requirements. The appropriate language is selected on the basis of the student's area of specialization and intended research. A foreign language is not required for all students.

A copy of the *Ph.D. in Engineering Program Procedures* is available from the dean of engineering.

## Polymer Engineering Specialization

- Complete the following:

Engineering:		<i>Credits</i>
4600.622	Continuum Mechanics	3
4700.611	Structural Characterization of Polymers with Electromagnetic Radiation	2

\*A student without a Bachelor of Science degree in Engineering but with a baccalaureate degree in a related field may be accepted for graduate studies but the student will be required to make up the undergraduate deficiencies for which the student will not receive graduate credit.

## Master's Degree

The degrees Master of Science in Chemical Engineering, Master of Science in Civil Engineering, Master of Science in Electrical Engineering, Master of Science in Mechanical Engineering and Master of Science in Engineering are offered.

## Master of Science in Chemical Engineering

### Thesis Option

4200.600	Transport Phenomena	3
4200.605	Chemical Reaction Engineering	3
4200.610	Classical Thermodynamics	3
	Chemical Engineering Electives**	6
	Approved Electives	6
	Approved Mathematics	3
	Thesis	6

The thesis must be satisfactorily defended in an oral examination. The student must pass a comprehensive examination and is expected to attend and participate in the department seminars.

### Non-thesis Option

4200.600	Transport Phenomena	3
4200.605	Chemical Reaction Engineering	3
4200.610	Classical Thermodynamics	3
	Chemical Engineering Electives**	6
	Approved Electives	18
	Approved Mathematics	3

The student must pass a comprehensive examination and is expected to attend and participate in the department seminars.

## Master of Science in Civil Engineering

Areas of study in the department include: structural mechanics, geotechnical, hydraulic and environmental engineering.

### Thesis Option

Civil Engineering Coursework	15
Approved Mathematics or Science	3

\*\*The elective chemical engineering courses may not include more than three credits of 500-level courses.

Approved Electives	Credits
Thesis	6
	6

The thesis must be satisfactorily defended in an oral examination.

#### Non-thesis Option

Civil Engineering Coursework	15
Approved Mathematics or Science	3
Approved Electives	12
Special Problem	2

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## Master of Science in Electrical Engineering

After one semester of coursework, a student is required to take a comprehensive proficiency examination on six undergraduate topics: circuit theory, circuit applications, electronics, electromagnetic fields, machines and power and controls. A student who demonstrates a lack of knowledge in one or more of these areas will be required to successfully complete appropriate undergraduate courses. Topic outlines are available from the departmental office.

#### Thesis Option

3650:581.2	Methods of Mathematical Physics I and II	6
4400:641	Random Signal Analysis	3
4400:651	Electromagnetic Fields	3
	Electrical Engineering Electives*	9
	Approved Engineering, Mathematics or Science	3
	Thesis	6

The thesis must be defended in an oral examination.

#### Non-thesis Option

3650:581.2	Methods of Mathematical Physics I and II	6
4400:641	Random Signal Analysis	3
4400:651	Electromagnetic Fields	3
	Electrical Engineering Electives*	9
	Approved Engineering, Mathematics or Science	9

A student must pass a graduate-level oral comprehensive examination which may be taken after 24 credits have been completed.

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## Master of Science in Mechanical Engineering

There are three main areas of graduate study in mechanical engineering: systems and controls, engineering mechanics and thermal-fluid sciences. Every student in the department will be encouraged to take at least one mechanical engineering

\*The elective electrical engineering courses may not include more than three credits of 500-level courses.

course outside the main area of interest. It is the purpose of this course to develop some breadth in graduate education.

The basic requirements are as follows:

#### Thesis Option

Mechanical Engineering Coursework**	Credits
Approved Mathematics	15
Approved Electives**	3
Thesis	6
	6

The thesis must be defended in an oral examination.

#### Non-thesis Option

Mechanical Engineering Coursework**	15
Approved Mathematics	3
Approved Electives**	12
Special Problems	2

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## Master of Science in Engineering

This program is intended for the student whose educational objectives cannot be met by one of the four departmental programs.

#### Thesis Option

Engineering Coursework	12
Approved Mathematics or Science	3
Approved Electives	9
Thesis	6

The thesis must be defended in an oral examination.

#### Non-thesis Option

Engineering Coursework	18
Approved Mathematics or Science	3
Approved Electives	9
Special Problems	2

The overall program is administered by the dean. A student should declare to the dean the intention to study toward the Master of Science in Engineering degree before the completion of 10 graduate credits. Later admission to the program may be granted upon petition to the dean.

Upon admission, the dean will appoint an advisory committee consisting of at least two faculty members selected from the interdisciplinary divisions of the college. The committee members will be from at least two departments. The special problem section and final report must receive the approval of the advisory committee.

Polymer engineering specialization — see Doctor of Philosophy in engineering.

\*\*The program is limited to not more than three 500-level courses in engineering. Not more than two of the 500-level courses can be applied to the fifteen credits of mechanical engineering coursework. For a student specializing in systems and controls, and electing the thesis option, six credits of non-mechanical engineering courses in the area of systems and controls may be substituted for six of the required fifteen credits of mechanical engineering courses. Prior written approval from the student's adviser must be obtained. The limitations on 500-level courses still apply in each category for a student in systems and controls.

# College of Education

H. Kenneth Barker, Ph.D. *Dean*  
 Don Birdsell, Ph.D., *Assistant Dean*  
 Walter Yoder, Ed.D., *Assistant to the Dean*

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## Doctor of Philosophy Degree

Programs leading to the Doctor of Philosophy degree in elementary education, secondary education and guidance and counseling are offered through the College of Education. The degree will be awarded to the student who, in addition to filling the general requirements of the Graduate School, has met the following specific requirements:

- Completion of the Miller Analogies Test.
- A minimum of 90 graduate credits (including a 30-credit master's program where applicable), including the doctoral dissertation. A student considered deficient in any area may be required to take additional courses.
- Completion of a foundation studies program designed to prepare the student before specialization.
- Completion of preliminary examinations on foundation studies and the major field of concentration.
- Successful completion of a test in a language judged not to be the student's native tongue.
  - a student in the Department of Counseling and Special Education may elect to develop appropriate research skills prescribed by the adviser in lieu of the foreign language requirements;
  - a student in the Department of Elementary Education may elect to develop appropriate alternative research skills prescribed by the adviser, subject to review by the department head, depending upon the career goal of the student and upon the academic and/or scientific requirement of the dissertation in lieu of the foreign language requirement;
  - a student in the Department of Secondary Education may elect to develop appropriate research skills prescribed by the adviser, subject to review by the department head in lieu of the foreign language requirement.
- Completion of at least eight credits in cognate area.
- Completion of final written and oral examinations in the student's major field of concentration.
- Completion of a dissertation comprising not more than 20 credits. The oral examining committee must be constituted of at least five full-time staff members, one of whom must be from outside the College.
- Pass the general requirements for the Doctor of Philosophy degree.

The doctoral program in counseling has been approved by the Ohio State Board of Psychology "as being a doctoral program equivalent to one in psychology." Candidates completing the program, as approved by the Board of Psychology meet the academic requirement for admission to the examination for a psychologist license.

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## Doctor of Education Degree

The Department of Educational Administration offers a pro-

gram leading to the Doctor of Education degree. This program is designed for persons in public and private educational and quasi-educational organizations. The Ohio City Superintendent Certificate is obtainable.

The Higher Education Administration program is offered by the department and this is designed for persons who wish to pursue a career in college, university or other post-secondary administrative positions. The program addresses such major institutional functions as: administration, academic, student services, finance, planning, development and public relations. A student will have the opportunity to direct studies toward a particular career goal.

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## Foundation Studies Education — Doctoral Program Requirements

### Behavioral Studies

		<i>Credits</i>
5100:620	Behavioral Bases of Education or	
5100:624	Seminar in Educational Psychology	3
5100:721	Learning Processes or	
5100:723	Teaching Behavior and Instruction	3

### Humanistic Studies

5100:701	History of Education in American Society or	
5100:703	Seminar in History and Philosophy of Higher Education	3

### Social and Philosophical

5100:600	Philosophies of Education or	
5100:602	Comparative and International Education or	
5100:604	Seminar in Cultural Foundations of Education	3
5100:705	Seminar in Social-Philosophical Foundations	3

### Research

5100:640	Techniques of Research	3
5100:741	Statistics in Education	3
5——:899	Dissertation	10-20

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## Certificate Program in Higher Education

A certificate program is offered. A full description of this program may be found in "Interdisciplinary and Certificate Programs," **Section 4** of this Bulletin.

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## Master's Degree

Programs leading to the degree of Master of Arts in education, Master of Science in education and Master of Science in technical education are offered.

The student who expects to earn the master's degree for advancement in the field of teaching must meet the general requirements for admission to the Graduate School and must be qualified to hold a standard teaching certificate. Exceptions

to this latter requirement will be made for the qualified student who does not wish to teach or perform duties in the public schools provided the student presents or acquires an appropriate background of study or experience. The student who expects to earn the master's degree in guidance and administration also should have had successful teaching experience. A physical examination may be required if and when indicated. Any student who exhibits a deficiency in English or other skills may be required to correct it before recommendation for an advanced degree.

No more than six credits of workshops or institutes can be used to satisfy degree requirements.

The student must complete a minimum of nine credits in foundation studies in education:

		<i>Credits</i>
5100:600	Philosophies of Education	
	or	
5100:602	Comparative and International Education	
	or	
5100:604	Seminar in Cultural Foundations of Education	3
5100:620	Behavioral Bases of Education	
	or	
5100:624	Seminar in Educational Psychology	3
5100:640	Techniques of Research	3

## Programs

### Elementary Education

#### Objectives

- Knowledge:
  - the nature of the elementary school;
  - the organization of the school and its curriculum;
  - the application of theory.
- Skills:
  - ability to assess curricular needs;
  - ability to select appropriate materials;
  - ability to develop appropriate learning activities.
- Attitudes and values:
  - belief in the humanistic approach to education;
  - awareness and concern for the welfare of all;
  - ability to accept those that are different.

#### Program

Those students seeking a master's degree in elementary education can follow a 30 semester credit program which includes a master's problem (two credits) or follow a new option, which calls for the completion of 36 credits with a field experience, but no master's problem. For additional information about the option, an interested student should contact the department head.

- Foundation Studies courses — 9 credits
- Elementary education:
 

5200:630	Elementary School Curriculum and Instruction	2
5200:698	Master's Problem	2
5200:780	Seminar in Elementary Education*	4-8
- Electives — 9-13 credits.

\*Two seminars are required.

Electives may be any combination of courses to meet the minimum of 30 credits which may include up to 12 credits in pertinent course offerings outside the College of Education. Elective courses should be planned with the graduate adviser.

This program is primarily for the student who expects to progress as a teacher in elementary schools.

## Certification as a Reading Supervisor

#### Objectives

To qualify as a reading supervisor, the student must have a minimum of three years of successful teaching experience under a standard teaching certificate.

The student seeking a master's degree in elementary education and certification can follow a 30 credit program which includes a master's problem (two credits) or follow another program which calls for the completion of 36 credits with a field experience but no master's problem. The student in a graduate program with another area of concentration may elect any specialized course in reading provided the student meets the prerequisites. For additional information contact the department head.

The student seeking a master's degree in secondary education and certification should contact a secondary education adviser for program information.

#### Program

- Foundation Studies — 9 credits
 

5250:540	Developmental Reading in the Content Area†	3
5250:681	Diagnosis and Correction of Reading Problems**	5
5250:682	Clinical Practices in Reading	5
5250:692	Advanced Study and Research in Reading Instruction	3
5250:693	Supervision and Curriculum Development in Reading Instruction	2
5200:695	Field Experience†	1-2
5200:698	Master's Problem†	1-2
5200:780	Elementary Education Seminar: Children's Literature - Reading†	2
5300:780	Secondary Education Seminar: Teaching Literature in Secondary Schools††	2
5300:625	Reading Programs in Secondary Schools††	3
- Two credits from the following list of electives:
 

5200:780	Elementary Education Seminar: Reading	2
5250:511	Materials and Organizations for Reading Instruction	3
5250:680	Trends in Reading Instruction	2
5200:590	Workshop in Reading	1-2

## Secondary Education

#### Objectives

This program is intended to prepare the teacher of grades seven through 12 for: master teacher, department head, supervisor and resource teacher. The student planning to major in

\*\*A student must complete at least one graduate-level reading course prior to enrolling in 5250:681. Courses 681 and 682 must be taken in sequential order.

†For elementary education students only.

††For secondary education students only.

physical education should consult an adviser for alternate course requirements. This program may also serve as preliminary preparation for the student who wishes to apply for the Doctor of Philosophy degree in secondary education.

### Program

- Foundation Studies courses — 9 credits.
- Secondary education course:

	<i>Credits</i>
5300:780 Seminar in Secondary Education: Improvement of Instruction in the area of concentration	2
• Ten credits from the following:	
5300:625 Reading Programs in Secondary Education	2
5300:619 Secondary Curriculum and Instruction	2
5300:695 Field Experience	1-6
5300:698 Master's Problem	2-4
or	
5300:699 Thesis Research	4-6
5300:721 Supervision of Instruction	2
5300:780 Seminar: Secondary Education*	2
Topics: Senior High Junior High Computer Based Education Individualized Instruction	
5400:505 Vocational Education for Youth and Adults	2
• Area of concentration (500 level or above) — 10 credits	

Course selections are made by student and adviser in accord with the student's professional interests. Possible areas of concentration include:

- Subject Matter Specialist* (mathematics, English, etc.)
- Middle school education*
- Reading specialist* (certification program)
- Economic education*
- Mini-computer applications*
- Business education supervisor* (certification program)

- Electives — 2-4 credits.

## Middle School Education

For elementary and secondary certified teachers, these courses comprise a major area of study within the master's programs in the elementary and secondary education departments. They deal with the middle-grade learner, curriculum and programs. The student should seek advisement within the appropriate department for other requirements peculiar to the elementary and secondary programs.

### Program

- Required courses:

5300:780	Philosophy and Organization of Middle School	2
5100:624	Psychology of Early Adolescence	3
5200:780	Curriculum Development in Middle School	2
5600:526	Career Education/Guidance in Middle School	2
5100:604	Cultural Foundations of Education	3
5300:625	Reading Programs in Secondary School	3

## Multicultural Education

The purpose of this program is to provide knowledge, skills and attitudes which will enable the educator to design and implement programs that promote the concept of cultural pluralism. Special attention is given to educational programming for the culturally different learner.

\*Only two seminars for this option may be counted towards the degree.

### Program

- Required courses:

		<i>Credits</i>
5100:640	Techniques of Research	3
5300:780	Seminar in Secondary Education	2
5300:780	Seminar in Secondary Education	2
5600:645	Group Testing in Counseling	3
5630:581	Multicultural Education in the United States	3
5630:582	Characteristics of Culturally Different Youth	3
5630:686	Seminar: Education of the Culturally Different	2

- Electives in related special fields — 17 credits.

## Bilingual Multicultural Education

The major purpose of this program is to provide education majors with the knowledge, skills and attitudes necessary to teach bilingual students.

Students may become certified in bilingual multicultural education at either the undergraduate or graduate level. The certification requires that a person also become certified in one of the following areas: elementary education, secondary education, special education or physical education.

At the end of the program, the student must demonstrate proficiency in English and a language other than English in order to meet the certification requirements of the Ohio State Department of Education.

Graduate students wishing a master's degree in addition to bilingual multicultural certification may earn a master's degree in multicultural education by taking additional coursework.

The program incorporates coursework in the history and philosophy of bilingual multicultural education, linguistics, English as a second language instruction, culture and theories and practices for teaching bilingual students language arts, reading, mathematics, social studies and science.

- Program requirements:

5630:584	Principles of Bilingual Multicultural Education	3
5630:587	Techniques for Teaching English as a Second Language in the Bilingual Classroom	4
3300:589	Seminar in English: Introduction to Bilingual Linguistics	3
5630:582	Characteristics of Culturally Different Youth	3
	Field experience in bilingual classrooms/settings	3
	Select one of the following:	
5630:585	Teaching Reading and Language Arts to Bilingual Students	4
5630:586	Teaching Mathematics, Social Studies and Science to Bilingual Students	3

## Technical Education

The major objective of the technical education program is to prepare the instructor and other educational personnel for post-secondary educational institutions, industry and public and private agencies engaged in the education and training of technicians and middle-level workers. The major requires completion of 32 credits.

### Program

- Foundation Studies courses — 9 credits.
- Professional technical education courses:

5400:510	The Two-Year College	3
5400:521	Instructional Techniques in Technical Education	4

5400:530 Course Construction in Technical Education\*

• **Teaching internship:**

The student entering the program without teaching experience is required to take a teaching internship at a cooperating two-year institution.

5400:690 Internship: Teaching Vocational Education  
or

5400:691 Internship: Teaching Technical Education  
or

5400:692 Internship: Post-secondary Education 2

- The student in vocational home economics programs without teaching experience must take a teaching internship at a cooperating two-year institution under the Ohio Board of Regents. The student who already holds a four-year provisional certificate in home economics and who desires certification in vocational high school home economics may select the internship experience in a vocational high school.

- Elective credits may support the field of specialization, add to general education or be professional education courses — 0-4 credits.

• **Other requirements:**

Work experience in technical occupation is also required; the number of years is determined by the student's other qualifications.

**Options** (Select one for a total of 8-12 credits.)

**Teaching**

An approved schedule of technical courses selected from the Graduate School offerings. Course selections will be determined by the student's academic and professional background.

**Guidance — Option A** (must be taken in sequence)

5600:635	Community and College Counseling	3
5600:647	Career Counseling Theory and Practice	3
5600:675	Practicum in Counseling	4

**Guidance — Option B**

5600:635	Community and College Counseling	3
5600:645	Group Testing in Counseling	3
5600:647	Career Counseling Theory and Practice	3

Select one of the following:

5600:526	Career Education	2
5600:649	Counseling and Personnel Services in Higher Education	2
5600:665	Seminar: Community and College Counseling	3

**Curriculum and Supervision**

5700:610	Principles of Educational Supervision	3
5700:710	Principles of Curriculum Development	3
	Elective in Curriculum or Supervision	2

**Vocational Home Economics — Family Life** (select 8-9 credits from the following)

7400:501	Family Life Patterns in the Economically Deprived Home	2
7400:601	Family in Transition	2
7400:602	Family: Lifespan	2
7400:603	Family: Middle and Later Years	2
7400:651	Family Law	2
7400:697	Individual Investigation in Family Life	1-4

**Vocational Home Economics — Child Care and Development, Job Training Specialization** (select 8-9 credits from the following)

7400:501	Family Life Patterns in the Economically Deprived Home	2
7400:560	Organization and Supervision of Child Care Centers	3
7400:616	Infant and Child Nutrition	2
7400:660	Programming for Child Care Centers	2
7400:665	Development in Infancy	2
7400:698	Individual Investigation in Child Development	1-4

\*The student selecting the vocational home economics option may take 5400:511 Vocational Home Economics in place of 5400:530. The student selecting this option must take an additional two credits in a course emphasizing the adult in vocational education.

## Elementary School Principal

**Objectives**

- Provide the student with an understanding of the elementary school and its history, its present purpose and its potential.
- Assist the prospective administrator in perceiving the role of the elementary principal and determining whether it is appealing as a career choice.
- Provide the student with the opportunity to experiment with alternate leadership styles in order to determine how the student might best lead.
- Coordinate classroom activities with field experiences in order to exercise the student's administrative skills and test the student's ability to relate understandings to performance.

**Program**

- Foundation Studies courses — 9 credits.

- Administration courses:

		Credits
5200:630	Elementary School Curriculum and Instruction	2
5200:732	Supervision of Instruction in the Elementary School	2
5600:602	Introduction to Counseling	2
5700:601	Principles of Educational Administration	3
5700:610	Principles of Educational Supervision	3
5700:631	Elementary School Administration	2
5700:694	Field Experience for the Elementary Administrator	2
5700:698	Master's Problem	2
	or	
5700:797	Field Experience for the Elementary Administrator	2

- Elective courses should be planned with an adviser. This program is primarily for the student who expects to progress as a principal or administrator in the elementary schools — 3 credits.

## Secondary School Principal

**Objectives**

- Enable the student to gain a knowledge of the overall curriculum of the secondary school.
- Provide the student with an understanding of successful methods of improving instruction in the secondary school.
- Provide the student with practice in implementing a program to improve instruction.
- Develop within each the ability to communicate successfully with individuals and groups.
- Work with the individual and the group successfully to improve the educational program.
- Implement technical aspects of secondary education.

**Program**

- Foundation Studies courses — 9 credits.

- Administration courses:

5300:619	Secondary School Curriculum and Instruction	2
5300:721	Supervision of Instruction in the Secondary School	2
5300:780	Seminar: Secondary Education: The Junior High School	2
5400:505	Vocational Education for Youth and Adults	3
	or	
5700:710	Principles of Curriculum Development	3
5600:602	Introduction to Counseling	2
5700:601	Principles of Educational Administration	3
5700:607	Legal Basis of Education	2
5700:610	Principles of Educational Supervision	3
5700:620	Secondary School Administration	3
5700:696	Field Experience for the Secondary School Administrator	3

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## Supervisor

### Program

- Foundation Studies courses — 9 credits.
- Major field:

		<i>Credits</i>
5200:630	Elementary School Curriculum and Instruction*	2
5200:732	Supervision of Instruction Elementary School*	2
5300:619	Secondary School Curriculum and Instruction**	2
5300:721	Supervision of Instruction Secondary School**	2
5610:601	Seminar: Special Education Curriculum Planning†	3
5610:602	Supervision of Instruction Special Education†	3
5700:610	Principles of Educational Supervision	3
5700:695	Field Experience of Supervisors	2
5700:710	Principles of Curriculum Development	3

- With the approval of the adviser, the student will select at least one of the following courses and others which may include up to six pertinent electives from course offerings outside the College of Education:

5100:701	History of Education in American Society	3
5100:741	Statistics in Education	3
5700:698	Master's Problem	2
5700:740	Theories of Supervision	3

person who meets program prerequisites and who has earned a master's degree may matriculate as a non-degree graduate student and pursue a program that leads, in selected areas, to certification.

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## Elementary School Counseling Certification Program

### Program

- Foundation Studies courses — 9 credits.

		<i>Credits</i>
5600:600	Seminar in Counseling	1
5600:631	Elementary School Guidance	3
5600:643	Counseling: Theory and Philosophy	3
5600:645	Group Testing in Counseling	3
5600:647	Career Counseling: Theory and Practice	3
5600:651	Techniques in Counseling	3
5600:653	Group Counseling	3
5600:657	Consultant: Counseling	3
5600:659	Organization and Administration of Guidance Services	3
5600:661	Seminar in Elementary School Counseling	2
5600:675	Practicum in Counseling	4
5610:540	Developmental Characteristics of Exceptional Individuals	3

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## Local School Superintendent

### Objectives

The elements of the local superintendent program will enable the student to:

- Communicate effectively.
- Organize and operate a curricular program.
- Supervise and evaluate a teaching and support staff.
- Prepare, coordinate and carry out a budget and appropriation plan.
- Analyze, evaluate and articulate legalities of education.
- Design and coordinate a school facilities plan.

### Program

- Foundation Studies courses — 9 credits.

- Major field:

5700:601	Principles of Educational Administration	3
5700:604	School and Community Relations	2
5700:605	Decision-Making Theory and Practice in Educational Administration	3
5700:606	Evaluation of Educational Institutions	3
5700:607	Legal Basis of Education	2
5700:608	Principles of School Finance	2
5700:610	Principles of Educational Supervision	3
5700:698	Master's Problem	2
5700:710	Principles of Curriculum Development	3
5700:895	Field Experience for the Superintendent	2

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## Secondary School Counseling Certification Program

### Program

- Foundation Studies courses — 9 credits.

- Major field:

5600:600	Seminar in Counseling	1
5600:633	Secondary School Guidance	3
5600:643	Counseling: Theory and Philosophy	3
5600:645	Group Testing in Counseling	3
5600:647	Career Counseling: Theory and Practice	3
5600:651	Techniques in Counseling	3
5600:653	Group Counseling	3
5600:659	Organization and Administration of Guidance Services	3
5600:663	Seminar in Secondary School Counseling	2
5600:675	Practicum in Counseling	4
5610:540	Developmental Characteristics of Exceptional Individuals	3

- Electives — 2 credits.

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## Counseling and Special Education

Selected program offerings in the Department of Counseling and Special Education are available to a person with or without a teaching certificate. Interdisciplinary programs offered lead to certification by the Ohio State Department of Education and/or a master's degree. Program areas include counseling, school psychology, special education and visiting teacher. The

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## Community and College Counseling

### Program

- Foundation Studies courses — 9 credits.

- Counseling courses:

5600:600	Seminar in Counseling	1
5600:635	Community and College Counseling	3
5600:643	Counseling: Theory and Philosophy	3
5600:645	Group Testing in Counseling	3
5600:647	Career Counseling: Theory and Practice	3
5600:651	Techniques of Counseling	3
5600:653	Group Counseling	3
5600:665	Seminar in Community and College Counseling	3
5600:675	Practicum in Counseling	4

- Electives — 6 credits.

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\*Required only of an elementary student.

\*\*Required only of a secondary student.

†Required only of a special education student.

## Special Education

A program of studies in special education will be selected from the following course listings. A student in special education who holds certification prior to enrollment in Graduate School must choose a program focus emphasizing one of the following areas: supervision, clinical practice, early childhood, developmental disabilities, school educational consultant or some other focus to meet an individual's education need. Elective options may be utilized to meet state certification requirements for teaching the mentally retarded child, the learning and/or behavioral disordered child or the orthopedically handicapped child. However, the master's degree can be completed with or without meeting requirements for special education certification depending on program selection. Certification as a special education supervisor may also be pursued in combination with other departments.

At least one-half of the master's degree program must be 600-level courses and at least 20 credits must be within special education. The minimum program requirement is 35 credits.

### Program

- Foundation Studies courses — 9 credits.
- Departmental core (required of all candidates):
 

		<i>Credits</i>
5600:651	Techniques of Counseling	3
5610:540	Developmental Characteristics of Exceptional Individuals or	
5610:543	Developmental Characteristics of Learning Disabled Individuals	3
5610:556	Classroom Behavior Management Exceptional Individuals	2
5610:603	Assessment and Educational Programs Special Education	3
5610:604	Educational and Management Strategies for Parents of Exceptional Individuals	3
- Master's paper (candidate required to choose one):
 

5610:600	Seminar in Special Education	3
5610:698	Master's Problem or	3-4
5610:699	Thesis Research	4-6
- Other programs can be developed to meet needs.
- Electives: Select from the following areas after consultation with an adviser:
 

Psychology	Sociology
Educational Foundations	Elementary Education
Secondary Education	Physical Education
Counseling	Special Education
Multicultural Education	Educational Administration
Family Ecology	Communicative Disorders

### Options

The student elects one of the following:

#### Supervision — Certification Program

Requires completion of the following, 27 months of classroom teaching with the identified handicapped and a master's degree.

5100:600	Philosophies of Education*	3
5100:620	Behavioral Bases of Education*	3
5100:640	Techniques of Research*	3
5610:601	Seminar: Special Education Curriculum Planning	3
5610:602	Supervision of Instruction Special Education	3
5700:610	Principles of Educational Supervision	3
5700:695	Field Experience — Supervisors	2
5700:710	Curriculum Development	3

\*A part of foundation core courses.

#### Clinical Practice — Special Education

		<i>Credits</i>
5610:557	Clinical Teaching Practicum: Children with Learning Problems	3
5610:695	Field Experience — Master's Electives to complete program	3

#### Early Childhood — Special Education

5610:450	Educational Adjustment: Preschool and Primary Level Exceptional Children	3
5610:695	Field Experience — Master's Electives to complete program	3

#### Developmental Disabilities

5610:554	Educational Adjustment: Moderately-Severely and Profoundly Retarded	3
5610:695	Field Experience — Master's Electives to complete program	3

#### School Educational Consultant — Special Education

5610:605	Program Development and Service Delivery Systems — Special Education	3
5610:695	Field Experience — Master's Electives to complete program	3

## Visiting Teacher or School Social Worker Certification Program

Inquiry related to program requirements and admission standards should be addressed to the Department of Counseling and Special Education.

## Physical Education

### Program

- Foundation Studies courses — 9 credits.
- Required courses:
 

5550:536	Adapted Physical Education for the Learning Disabled Child	2
5550:601	Administration of Health, Physical Education, Recreation and Athletics	3
5550:603	Curriculum Planning in Health and Physical Education	2
5550:605	Physiology of Muscular Activity and Exercise	2
5550:606	Measurement and Evaluation in Physical Education	3
5550:608	Supervision of Physical Education	2
5550:609	Motivational Aspects of Physical Activity	3
5550:695	Field Experience — Master's or	2-6
5550:698	Master's Problem or	2-4
5550:699	Thesis Research	4-6
- Electives agreed on by the adviser to meet special student needs.

## Outdoor Education

This program is designed for those students having an undergraduate background in elementary or secondary education, biology, environmental studies, health, physical education or recreation. Students may become involved with existing outdoor education programs in the public schools, metropolitan, state and national park programs or private and public agencies which conduct outdoor/environmental education programs.

- Foundation Studies courses — 9 credits.

• Required courses:		Credits
5560:556	Outdoor Pursuits or	4
5560:605	Outdoor Education: Special Topics	2-4
5560:550	Application of Outdoor Education to the School Curriculum	4
5560:552	Methods, Materials and Resources for Teaching Outdoor Education	3
5560:600	Outdoor Education: Rural Influences	3
5560:690	Practicum in Outdoor Education	2-4
5560:695	Field Experience or	2-6
5560:698	Masters Problem or	2-4
5560:699	Thesis Research	4-6

With the approval of the adviser, the student will select additional courses and/or workshops related to the graduate program.

### School Psychologist\*

• College requirements:		
5100:600	Philosophies of Education	3
5100:640	Techniques of Research	3
5100:721	Learning Processes or	3
3750:550	Learning and Cognition	4
5620:694	Research Project or	2
5620:698	Master's Problem or	2-4
5620:699	Thesis Research	4-6
• Departmental requirements:		
5610:540	Developmental Characteristics of Exceptional Individuals or	3
5610:543	Developmental Characteristics of Learning Disabled Individuals	3
5600:643	Counseling: Theory and Philosophy or	3
3750:703	Theories of Psychotherapy	3
• Program requirements:		
3750:500	Personality or	3
3750:704	Theories of Personality	3
3750:620	Methods and Theories of Human Development or	4
5620:601	Cognitive Function Models for Prescriptive Educational Planning	3
3750:700	Survey of Projective Techniques	2
3750:702	Principles and Practice of Individual Intelligence Testing	4
5100:741	Statistics in Education	3
5600:645	Group Testing in Counseling or	3
3750:510	Psychological Tests and Measurements	4
5620:600	Seminar: Role and Function of School Psychology	3
5620:610	Educational Diagnosis for the School Psychologist	4

### Sixth Year School Psychology Certification Program

The student completing the master's program who desires Ohio certification must additionally complete the following listed certification/professional course requirements including the full academic year internship experience:

\*Program admission is competitive. Admission is open during the fall semester. Selection procedures and criteria are available upon request by calling the school psychology program director in the Department of Counseling and Special Education. For recommendation for certification as a school psychologist in Ohio, the master's student must additionally complete the program prescribed under "Certification."

3750:520	Abnormal Psychology**	3
5250:683	Reading Diagnosis for School Psychologists and Support Personnel	3
5600:659	Organization and Administration of Guidance Services†	3
5620:602	Behavioral Assessment	3
5620:603	Consultation Strategies in School Psychology	3
5620:611	Practicum in School Psychology	4
5620:695.6	Field Experience†	2-3

The nine months full-time internship and the associated seminars entail the following registrations:

5620:630	Internship: School Psychology	3
5620:631	Internship: School Psychology	3
5620:640	Field Seminar I: Issues and Assessment	2
5620:641	Field Seminar II: Classroom Environment	2

The student who does not hold a valid Ohio teaching certificate, must additionally complete the following course pattern:

5100:600	Philosophies of Education††	3
5200:630	Elementary School Curriculum and Instruction	2
5250:683	Reading Diagnosis: School Psychologist and Personnel	3
5620:695.6	Field Experience: Master's	3
5700:631	Elementary School Administration	2

The student completing this program will be recommended for Ohio certification if credit pattern numbers 60 graduate credits, counting no more than 15 credits at the 500 level and excluding the six credits for the internship.

### Certification as Administrative Specialist: School and Community Relations

#### Program

• Foundation Studies courses — 9 credits.

• Required courses:		
5700:601	Principles of Educational Administration	3
5700:604	School and Community Relations	2
5700:605	Decision-Making Theory and Practice	3
5700:606	Evaluation of Educational Institutions	3
5700:607	Legal Basis of Education	2
5700:608	Principles of School Finance	2
5700:610	Principles of Educational Supervision	3
5700:698	Master's Problem	2
5700:710	Principles of Curriculum Development	3
5700:732	Organizational Communications and the School Administrator	3
5700:895	Field Experience — Superintendent	2
7600:686	Studies in Communication Media: Radio	3
7600:687	Studies in Communication Media: Television	3
7600:688	Studies in Communication Media: Film	3

### Sixth-Year Program: City School Superintendent

This program requires 60 credits.

#### Program

• Required courses:		
5100:600	Philosophies of Education or	
5100:604	Topical Seminar in Cultural Foundations of Education	3

\*\*May be taken at undergraduate level.

†Requirement dependent upon experience and related coursework completion.

††This course previously listed as a master's degree requirement. A student must complete at least one graduate-level reading course prior to enrolling in 5250:681. Courses 681 and 682 must be taken in sequential order.

5100:620	<b>Behavioral Bases in Education</b>	<i>Credits</i>
	or	
5100:624	Seminar: Educational Psychology	3
5100:640	Techniques of Research	3
5100:701	History of Education in American Society	
	or	
5100:703	Seminar: History and Philosophy of Higher Education	3
5100:721	Learning Processes	
	or	
5100:723	Teacher Behavior and Instruction	3
5100:741	Statistics in Education	3
5700:601	Principles of Educational Administration	3
5700:604	School and Community Relations	2
5700:605	Decision-Making Theory and Practice in Educational Administration	3
5700:606	Evaluation of Educational Institutions	3
5700:607	Legal Basis of Education	2
5700:608	Principles of School Finance	2
5700:610	Principles of Educational Supervision	3
5700:698	Master's Problem*	2
5700:701	School Buildings and Construction	2
5700:703	Administration of Staff Personnel	2
5700:710	Principles of Curriculum Development	3
5700:895	Field Experience — Superintendent	2

- Elective courses — 13-15 credits.\*\*

**Other requirements:**

The candidate will engage in a period of full-time study for at least one semester. This requirement may be fulfilled during one full summer session.

\*Required of those completing the master's degree.

\*\*Electives should be selected with adviser's approval.

## Educational Foundations

This program area is designed for either the student interested in improving present educational skills or the student interested in educational or instructional positions in business, industry and social services.

A student's program of study will be determined jointly by the student and an academic adviser. Emphasis can range from advanced instructional technology to traditional studies in educational psychology or the social/philosophical aspects of education. A thesis is required.

### Program

*Credits*

- Foundation Studies courses — 9 credits.
- Departmental requirements:†

The student will earn a minimum of 15 credits, excluding thesis, within the Department of Educational Foundations. These credits will be distributed between humanistic studies and behavioral studies with a minimum of nine credits from one of these areas and six credits from the other (college requirements may be included).

15

- Thesis

5100:699 Thesis Research

4-6

- Inter-departmental electives:

A minimum of six credits will be taken outside the Department of Educational Foundations

6

†After accumulating 20 credits, the student will take a written qualifying examination. The student and program committee will then determine the remainder of the program.

# College of Business Administration

James W. Dunlap, Ph.D., *Dean*

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## Master's Degree

The College of Business Administration (CBA) offers graduate programs which lead to the degrees of Master of Business Administration, Master of Science in Accounting, Master of Science in Management and Master of Taxation in Accounting. The University has offered programs of study in business since 1919, initially through the Department of Commerce and since 1953 through the College of Business Administration. In 1958, graduate studies in business were begun. Both the undergraduate and master's programs are accredited by the American Assembly of Collegiate Schools of Business (AACSB).

During its long tradition, the college has sought to fulfill the educational and professional needs of its 450 graduate students, the community and regional business organizations. To meet its urban objectives, the college offers graduate courses only between 5:00 p.m. and 10:30 p.m. The master's programs are designed to service those who work full-time and wish to pursue a master's program on a part-time basis.

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## Admission

### Policy

The applicant must meet one (1) of the following eligibility requirements which are in conformity with the Graduate School and the college's accrediting agency (AACSB):

- Hold a domestic baccalaureate degree from a regionally accredited college or university and have a total index score of 1,000 or more points based upon the overall undergraduate grade-point average (GPA) (A=4.0) times 200 plus the Graduate Management Admissions Test (GMAT) score.
- Hold a domestic baccalaureate degree from a regionally accredited college or university and have a total index score of 1,050 or more points based on the junior-senior (i.e., last 64 semester or 96 quarter credits) GPA (A=4.0) times 200 plus the GMAT score.
- Hold a degree from outside the United States and have an academic standing of first or high second class, satisfactory evidence of competence in English (i.e., TOEFL score of 550 or above) and a score of at least 450 on the GMAT.
- Take the GMAT and have the results sent to the director of Graduate Programs in Business, College of Business Administration, The University of Akron, Akron, OH 44325 (institution code 1829). Since the GMAT test is administered world-wide only four times per year, the applicant should register for it sufficiently in advance to the filing of the graduate application, so evaluation for admission will not be delayed. GMAT registration bulletins can be obtained from the Graduate Programs in Business Office or the Educational Testing Service, Box 966-R, Princeton, NJ 08540. Those who have taken the GMAT (formerly called the ATGSB) more than five years ago are required to retake it.

### Procedure

Even though an applicant is eligible for consideration, an offer of admission is not guaranteed. Since staff, facilities and resources are limited, a determination must be made as to the number of applicants who can be adequately serviced among those eligible. As a result, offers of admission may be limited to only the most qualified of the eligible applicants as determined by the CBA Graduate Admissions Committee. The committee will consider the following in making decisions: the difficulty of the applicant's undergraduate program; the length of time and activities since graduation; the percentile ranking on the GMAT. Applicants are expected to score at least in the 55th percentile on the GMAT — approximately 480 — in order for an offer of admission to be extended.

Under the regulations of the Graduate School, eligible applicants who have been extended an offer of admission by the CBA Graduate Admissions Committee are recommended to the dean of the Graduate School for either "full" or "special" graduate status. Those admitted with the classification "special graduate status" who have not attained an overall 3.00 GPA upon the completion of 12 graduate credits will be dismissed from the program.

In rare instances, the applicant who has taken the GMAT but does not meet requirements may be considered for admission. Also, those who have previously been denied admission may, upon presentation of new information, be reconsidered. In either case, the applicant must petition, in writing, the CBA Graduate Admissions Committee giving those reasons relevant to the situation which demonstrate the likelihood of success — the burden of proof is on the applicant.

All applications and accompanying documentation are evaluated simultaneously by the Graduate Admissions Committee (GAC). The GAC meets only four times approximately four weeks after each GMAT date. The applicant will be informed in writing of the GAC's decision after approximately one week.

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## Requirements

In order to be awarded any master's degree from the College of Business Administration, a student must:

- Meet the time and grade-point requirements of the Graduate School.
- Complete the minimum credits in each of the degree descriptions.
- Complete all course requirements of applicable master's program.

In all programs, some or all of the requirements of Phase I may be waived, and the student may be awarded advanced standing depending upon the academic background of the individual. Phase I and II courses can be taken concurrently provided that all prerequisites have been met.

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## Master of Business Administration

The Master of Business Administration program is designed to give the student a general knowledge of the functional areas of business and permit the concentration of study in one of the five following areas: accounting, finance, management, marketing or international business. Two phases of coursework are required: Phase I (foundation courses) and Phase II (core

courses). The program consists of 54 graduate credits. Phase I courses may be waived for those who have had previous study in the areas.

### Phase I Foundation Courses

All are required with the exception of those who have had equivalent coursework in their undergraduate program can be awarded advanced standing, in which case some or all of the Phase I course(s) can be waived at the time of admission.

		Credits
3250:600	Foundation of Economic Analysis*	3
6200:601	Financial Accounting	3
6400:602	Managerial Finance**	3
6400:655	Government and Business	3
6500:600	Management and Production Concepts	3
6500:601	Quantitative Decision-Making	3
6500:602	Computer Techniques for Management	3
6600:600	Marketing Concepts†	3

The following courses are required only for those selecting accounting as their area of concentration:

6200:301	Cost Accounting	3
6200:317	Intermediate Accounting I	4
6200:318	Intermediate Accounting II	4
6200:430	Taxation I	3
6200:431	Taxation II	3
6200:440	Auditing	3
6200:610	Accounting Management and Control	3

### Phase II Core Courses — Accounting Concentration

- Breadth Courses:
 

6500:660	Organizational Behavior	3
6500:662	Quantitative Methods in Operations Mgmt	3

 Choose two:
 

6500:650	Administering Costs and Prices	3
6400:674	Financial Management and Policy	2
6600:620	Strategic Marketing Management Elective	3

 Any three nonfoundation graduate credits offered by the college *not* in the area of accounting
- Concentration Courses:
 

6200:637	Advanced Accounting Theory	3
6200:655	Information Systems	3
6200:670	Cost Concepts and Control Elective	3

 One accounting course above 610
- Integrative Course:
 

6500:695	Business Strategy and Policy: Domestic and International (restricted to students graduating within two semesters)	3
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- Free Electives:
 

	Any six credits of CBA electives (any six credits of foundation courses may be used to satisfy one, three-credit free elective requirement up to six credits of free electives)	6
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### Phase II Core Courses — Finance Concentration

- Breadth Courses:
 

6200:610	Accounting Management and Control	3
6500:660	Organizational Behavior	3
6500:662	Quantitative Methods in Operations Mgmt	3
6400:650	Administering Costs and Prices	3

 or
 

6600:620	Strategic Marketing Management	3
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\*If waived, student must select 6400:650 *Administering Costs and Prices* from the MBA Core (Breadth) courses

\*\*If waived, student must select 6400:674 *Financial Management and Policy* from the MBA Core (Breadth) courses

†If waived, the student must select 6600:620 *Strategic Marketing Management* from the MBA Core (Breadth) courses

	Elective	Credits
	Any three nonfoundation graduate credits offered by the CBA <i>not</i> in the area of finance	3
• Concentration Courses:		
6400:674	Financial Management and Policy Electives (three courses from the following: one of which must be 6400:63, 645, 676 or 678)	3
6400:633	Management of Depository Institutions	3
6400:635	Management of Non-Depository Financial Institutions	3
6400:645	Investment Analysis	3
6400:649	Portfolio Management	3
6400:676	Management of Financial Structure	3
6400:678	Capital Budgeting	3
6400:679	Mergers, Acquisitions, Consolidations, Takeovers: An Investment Banking Approach	3
6400:681	International Business Finance	3
6400:690	Selected Topics in Finance (may be repeated for a total of 6 credits)	3
6400:697	Independent Study (may be repeated for a total of 3 credits)	3
6400:699	Seminar in Finance (may be repeated for a total of 6 credits)	3
• Integrative Course:		
6500:695	Business Strategy and Policy: Domestic and International (restricted to students graduating within two semesters)	3
• Free Electives:		
	Any six credits of CBA electives (any six credits of foundation courses may be used to satisfy one, three-credit free elective requirement up to six credits of free electives. Electives outside the CBA must be approved by the graduate director.)	6

### Phase II Core Courses — Management Concentration

- Breadth Courses:
 

6200:610	Accounting Management and Control	3
6500:662	Quantitative Methods in Operations Management	3

 Choose two:
 

6400:650	Administering Costs and Prices	3
6400:674	Financial Management and Policy	2
6600:620	Strategic Marketing Management Elective	3

 Any three nonfoundation graduate credits offered by the CBA *not* in the area of management
- Concentration Courses:
 

6500:640	Information Systems and Management	3
6500:652	Organizational Behavior Electives	3

 Any six nonfoundation graduate credits in management
- Integrative Course:
 

6500:695	Business Strategy and Policy: Domestic and International (restricted to students graduating within two semesters)	3
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- Free Electives
 

	Any six credits of CBA electives (Any six credits of foundation courses may be used to satisfy one, three credit free elective requirement up to six credits of free electives. Electives outside the CBA must be approved by the graduate director.)	6
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### Phase II Core Courses — Marketing Concentration

- Breadth Courses:
 

6200:610	Accounting Management and Control	3
6500:660	Organizational Behavior	3
6500:662	Quantitative Methods in Operations Management	3
6400:650	Administering Costs and Prices	3

 or
 

6400:674	Financial Management and Policy Elective	3
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 Any three nonfoundation graduate credits offered by the CBA *not* in Marketing

- **Concentration Courses:** *Credits*

6600:620	Strategic Marketing Management	3
6600:640	Marketing Information Systems and Research Elective	3
	Any six nonfoundation graduate credits in marketing	6
- **Integrative Courses:**

6500:695	Business Strategy and Policy: Domestic and International (restricted to students graduating within two semesters)	3
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- **Free Electives:**

Any six credits of CBA electives (any six credits of foundation courses may be used to satisfy one, three-credit elective up to six credits of free electives. Electives outside the CBA must be approved by the graduate director)

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- **Post-Baccalaureate Foundation:** *Credits*

6200:301	Cost Accounting	3
6200:317	Intermediate Accounting I	4
6200:318	Intermediate Accounting II	4
6200:430	Taxation I	3
6200:431	Taxation II	3
6200:440	Auditing	3
6400:321	Business Law I	3
6400:322	Business Law II	3

### Phase II

- **Required:**

6200:630	Tax Planning and Research	3
6200:637	Advanced Accounting Theory	3
6200:640	Advanced Auditing	3
6200:655	Information Systems	3
6200:670	Cost Concepts and Control	3
6400:674	Financial Management and Policy Elective (any CBA elective)	3
- **Electives any nine credits of the following:**

6200:520	Advanced Accounting	3
6200:570	Governmental and Institutional Accounting	3
6200:631-54	(any taxation course)	3
6200:680	International Accounting	3
6200:699	Seminar in Accounting (must register twice - three credits each)	6

### Phase II Core Courses — International Business Concentration

- **Breadth Courses:**

6200:610	Accounting Management and Control	3
6400:650	Administering Costs and Prices	3
	or	
6400:674	Financial Management and Policy	3
6500:652	Organizational Behavior	3
6500:662	Quantitative Methods in Operations Mgmt	3
6600:620	Strategic Marketing Management	3
- **Concentration Courses:**

6400:681	International Business Finance	3
6600:529	International Business Enterprise	3
6600:630	International Marketing Policies Elective	3
	(must be approved by graduate director)	
- **Integrative Course:**

6500:695	Business Strategy and Policy: Domestic and International (restricted to students graduating within two semesters)	3
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- **Free Electives:**

Any six credits of CBA electives (any six credits of foundation courses may be used to satisfy one, three-credit free elective requirement up to six credits of free electives. Electives outside the CBA must be approved by the graduate director)

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### Master of Taxation in Accounting

The Master of Taxation program is a professional degree designed to provide intensive training both for those planning to enter the field and for experienced accountants and attorneys.

The program provides a framework of conceptual, technical and professional knowledge which will assist the student in developing the expertise needed to examine and understand the many aspects of the difficult and complex tax structure. Through an integrated curriculum with emphasis on tax concepts, substantive knowledge of federal and state taxation, tax research and communication skills and tax planning, the student develops the ability to identify and solve tax problems.

The Master of Taxation curriculum is structured in two phases of coursework: Phase I: foundation courses; and Phase II: required courses. A minimum of 30 semester credits is required for the degree.

- **Graduate Foundation:**

3250:600	Foundation of Economics Analysis	3
6200:601	Financial Accounting	3
6400:602	Managerial Finance	3
6400:655	Government and Business	3
6500:600	Management and Production Concepts	3
6500:601	Quantitative Decision Making	3
6600:600	Marketing Concepts	3
- **Post-Baccalaureate Foundation:**

6200:430	Taxation I	3
6200:431	Taxation II	3
6500:409	Business Policy	4

### Phase II

- **Required:**

6200:630	Tax Research and Planning	3
6200:631	Corporate Taxation I	3
6200:632	Taxation of Transactions in Property	3
6200:633	Estates and Gift Taxation	3
- **Electives:**

Eighteen credits of which at least 12 must be in taxation (6200—641-54):

	Taxation courses	12
	Any CBA courses	6

### Master of Science in Accounting

The Master of Science in Accounting program is designed to give the student additional exposure to the functional areas of business plus an advanced concentration in accounting. Two phases of coursework are required. Phase I consists of specialized graduate and postbaccalaureate foundation courses. Phase II consists of the accounting core courses and are all required. Phase I courses may be waived for those who have had previous study in the areas.

### Phase I

- **Graduate Foundation:**

3250:600	Foundation of Economic Analysis	3
6200:601	Financial Accounting	3
6200:610	Accounting Management and Control	3
6400:602	Managerial Finance	3
6500:600	Management and Production Concepts	3
6500:601	Quantitative Decision-Making	3
6500:602	Computer Techniques for Management	3
6500:695	Business Strategy and Policy: Domestic and International	3
6600:600	Marketing Concepts	3

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## Master of Science in Management

The Master of Science in Management program is designed to provide the student with strong quantitative backgrounds an opportunity to pursue advanced study utilizing previously acquired knowledge. The student with undergraduate training in engineering, mathematics and the physical sciences will apply skills to management problem solving and decision making along quantitative lines. Two phases of coursework are required: Phase I: foundation courses; and Phase II: selected electives. Phase I courses may be waived for those who have had previous study in the areas.

### Phase I

• Foundation:		Credits
3250 600	Foundation of Economic Analysis	3
6200 601	Financial Accounting	3
6400 602	Managerial Finance	3
6400 655	Government and Business	3
6500 600	Management and Production Concepts	3
6500 601	Quantitative Decision Making	3
6500 602	Computer Techniques for Management	3
6600 600	Marketing Concepts	3

### Phase II

• Selected Electives (two required):		
6200 610	Accounting Management and Control	3
6400 674	Financial Management and Policy	3
6600 620	Strategic Marketing Management	3
• Required Courses:		
6500 640	Information Systems and Management	3
6500 652	Organizational Behavior	3
6500 653	Organizational Theory	3
6500 654	Industrial Relations	3
6500 662	Quantitative Methods in Operations Mgmt	3
6500 663	Applied Industrial Statistics I	3
6500 664	Applied Industrial Statistics II	3
6500 671	Advanced Operations Research	3
6500 695	Business Strategy and Policy: Domestic and International	3
6500 699	Graduate Seminar in Management	3

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## Joint Programs

The School of Law and the College of Business Administration

(CBA) offer a joint program in legal and administrative studies (J.D./M.B.A.) and a joint program in legal and taxation studies (J.D./M.Tax.). These combinations are open to the student preparing for a career in such areas as corporate law, tax accounting or legal practice in government. The amount of time required to complete a joint degree program is shorter than the time required to complete both programs independently. In order to pursue either cooperative program, the student must apply to and be accepted by both the School of Law and the Graduate School of the CBA. The student should contact each school independently for information covering admission criteria and procedures (for further information on School of Law admissions, write: Director of Admissions, School of Law, The University of Akron, Akron, OH 44325). A baccalaureate degree is required.

### Degree Requirements

A student is required to fulfill the requirements of the School of Law (74 credits plus 10 credits transferred from the CBA. The requirements of the CBA may be met by fulfilling the requirements previously listed which include the common body of knowledge (Phase I) courses (18-27 credits unless waived because of prior undergraduate credits earned) and 24 credits for M.Tax. or 30 credits for M.B.A. of advanced courses in the CBA plus six credits transferred from the School of Law. The reciprocal acceptance of course credits by each school is the essence of the joint programs. All law courses used to fulfill CBA requirements must be approved by the director of Graduate Business Programs prior to completion. To earn both degrees, a total of 98 (J.D./M.Tax.) or 104 (J.D./M.B.A.) credits is required, depending on the master's program pursued. More credits may be required for the master's degree if courses (Phase I) are required.

Upon the approval of the director of Graduate Programs in Business, 10 credits of School of Law courses may be applied toward the Masters of Taxation degree. No more than six credits from the School of Law may be in non-tax courses. The other four credits taken in the School of Law must be in tax courses which substitute for equivalent tax courses in the CBA.

# College of Fine and Applied Arts

Gerard L. Knieter, Ed.D., *Dean*  
Kelvie Comer, Ed.D., *Assistant Dean*

## Master's Degree

### Home Economics and Family Ecology

A program of study is offered leading to the Master of Arts in Home Economics and Family Ecology degree with an emphasis in either family development or child development. Prior to acceptance in the program, the student must meet the following conditions:

- The general requirements for admission to the Graduate School.
- The standard requirements for an undergraduate major in the proposed area of graduate study or preparation which has been accepted as equivalent by the department head and the department graduate faculty.

In addition to the above, the student will be expected to comply with the following requirements:

- Complete the course of study in one of the two options: child development or family development with a minimum of 40 credits. These credits will include:
  - foundation courses to prepare the student for research in home economics and family ecology as a discipline;
  - core courses in the area of specialty;
  - electives selected from within the department or from another discipline to strengthen student's professional goals. These courses will be selected in consultation with and approval from the student's graduate faculty adviser.
- Complete a thesis or an internship. The thesis option involves the design and evaluation of original research in an appropriately related area commensurate with the student's background and area of pursuit. The research may involve a creative, historical or experimental design. The internship option involves the design, development, implementation and evaluation of original and creative programs and/or resource materials pertaining to family and/or child development. Part of the internship experience may take place in a community-based agency which serves families and/or children. A written proposal for the thesis or internship option must be submitted at the completion of approximately 20 credits of graduate study
- Pass a written comprehensive examination over major and minor areas after the completion of at least 24 credits of graduate work.
- Apply for Advancement to Candidacy upon successful completion of 25 credits of graduate study, the written comprehensive examination and an approval prospectus for a thesis or internship.
- Pass an oral examination covering the thesis or internship report.

### Foundation Courses

		<i>Credits</i>
7400:600	Evaluation of Home Economics Literature	3
7400:675	Conceptual Frameworks in Family Ecology	3

- One graduate-level research course to be approved by the adviser.

Suggested courses include:		<i>Credits</i>
3850:604	Social Research Design	3
3980:600	Basic Analytical Research	3
5100:640	Techniques of Research	3
• Internship or Thesis (select one):		
7400:695	Internship—student must have 7400:395 <i>Community Involvement</i> or equivalent	5
7400:699	Thesis	5

### Child Development Option

- Core courses:
  - Select 16 credits from the following courses:\*
  - 7400:504 Adolescence in the Family Context 3
  - 7400:560 Organization and Supervision of Child Care Centers 2
  - 7400:596 Parenting Skills 3
  - 7400:605 Developmental Parent-Child Interactions 3
  - 7400:616 Infant and Child Nutrition 2
  - 7400:660 Programming for Child Care Centers 2
  - 7400:665 Development in Infancy and Early Childhood 3
- Electives — 10 credits.\*\*

### Family Development Option

- Core courses:
  - 7400:602 Family: Life-Span Perspective 2
  - 7400:605 Developmental Parent-Child Relations 3
  - 7400:607 Family Dynamics 3
  - 7400:651 Family and Consumer Law 3
- Electives — 15 credits.\*\*

## Music

The degree Master of Music is offered by the Department of Music with options in music education, performance, composition, theory, music history and literature, and accompanying. Entrance requirements for each program are:

- The standard requirements for an undergraduate major in the area of proposed graduate specialty or performance which the department head approves as equivalent to an undergraduate major.
- The Graduate School's requirements for admission.
- The performance and accompanying options require an audition on the student's major instrument/voice. Please contact the coordinator of graduate studies for an audition time. For the performance option in voice, Italian and German are required. If the student lacks background in any of these language requirements, auditing of undergraduate courses is required.
- For the composition option, compositions representing the applicant's techniques are required.
- The options in music education, music theory and music history and literature require an interview with the coordinator of Graduate Studies and faculty in the appropriate area.

The student should consult with the coordinator of Graduate Studies in Music for additional information regarding the individualized nature of each option.

After completion of all coursework, the student must pass an examination covering the graduate program. This examination is individualized for each candidate's unique program.

\*The student who has completed some of these courses as an undergraduate should consult an adviser for substitutions.

\*\*Select from courses within the Department of Home Economics and Family Ecology or from a cognate area outside the department or a combination of the above approved by the student's adviser.

## Music Education Option

- Thesis Option — 32 credits.  
Appropriate courses in music, music education, advanced problems, workshops, applied music and electives as determined by student's advisory committee
- |        |                |
|--------|----------------|
|        | <i>Credits</i> |
|        | 26-28          |
| Thesis | 4-6            |
- Non-thesis option — 34 credits.  
Appropriate courses in music, music education, advanced problems, workshops, applied music, and electives as determined by student's advisory committee
- |  |    |
|--|----|
|  | 34 |
|--|----|

7500.619	Theory Pedagogy	2
7500.642	Applied Composition	2
7500.697	Advanced Problems in Music	8
7510.----	Ensemble (participation in two, one-hour ensembles required)	

- Required courses — 8 credits.
 

7500.553	Bibliography and Research	2
7500.555	Advanced Conducting	2
7500.621-4	Music History Survey Seminars (select one of these)	2
7500.699	Thesis Research/Recital Document	4-6
- Electives — 4 credits\*\*

## Composition Option

- Core courses — 16 credits.
 

7500.555	Advanced Conducting	2
7500.615	Musical Styles and Analysis I (Chant through Palestrina)	2
7500.616	Musical Styles and Analysis II (Baroque through early Beethoven)	2
7500.617	Musical Styles and Analysis III (late Beethoven through Mahler/Strauss)	2
7500.618	Theory Pedagogy	2
7500.---	Ensemble (participation in two, one-hour ensembles required)	
7520.542	Applied Composition	8
- Required courses — 9 credits.
 

7500.601	Choral Literature	2
7500.618	Musical Styles and Analysis IV (Twentieth Century)	2
7500.624	Historical Survey: Music of the Twentieth Century	2
7500.647	Master's Chamber Recital	
7500.698	Graduate Recital	2
	or	
7500.699	Thesis Research/Recital Document	4-6
- Electives — 7 credits.\*

## Music History and Literature Option

- Core courses — 16 credits.
 

7500.555	Advanced Conducting	2
7500.621	Historical Survey: Music of the Middle Ages and Renaissance	2
7500.622	Historical Survey: Music of the Baroque	2
7500.623	Historical Survey: Music of the Classic and Romantic Eras	2
7500.624	Historical Survey: Music of the Twentieth Century	2
7500.697	Advanced Problems in Music	8
7510.---	Ensemble (participation in two, one-hour ensembles required)	
- Required courses — 8 credits.
 

7500.551	Introduction to Musicology	2
7500.553	Bibliography and Research	2
7500.618	Musical Styles and Analysis IV (Twentieth Century)	2
7500.699	Thesis Research/Recital Document	4-6
- Electives — 7 credits\*\*

## Performance Option

- Core courses — 16 credits.
 

7500.555	Advanced Conducting	2
7500.615	Musical Styles and Analysis I (Chant through Palestrina)	2
7500.616	Musical Styles and Analysis II (Baroque through early Beethoven)	2
7500.617	Musical Styles and Analysis III (late Beethoven through Mahler/Strauss)	2
7500.619	Theory Pedagogy	2
7500.621	Historical Survey: Music of the Middle Ages and Renaissance	2
7500.622	Historical Survey: Music of the Baroque	2
7500.623	Historical Survey: Music of the Classic and Romantic Eras	2
7500.624	Historical Survey: Music of Twentieth Century	2
7510.6----	Ensemble (participation in two, one-hour ensembles required)	
7520.5----	Applied Music	8
- Required courses — 7 credits.
 

7500.560-4	Repertoire and Pedagogy	3
7500.618	Musical Styles and Analysis IV (Twentieth Century)	2
7500.698	Graduate Recital	2
	or	
7500.699	Thesis Research/Recital Document	4-6
- Electives — 10 credits\*

## Accompanying Option

- Core courses — 16 credits.
 

7500.555	Advanced Conducting	2
7500.615	Musical Styles and Analysis I (Chant through Palestrina)	2
7500.616	Musical Styles and Analysis II (Baroque through early Beethoven)	2
7500.617	Musical Styles and Analysis III (late Beethoven through Mahler/Strauss)	2
7500.619	Theory Pedagogy	2
7500.621	Historical Survey: Music of the Middle Ages and Renaissance	2
7500.622	Historical Survey: Music of the Baroque	2
7500.623	Historical Survey: Music of the Classic and Romantic Eras	2
7500.624	Historical Survey: Music of the Twentieth Century	2
7520.5----	Applied Music (Piano, Organ and/or Harpsichord)	8
- Required courses — 9 to 12 credits.
 

7500.561	Repertoire and Pedagogy (Piano and Harpsichord) either/or	3
7500.562	Repertoire and Pedagogy (Organ)	3
7500.697	Advanced Problems in Music (to select topics in Song Literature and Chamber Music in consultation with adviser)	4
	Accompaniment of a minimum of three solo/ensemble recitals (instrumental and vocal)	0
7500.698	Graduate Recital	2
	or	
7500.699	Thesis Research/Recital Document	4-6
- Electives — 4-9 credits\*\*

## Theory Option

- Core courses — 16 credits.
 

7500.615	Musical Styles and Analysis I (Chant through Palestrina)	2
7500.616	Musical Styles and Analysis II (Baroque through early Beethoven)	2
7500.617	Musical Styles and Analysis III (late Beethoven through Mahler/Strauss)	2
7500.618	Musical Styles and Analysis IV (Twentieth Century)	2

- Note the following requirements:
  - a minimum pronunciation proficiency is required in Italian, German and French;
  - any student who demonstrates knowledge, proficiency or skills equal to or exceeding those required for the degree may substitute elective courses at the graduate level. Such substitutions may be made only when approved by the student's adviser and the coordinator of graduate studies in music;
  - elective credits are determined by the student and adviser.

\*It is recommended that each student's graduate committee recommend the appropriate elective credits

\*\*It is recommended that each student's graduate committee recommend the appropriate elective credits

## Communication

The Department of Communication offers the Master of Arts degree in a coordinated program of communication arts. The program is as follows:

• Core		Credits
7600.600	Introduction to Graduate Study in Mass Media-Communication	6
7600.603	Empirical Research in Mass-Media Communication either	3
7600.624	Survey of Communication Theory or	3
7600.625	Theories of Mass Communication	3
7600.670	Communication Criticism	4

• Thesis/Project/Production:

Each student, after passing comprehensive examinations, must register for four credits of Thesis/Project/Production. The requirement is designed to be the culmination of the student's academic program and involves the conception, design and execution of an academic problem in a manner which requires a high level of substantive, methodological and writing skills. These skills may be demonstrated in any of three types of activity, depending on the student's background and orientation.

- Departmental electives — 10 credits.
- Electives — 6 credits.

## Theatre Arts and Dance

The following will qualify the student in the field of theatre arts. There is no graduate program in dance.

- Complete the general requirements for admission to the Graduate School.
- Complete an undergraduate major in the area of proposed graduate work or equivalent work as approved by the head of the department.
- Complete a minimum of 36 credits, including 7800:600 and 7800:699, from the following courses or approved courses in the cognate field.
 

7800:562	Playwriting	2
7800:567	Contemporary Theatre Styles	3
7800:568	Children's Theatre	3
7800:600	Introduction to Graduate Studies (required)	1
7800:603	Special Topics in Theatre Arts/Dance	2
7800:636	Special Problems in Oral Interpretation	2
7800:641	Problems in Directing	3
7800:642	Problems in Contemporary Acting	3
7800:658	History of Technical Production	3
7800:659	History and Theory of Stage Lighting	3
7800:660	Advanced Technical Theatre	2
7800:661	Seminar in Stage Costume Design	3
7800:662	Seminar in Scene Design	3
7800:663	Seminar in American Theatre	2
7800:665	Seminar in Theatre Audience	2
7800:666	Introduction to Arts Management	2
7800:667.8	Studies in Dramatic Practice I, II	6
7800:690	Graduate Research/Readings	1-6
7800:699	Research and Thesis (required)	1-6
- Complete an oral defense of the thesis.

## Arts Management

- Required courses:
 

7800.600	Introduction to Graduate Studies	1
7800.665	Audiences for the Arts: Research and Analysis	2
7800.666	Introduction to Arts Management	2
7800.691	Seminar: The Role of Arts Administrator	3
7800.692	Legal Regulations and the Arts	2
7800.698	Arts Management Internship	1-3
7800.699	Research and Thesis	1-6
- Electives in business:
 

6200.601	Financial Accounting	3
6400.602	Managerial Finance	3
6500.600	Management Concepts, Practices and Theory	3

6500.652	Organizational Behavior	3
6600.600	Managerial Marketing	3
• Electives in urban studies:		
3980.610	Urban Politics	4
3980.611	Urban Administration	4
3980.640	Fiscal Analysis	3
3980.680.1	Topics (such areas as cultural policy and personnel management)	1-3
3980.695	Internship	1-3

• Related fields:

Options here include work in computer science, grantsmanship and advertising/promotion.

See the director of Graduate Studies of the Department of Theatre Arts and Dance regarding this program.

## Communicative Disorders

This program, leading to the Master of Arts in Communicative Disorders, is designed to lead to professional certification by the American Speech-Language-Hearing Association (ASHA) in speech pathology and/or audiology. To enter the program:

- Complete requirements for admission to the Graduate School.
- Hold an undergraduate major in the area of proposed graduate specialty or complete undergraduate work within one calendar year of application.
- Complete department requirements for admission which include submission of three letters of recommendation and Graduate Record Examination Aptitude Test results.
- Declare intent to major in either speech pathology or audiology.

Speech pathology majors are accepted upon meeting requirements. Audiology majors are limited to the number who can be adequately serviced with existing faculty, facilities, equipment and practicum sites. Applications will be ranked and offers of admission made to the most qualified. Audiology majors will only be admitted during the fall semester. Deadline for applications is March 1 of the preceding academic year.

## Degree Requirements

- Complete a course of study with a minimum of 34 credits, including thesis — or with a minimum of 38 credits in the non-thesis option. The student anticipating dual ASHA certification in speech pathology and audiology may need to complete eight or more credits in the non-thesis option. Academic requirements within the department include:
 

7700.611	Research Methods in Communicative Disorders I	3
7700.612	Research methods in Communicative Disorders II	2
or		
7700:699	Research and Thesis	4-6
7700.650	Advanced Clinical Practicum: Differential Diagnosis	1
Two credits must be taken from the following:		
7700:651	Advanced Clinical Practicum: Voice	1
7700:652	Advanced Clinical Practicum: Fluency	1
7700:654	Advanced Clinical Practicum: Diagnostic Audiology	1
7700:655	Advanced Clinical Practicum: Articulation	1
7700:656	Advanced Clinical Practicum: Language	1
7700:657	Advanced Clinical Practicum: Rehabilitative Audiology	1

The student must take four credits of 7700:695 *Externship: Speech Pathology and Audiology*. The audiology major must take four credits in speech pathology. The speech pathology major must take four credits in audiology. It is recommended that the speech pathology major elect 7700:639 *Advanced Clinical Testing* as the first of the audiology courses.

- The following limitations on work toward the degree may be exceeded only with approval of two-thirds of the department's graduate faculty:

- no more than four credits of workshop courses;
  - no more than six credits of directed study coursework (including 7700:697); and
  - no more than six credits taken in disciplines other than communicative disorders.
- Only seven credits of clinical practicum credit (four credits of externship plus three credits of in-house practicum) may be applied toward completion of degree requirements, although the student may wish, or be required, to repeat one or more of these practicums. Students must be registered for at least one credit of clinical practicum during any academic period in which they are involved in in-house practicum.

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## **Social Work**

There is no graduate degree in social work. A student interested in coursework may enroll if admitted to Graduate School through other programs or may apply for "Special Non-Degree" status through the Department of Social Work. A student should enroll in graduate courses only for specific professional preparation and with the permission of the instructor. Courses presume a background in social welfare institutions, social work practice, social welfare policy and history. Inquiries should be directed to the head of the department.

# College of Nursing

Lillian L. DeYoung, R.N., Ph.D., *Dean*  
Phyllis Fitzgerald, Ph.D., *Assistant Dean*

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## Master of Science in Nursing

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### Philosophy

The philosophy of graduate education in nursing evolves from the undergraduate philosophy. Undergraduate education has as its primary focus, man, the individual within the family. The undergraduate program prepares a nurse generalist who provides health care to individuals, families and groups in any setting. The focus of graduate education is the family unit comprised of individuals viewed as enfamilyed selves. In undergraduate education health is viewed on a continuum of health/diminished health and as a purposeful interaction with ecological variables which seeks to maintain a state of well-being. In graduate education health is viewed as an evolving process which occurs throughout the lifespan of enfamilyed selves in interrelationship with the ecosystem. Family health is perceived as expansion of consciousness of enfamilyed selves.

Undergraduate education prepares a generalist who is capable of practicing in any environment and provides a foundation for research, continued study and leadership. Graduate education prepares a family health nurse specialist who implements the role of family health nurse by assisting families to experience health in any environment and who generates family health nursing knowledge through research. This educational process provides the foundation for doctoral study in nursing. Graduate education prepares this specialist for leadership in administration, education and/or direct care with families. Undergraduate education focuses on man's interaction with ecological variables whereas graduate education focuses on the family as a unit within an ecological-phenomenological perspective.

Assumptions from theories of ecology and phenomenology provide an ecological-phenomenological perspective. The ecological-phenomenological perspective provides the framework for graduate education to prepare family health nurses to assist families in sustaining that quality of life which enables them to survive and prevail. From an ecological-phenomenological perspective the faculty views families macro-ecosystem, a meta-ecosystem and a micro-ecosystem; and perceives the phenomena of the family ecosystem in terms of the intentionality of consciousness of enfamilyed selves as reported by family members.

The faculty believes that family health nurses, using an ecological-phenomenological perspective, evolve a dialectical process of family health. Using an ecological-phenomenological perspective the faculty perceives family health as an expansion of consciousness. Consciousness is viewed as five domains of living: valuing, thinking, feeling, acting and intuiting. Expansion of consciousness is viewed as a dialectical process which encompasses thesis of being, antithesis of doing and synthesis of becoming. Intentionality is viewed as those

motives and goals that lead to expansions of consciousness. Intentionality signifies that enfamilyed selves encounter a world that is meaningfully structured. Forms of intentionality include the "we" relationship, a reciprocity of perspectives, and a dynamic of time, space and motion. The faculty believes the family unit is a single entity regarded as a whole and is comprised of kinship ties which act as support system for one or more enfamilyed selves. The enfamilyed self is viewed as an individual family member who is given personal identity and validation within the family ecosystem. The family unit is perceived as a finite province of meaning.

The faculty believes that family health nursing is a process whereby the nurse and the family co-create a climate for experiencing a dialectical process of health. Family health nurses, using an ecological-phenomenological perspective and evolving a dialectical process of health, view families as a unit and components of families as enfamilyed selves. Family health nurses, with families and enfamilyed selves, experience the dialectical process of health, through health appraisal, anticipatory dynamics, stress management, health learning and enfamilyed self-care. Leadership in education and direct care with families is a process whereby the family health nurse in interrelationship with others co-constitutes an ecosystem to enable others to sustain a sense of self.

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### Purposes and Characteristics

The purpose of the Graduate Program in Family Health Nursing is to prepare career-oriented family health nurse specialists for leadership roles in administration, education and direct care with families and to provide a foundation for doctoral study. Within this framework, graduates of the program shall be able to:

- Value the ecological-phenomenological perspective, the dialectical process and the concepts health, family, family health, enfamilyed self and leadership.
- Evaluate health with families and enfamilyed selves through health appraisal, anticipatory dynamics, stress management, health learning and enfamilyed self care.
- Actualize the leadership role in administration, education and/or direct care with families.
- Generate family health nursing knowledge through research.
- Pursue doctoral study.

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### Admission

#### General Admission Policies

The applicant for admission to the graduate program must:

- Hold a current Ohio state license as a registered nurse.
- Have a baccalaureate degree in upper division nursing from an NLN accredited school of nursing.
- Hold a grade-point average of 3.00 on a 4.00 scale from the undergraduate program.
- Have satisfactorily completed an undergraduate statistics course, an elementary course in research methodology or equivalent and a basic physical assessment course.
- Have three letters of reference from:
  - a recent employer;
  - a member of the nursing profession who can attest to the applicant's scholarly abilities;

— a former college or school faculty member.

- Write a 300-word essay describing professional goals and reasons for seeking graduate education.

An applicant whose basic nursing education and certification as a registered nurse precede the acquisition of a baccalaureate degree in a discipline other than nursing prior to September 1981; a registered nurse with a baccalaureate degree in nursing from a nonaccredited baccalaureate program; persons who do not meet the above criteria will be considered for admission on an individual basis.

### Grade-Point Average

- An applicant with a grade-point average of 3.00 or better from the undergraduate program will be granted *Full Admission*.
- An applicant with an undergraduate grade-point average of 2.75-2.99 will be admitted as *Special Non-Degree* as defined in the *Graduate Bulletin*.
- An applicant with an undergraduate grade-point average of 2.50-2.74 will be assigned to *Deferred Status* and will be advised by the College of Nursing to take postbaccalaureate courses. The number of course credits to be taken is dependent on the applicant's undergraduate grade-point average and will be determined by the use of a "sliding scale." A grade of "B" or better for each course must be attained. Once such work is completed, the student may reapply for a change in status.

### Procedures

First, the student secures application for Graduate School from the Office of the Dean of Graduate School, The University of Akron. Criteria for admission, forms for references, etc. may be secured from the director of the graduate program, the College of Nursing. The director of the graduate program along with the administrative assistant will review all applications for completion.

An admissions committee of four will meet and review all applications and make recommendations to the director regarding the status accorded the student.

The director will send recommendation first to the dean of the college, then to the dean of the Graduate School who will notify the student.

Second, the completed application must be in the office of the College of Nursing by March 1 or October 1. The student will be notified of status by April 1 or November 1.

## Instructional Program

The Family Health Nursing program is two academic years and provides instruction in direct care with families, research and a leadership role.

### Nursing Core

All students receive instruction in the theoretical base from within the ecological-phenomenological perspective. The core consists of 23 credits which span both years of the curriculum. All students will take 8200:600-601 *Theoretical Basis for Family*

*Health Nursing I and II*; 8200:618 *Family Health Appraisal*; and 8200:620-621 *Family Health Nursing I and II*.

### Nursing Research

All students will enroll in a research core for a total of 12 credits: 3470:661 *Advanced Behavioral Statistics* and 3470:697 *Individualized Reading Advanced Behavioral Statistics*; 8200:612 *Nursing Inquiry*; and 8200:699 *Thesis Research* taken over the two years serve as a basis for understanding of research throughout the program.

### Leadership Role

Options are provided for study in a leadership role, education, administration or direct care with families.

Seven credits are allocated to the leadership role which include: seminar, practicum and colloquium.

### Electives

Nine electives are provided in the curriculum. Students will choose a minimum of three credits free elective, three credits elective in nursing and three credits elective in leadership. Additional credits will provide the opportunity to individualize and strengthen the major.

The following courses are required of all students:

		Credits
8200:600	Theoretical Basis for Family Health Nursing I	3
8200:601	Theoretical Basis for Family Health Nursing II	3
8200:612	Nursing Inquiry	4
8200:618	Family Health Appraisal	5
8200:620	Family Health Nursing I	6
8200:621	Family Health Nursing II	6
8200:689	Colloquium	1
8200:699	Thesis Research	4
3470:661	Advanced Behavioral Statistics	3
3470:697	Individual Reading Advanced Behavioral Statistics	1
8200:680	Family Health Nursing Leadership Seminar: Direct Care with Families	3
8200:681	Family Health Nursing Leadership Practicum: Direct Care with Families	3
	or	
8200:687	Family Health Nursing Leadership Seminar: Administration	3
8200:688	Family Health Nursing Leadership Practicum: Administration	3
	or	
8200:685	Family Health Nursing Leadership Seminar: Education	3
8200:686	Family Health Nursing Leadership Practicum: Education	3
	Electives:	
	Nursing	3
	Leadership	3
	Free credits	3

## Cooperative Statement

This program is in cooperation with Kent State University, School of Nursing, where a student has the option to take cognate or nursing electives and utilize library facilities.

# School of Law

Donald M. Jenkins, B.A., J.D., *Dean*

Albert S. Rakas, J.D., *Associate Dean*

Robert C. Sullivan, M.Ed., *Assistant Dean for Placement and Internal Functions*

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## History

The School of Law was established on September 1, 1959, as the successor to the Akron Law School. Founded in 1921 as an independent evening law school, the Akron Law School produced two generations of successful members of the bench and bar, as well as leaders in industry and commerce. Recognizing that legal education is best conducted in university-centered programs, and mindful of the need for the continuation of a sound program of legal education in the most densely populated quadrant of the state, The University of Akron accepted an offer of merger and formed the School of Law.

The School of Law, housed in the C. Blake McDowell Law Center on the University campus, has access to countless resources through its proximity to state and federal courts, local law enforcement agencies and corporate headquarters. An integral part of a distinguished University founded in 1870, the School of Law benefits from the nine major divisions of the University, the Graduate School and the more than 24,000 students.

Enrollment in the School of Law is approximately 640. Thus, the opportunity for active student participation in the classroom, consultation with faculty members and extracurricular participation is facilitated.

In addition to being a member of the Association of American Law Schools, The University of Akron School of Law is fully accredited by the American Bar Association, the State of New York Court of Appeals, the Council of the North Carolina State Bar and holds a charter membership in the League of Ohio Law Schools.

The School of Law offers a day program for the study of law with classes scheduled during the hours of 8:30 a.m. and 4:30 p.m.; an evening plan of the study of law for the working student with classes scheduled primarily between 6:30 p.m. and 9:30 p.m.

The schedule of courses for the day division is designed so that the degree of Juris Doctor may be earned in three academic years consisting of six semesters. Attendance at Summer Sessions is optional.

The schedule of courses for the evening division is designed so that the degree of Juris Doctor may be earned in four academic years consisting of eight semesters and three summer sessions.

Each student is recommended for the degree of Juris Doctor upon satisfactory completion of the requirements.

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## Objectives

The purpose of the School of Law is to further the goals of The

University of Akron by providing a quality program of university education for law and to pursue the following aims:

- To prepare the student for a career in the profession of law by imparting information concerning legal institutions, basic principles of the substantive and procedural law and jurisprudential thought concerning the role of law in society.
- To help to develop in the student an active and critical attitude rather than a passive approach toward the rules of law and their social implications.
- To develop in the student a high sense of professional responsibility in terms of technical competency, appreciation of professional standards and the responsibility of the lawyer to achieve a more nearly perfect system of civil and criminal justice.

The primary purpose of the student enrolling in the School of Law is to obtain a fundamental knowledge of law and the role of law in society, interlaced with a grasp of the public responsibilities of the lawyer. This course of study will enable them to become attorneys- and counselors-at-law and leaders in governmental affairs. The ultimate aim of the school is the development of graduates who will serve society not only through the representation of their individual, corporate or governmental clients, but who will also serve as architects of society's future.

The student is trained to develop powers of legal analysis and synthesis, to develop the technical skills of legal advocacy and legal draftsmanship and to learn practical skills of research and management of litigation.

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## C. Blake McDowell Law Center

The C. Blake McDowell Law Center is a modern, attractive law school building located on the University campus. The law center is designed to facilitate the study of law both academically and clinically by its proximity to state and federal courts, law enforcement agencies and corporate headquarters.

The law center is named in recognition of Mr. C. Blake McDowell, a practicing attorney and 1911 alumnus of the University. Through his great leadership and interest, Mr. McDowell worked unflinchingly toward the creation of a law school at the University which resulted in the merger of the Akron Law School with the University in 1959.

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## Admissions Information

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### Pre-legal Education

A student expecting to enter the School of Law must hold a baccalaureate degree granted by an accredited institution of higher learning. Requirements are flexible for undergraduate study preceding legal education. However, your college record and Law School Admission Test score must demonstrate that you are highly qualified for law study.

A student entering law school must have completed a course of study encompassing a broad cultural background also including intensive work in a selected field of study. The pre-law student must demonstrate the ability to communicate easily, to

understand people and institutions; to gather and weigh facts; and to solve problems and think creatively. A mastery of the English language is essential and the entering student should be able to read with comprehension and be able to express clearly and concisely in both oral and in written fashion.

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## Requirements

An applicant for admission desiring to become a candidate for the degree of Juris Doctor must be of good moral character. A baccalaureate degree from a regionally accredited college or university in a field of study deemed appropriate by the faculty of the School of Law, with an academic average substantially better than the minimum average required for such a degree, must have been earned prior to the time the applicant begins work in the law school.

The school, through an Admissions Committee, is seeking law students of demonstrated academic ability as evidenced in part by LSAT scores and the undergraduate grade-point average (GPA). The school will be looking beyond the LSAT and GPA for special qualities in its applicants for 100 day-division openings and 100 evening-division openings.

The law school seeks law students with diverse backgrounds. In this regard, consideration is given to ethnic and economic factors, advanced degrees, significant work experience and extracurricular and community activities during and after the college years. The growth and maturity of the applicants and their commitment to law study are significant concerns.

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## Procedures

Applicants for both day and evening should apply and complete applications as soon as possible after October 1 in the year preceding the start of fall classes. Review of completed files will begin in January and students will be admitted until the classes are filled. After that time, acceptable applicants will be placed on a waiting list. The school estimates the day class will be filled by April 1; the evening class by June 1. Because the school considers each application soon after it is completed, there is no way of knowing whether the classes will be closed before or after the above dates. The best policy is to complete one's application as early as possible. Admission from the waiting list will begin in late July, should vacancies occur.

In cases where specific questions on an application arise, a personal interview with the associate dean may be necessary or may be requested by the applicant.

Letters of recommendation are not necessary. However, if points relevant to academic or personal background are not addressed in the application material, they may be added to the applicant's file for review.

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## Application Procedures

Submit to the School of Law:

- Application for Admission form (available upon request from the Law School).
- A non-refundable application fee of \$25 if never previously enrolled for credit courses at The University of Akron (check or money order payable to The University of Akron).

- A Law School Application Matching form obtained with LSAT/LSDAS material.

Submit to Law School Admission Services, Newtown, PA:

- Application to take the Law School Admission Test (LSAT).
- Application for the Law School Data Assembly Services (LSDAS). The application for LSAT/LSDAS is available upon request from LSAS, Box 2000, Newtown, PA 18940.
- Applicants are urged to take the LSAT as early as possible and preferably October or December for day applicants; October, December or February for evening applicants.

If accepted for admission a student must file with the School of Law: a final, official transcript, mailed from the institution awarding the baccalaureate degree.

A *Certificate of Completion of Degree Requirements* is filed by the student with the School of Law temporarily in lieu of an official transcript for the student satisfactorily completing baccalaureate degree requirements during summer sessions, but the formal award of the degree is conferred after the beginning of the fall term. Such *certificate* must be executed by an authorized official (usually the Office of the Registrar) of the institution awarding the baccalaureate degree. An official transcript showing award of the baccalaureate degree must be filed by the student with the school at the earliest time such transcript becomes available from the institution awarding the baccalaureate degree.

The official transcript, or, in cases where applicable, the *certificate*, should be received by the School of Law at least one week prior to the official registration period published in the University calendar.

A student admitted to the Juris Doctor degree program is requested to file the official transcript only after receiving written notice of admission to Juris Doctor degree candidacy of the School of Law.

The unofficial copy of transcript forwarded to the School of Law by the LSDAS does **not** constitute filing of transcript with the School of Law.

All inquiries and correspondence pertaining to admission should be sent to:

Associate Dean  
School of Law  
The University of Akron  
Akron, OH 44325  
Phone: (216) 375-7331

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## Reapplication

Applicants who have previously applied for law school and have not attended must comply with all the above procedures. The LSAT does not need to be repeated but depending on the test results, you may want to retake the test. In addition to the application and the \$25 non-refundable fee, a current LSDAS report must be sent to the School of Law.

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## Advanced Standing

A law student who has completed part of the law course at a school on the approved list of the Section of Legal Education and Admissions to the Bar of the American Bar Association, and who is eligible for readmission to the former law school,

may be admitted to advanced standing. A student desiring admission to advanced standing shall: (1) obtain from the dean of the former law school a letter setting forth the fact that the student is eligible for further instruction, and consent to the transfer; (2) submit evidence of meeting the admission requirements (including LSAT/LSDAS) of The University of Akron School of Law; (3) present an official transcript of all work completed at the previous law school; (4) submit a non-refundable fee if never previously enrolled for credit courses at The University of Akron. Credit to be given for the prior law school work shall be determined by the dean of the School of Law.

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## Auditing

Members of the bar and graduates of law schools who are not yet members of the Bar may, with the permission of the dean of the School of Law, enroll for a course without credit. The auditor is required to do all the work prescribed for the regular student enrolled for credit except taking examinations. The fee for the auditor is the same as for a regular student.

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## Transient Students

A law student who is currently enrolled at a School of Law on the approved list of the Section of Legal Education and Admissions to the Bar, American Bar Association, may enroll for specified courses in the School of Law upon receipt of a completed Transient Application form (which requires written permission of the applicant's dean) and application fee (if applicable) subject to availability of space in specified classes.

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## Joint Degree Programs

In order to pursue the J.D./M.B.A. or the J.D./M.Tax programs, the student must apply to and be accepted by both the School of Law and the Graduate School of the College of Business Administration. The applicant is also required to take both the LSAT and the GMAT. Individuals with baccalaureate degrees in any field of study are eligible to apply for a joint program.

A brochure describing the program in more detail and an application form are available from the School of Law or from the College of Business Administration. A more detailed description of the program can be found in the College of Business Administration, Graduate School in this *Bulletin*.

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## Academic Information

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### Requirements

#### Requirements for the Degree Juris Doctor

The School of Law offers two programs leading to the degree Juris Doctor. The curriculum for a day student is designed so

that the degree may be earned in three academic years consisting of six semesters. Attendance at the Summer Sessions is optional.

The curriculum for the evening student is designed so that the degree of Juris Doctor may be earned in four academic years consisting of eight semesters and three summer sessions. The Summer Sessions are an integral part of the evening program.

Except in certain exceptional cases, the day student is not permitted to take evening class, likewise an evening student is not permitted to enroll in day class without the permission of the dean.

In addition, in exceptional cases the dean may authorize a student to take a reduced courseload under either curriculum and stretch studies over the time prescribed for each program.

A new student is admitted at the beginning of the fall semester only.

#### Joint Degree Programs

The School of Law and the College of Business Administration offer a joint degree program in legal and administrative studies (J.D./M.B.A.) and a joint program in legal and taxation studies (J.D./M.Tax). These combinations are of interest to a student preparing for a career in such areas as private practice, corporate law, tax accounting and government. The total amount of time required to complete a joint degree program is less than the time required to complete both programs independently since certain courses in one college fill course requirements in the other college.

#### Degree Requirements

The degree of Juris Doctor is conferred upon a student of good moral character who has been recommended by the dean and faculty of the School of Law and who has:

- Completed satisfactorily all required courses, seminars and electives to earn at least 84 credits.
- Completion of a program involving extensive research and legal writing.
- Met the residency requirement of 96 weeks for the day division or 144 weeks for the evening division.
- Attained at least a 2.00 average for all courses taken and additionally, at least a 2.00 average for the senior year.
- Spent their last year at the University unless excused by a dean.

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## Library

The primary tool of the attorney is the written word. Thus, books take on an added importance when one undertakes a study of the law. The incoming student will soon discover that an essential portion of time and energy will be expended within the law school library.

The library has a fine collection of over 142,000 volumes in an attractive and pleasant reading room. The library has all the basic legal materials for conducting legal research in all fifty states and in federal practice. Extensive materials are available for research in many subject areas of the law. The library subscribes to the series of records and briefs of the Ohio Supreme Court and the United States Supreme Court. Audio tapes, video tapes and microforms are also available for use in many related areas of study.

The library is a federal government depository giving the student access to law-related publications of the federal government. The latest addition to the library is an online computer terminal for accessing legal data bases. This tool of the law office of the future is available now.

Five professional librarians (two with both a law degree and a master's degree in library science) five staff and a dozen assistants are available.

To supplement the collection are the University libraries with over one million volumes freely available to all students and a computer terminal linking the law library to 2,300 other libraries with more than seven million titles which may be borrowed.

## Curriculum

The curriculum\* includes foundation courses of common law origin, public law and those of a procedural nature, as well as perspective and planning courses. Law is studied by the case, problem, seminar and clinical methods. Clinical training is achieved through basic and advanced seminars which involve student participation in the work of the various legal aid, public defender, prosecutor's offices, as well as other agencies. The aim of this program of study, in addition to developing social awareness, is to train the student for technical competency, professional responsibility and for the practice of law in any common law jurisdiction.

The Law School faculty, to assist the student in planning a course selection that may be used to meet individual professional objectives while attending Law School here, adopted a suggested track system. In addition, the primary purpose of the suggested tracks is to identify when courses will be offered in the future. Tracks have been developed for the following: required and bar courses, business, litigation and tax.

### Day Program

#### First Year, Required Fall Semester

	Credits
Civil Procedure I	3
Contracts I	3
Property I	3
Torts I	3
Legal Research	1
Basic Legal Communications	1
Intermediate Legal Communication	1

#### Spring Semester

Civil Procedure II	3
Contracts II	3
Criminal Law	3
Property II	3
Torts II	3

### Evening Program

#### First Year, Required Fall Semester

Contracts I	3
Torts I	3
Legal Research	1
Basic Legal Communications	1
Intermediate Legal Communication	1

\*The coursework for the first year is prescribed and provides essential framework for subsequent study.

### Spring Semester

	Credits
Contracts II	3
Criminal Law	3
Legal Profession	1
Torts II	3

## Writing Program

The tools of the practicing lawyer are oral and writing skills. As an incoming law student, experience will be gained in using and improving these skills. All first-year students take a course in legal research and advocacy. During the year the student learns to use the specialized research materials of the law, gains experience using the latest computerized legal data bases, is supervised in a writing experience and has a chance to present written and oral arguments before a mock court.

A second year student is enrolled in the appellate advocacy courses. There, a student reads a transcript, identifies and briefs the issues and presents oral argument. This exercise closely simulates a true appellate experience. In the final year, the student takes an intensive, advanced legal writing course which concentrates on drafting of statutes, pleadings and other legal documents.

Subsequent experiences in writing are met through seminar, paper assignments for courses, individual studies, moot court briefs, law review or clinical experience. Opportunities are provided to exercise verbal skills thus enabling the student to become a successful advocate.

## The Akron Law Review

A board of student editors prepares and edits, with the advice of the dean and faculty, *The Akron Law Review*, a quarterly legal periodical devoted to legal research and commentary on the law. Membership on the board is limited to the student of superior academic achievement or of demonstrated writing skill who desires to engage in legal research, analysis, writing and editorship. Membership on the board of student editors is indicative not only of scholarship, but of valuable training in skills important to the profession of law.

## Standards of Academic Work

### Grades

The following system of grading is used in recording the quality of a student's academic work:

Grade		Grade Points Per Credit
A	Excellent .....	4.00
A-	.....	3.70
B+	.....	3.30
B	.....	3.00
B-	.....	2.70
C+	.....	2.30
C	.....	2.00
C-	.....	1.70
D+	.....	1.30
D	Poor .....	1.00
D-	.....	0.70
F	Failed .....	0.00

I	Incomplete .....	0.00
IP	In Progress .....	0.00
PI	Permanent Incomplete .....	0.00
AUD	Audit .....	0.00
CR*	Credit .....	0.00
NCR	Noncredit .....	0.00
W	Withdrawal .....	0.00

Academic averages are computed by dividing the grade points achieved by the credits attempted. When a course is failed and repeated, the credits and the grade points involved each time are included in the computation as if the repeated course were an independent course.

A grade-point ratio of less than 2.00 is unsatisfactory. After the first year, a law student whose scholarship is unsatisfactory will be either placed on probation, suspended for a definite period of time or dropped from the school at any time by the dean. Reinstatement is determined by the dean of the School of Law with advice of the Faculty Academic Committee. Written petition for reinstatement should be addressed to the dean.

If a student withdraws from a course with the permission of the dean, it will not count as work attempted. If a student leaves a course without the permission of the dean or is dropped from any course by the dean, the student is given a failing grade in the course and it is counted as work attempted.

**Graduation with Honors**

The School of Law awards Juris Doctor degrees with distinction in conformity with the present grade point average standards for the University. The following standards are applicable to students who entered the School of Law prior to January 1982.

will be designated	If the overall grade-point average is
<b>Summa Cum Laude</b> .....	<b>3.75 or higher</b>
<b>Magna Cum Laude</b> .....	<b>3.50 through 3.74</b>
<b>Cum Laude</b> .....	<b>3.25 through 3.49</b>

By University Council action of December 3, 1981, new criteria were established for graduation with honors. The new criteria are applicable to students entering the University (School of Law) January 1982 and thereafter. The criteria are:

will be designated	If the overall grade-point average is
<b>Summa Cum Laude</b> .....	<b>3.80 or higher</b>
<b>Magna Cum Laude</b> .....	<b>3.60 through 3.79</b>
<b>Cum Laude</b> .....	<b>3.40 through 3.59</b>

**Withdrawal From A Course**

A student may withdraw from a course for any reason up to the mid-point of a semester or summer session with the signature of a dean.

After the mid-point of a semester or a summer session, but prior to the last week of classes, a student must have the written approval of both instructor and dean. Should either refuse to sign the withdrawal form, the student may appeal to the dean of the School of Law who shall make the final decision. For complete withdrawal from the law school, a student must have written permission from a dean.

An approved withdrawal will be indicated on The University of Akron official academic record by a "W." A student who leaves a course without going through the withdrawal procedure will be given an "F" in the course.

**Honor System**

Consistent with the aim of training professionally responsible lawyers, and in recognition of the importance of honor and integrity of the individual lawyer, the faculty has placed the responsibility of honorable conduct on the individual student and the administration of the honor system on a council of students composed of Student Bar Association officers and class representatives. The entering students will receive a copy of the Honor Code.

**Faculty Research Assistance**

The student showing scholarship is given the opportunity to work with faculty members who are conducting research. This experience improves writing and research skills, gives the student the opportunity to be involved in research on the leading edge of legal knowledge and fosters learning in a non-classroom environment.

**Enrollment in Courses in Other Colleges of the University**

A student interested in taking courses in other colleges of the University may do so upon written consent of the dean. The study of law is considered a full-time pursuit, so each request is considered on an individual basis and in no case may a student use more than six credits earned outside of the law school for Juris Doctorate degree requirements.

**Clinical Training and Public Services**

The University of Akron School of Law, in recognition of the need to adequately prepare the student for future roles as an attorney, has created an urban clinical program, as described below.

**Appellate Review Office**

The vast bulk of the student-oriented, public service activities offered by the School of Law emanate from the Appellate Review Office. It is staffed by attorneys and six to eight student staff members. The student becomes eligible to work in the office after completion of the first year and receives either an hourly wage or academic credit.

As the office name implies, most of the work done involves postconviction representation. The office staff has perfected appeals in the State Courts of Appeal, the Supreme Court of Ohio, all of the Ohio Federal Courts and the United States Supreme Court.

One unique characteristic of the office is the substantial responsibility each student has for assigned cases. The student is responsible for doing the research, preparing drafts,

\*Not calculated in cumulative average.

compiling the final briefs and corresponding with the courts and other attorneys. The school has established this program with the goal of giving the conscientious student the opportunity to experience the practice of law in a supervised environment.

In addition to the Appellate Review Office, there are other associated activities where a student may experience the full gamut of legal problems.

### **Domestic Relations**

Under supervision of a staff attorney, the law student with a legal intern certificate represents indigent persons with domestic relation problems (e.g., dissolutions, divorces, child custody and support). The student has primary responsibility for the gathering of information, drafting of pleadings and court representation of the client.

### **Landlord-Tenant**

Many people are becoming enlightened about their rights as tenants, and the need for quick and effective legal representation in this field affords the student the opportunity to represent clients at the inception of the case. The student has primary responsibility for fact gathering, which may entail on-site investigation, counseling and strategy planning.

### **Inmate Assistant Project**

This is a unique student-run program in the state of Ohio; participants travel to and conduct interviews with prison inmates attempting to resolve their criminal and civil law problems. The student is encouraged to participate in this program from the very beginning of law school. Participation involves travel to either the reformatory for men or women, interviewing of inmates and follow-up on legal problems.

### **Clinical Seminar**

The student interested in experiencing the operations of public agencies may sign up to work in outside agencies, for credit. The student is assigned to various agencies, such as the County and City Prosecutor's Offices, County Public Defender's Office and the County Legal Aid Office. At placement, the student is able to see the inner workings of these offices while gaining a rich variety of knowledge. In coordination with this clinic, a course is taught which emphasizes the learning of interviewing and client-counseling techniques.

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## **Moot Court Programs**

To develop the dual skills of advocacy; oral prowess and brief writing, the student is encouraged to participate in the several moot court programs within and without the school. These programs enable the student to learn and polish the skills of legal writing and oral advocacy through the vehicle of "moot" or academic problems. The student is encouraged to participate in any of the following programs.

### **National Moot Court**

During the first year of studies, the student is given bids to try out for the law school's National Moot Court Team, based on that person's performance in the legal writing and research courses. A student is selected to represent the school in the

national and regional competitions during the second and third academic year on the basis of a presentation in an intramural competition.

### **Voluntary Moot Court**

For the student who does not participate in the National Moot Court Program, Voluntary Moot Court is available in the spring of each year. In this activity the student is given a "moot" problem, asked to prepare briefs and present oral argument against fellow students. The highlight comes in the final round when the competitors are evaluated by judges from the State Court of Appeals.

### **Jessup International Law Moot Court Competition**

The student interested in exploring international law on an appellate level competes on a national scale in this competition. Problems are always relevant and timely.

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## **Bar Admission**

Each student entering the School of Law is encouraged to read the rules for bar admission for the state in which the student intends to practice law. This information is available from the various state supreme courts. In addition, the information is on file in the library.

For the student interested in practicing in the state of Ohio, the Supreme Court of Ohio requires that each student entering a law school who intends to practice law in Ohio file within 120 days from the beginning day of the fall term after initiating studies:

- An application for registration as a law student.
- Evidence of his meeting the pre-legal educational requirements established by the Rule.
- A legible set of fingerprints on a prescribed form.
- A filing fee of \$30.

As a condition for taking the bar examination, the applicant must:

- File an application not less than 90 days prior to the date of the bar examination.
- Present a certificate from the School of Law stating that the student has completed or will complete all courses required by the Rule.
- A filing fee of \$60.

The appropriate Ohio forms may be obtained from the School of Law on request.

It is the responsibility of the student to initiate a request for, execute properly and file timely, the requisite forms to the state in which the student intends to practice law.

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## **Enrichment Programs**

The school is firmly committed to the belief that the quality of legal education, both within the school and in the legal community as a whole, is enhanced by the free exchange of ideas on matters of contemporary importance.

## Law Day Speaker Program

The law school has sought to facilitate visits by individuals who may have particular insight into issues facing the legal community.

The longest running program is the Law Day Speaker, in which the Student Bar Association and the Akron Bar Association, jointly bring to campus a speaker of national stature to present a public address on an issue of concern to those involved in the study and practice of law.

## Annual International Law Symposium

Each year since 1972 the school and the International Law Society have sponsored a two-day International Law Symposium. Participants in the program are internationally known experts within the field. The proceedings are published each year in a subsequent edition of the *Akron Law Review*.

## Special Seminars

In addition, the Student Bar Association has conducted special seminar programs throughout the year. These programs have included:

- American Civil Liberties Union's involvement in Skokie, Illinois' march by the American Nazi Party — its first amendment implications and other topics.
- Prisoners' Rights Seminar.
- Evidence Seminar — hearsay rule, and the art of cross-examination.
- Proposed revisions of the Federal Criminal Code.

The Student Bar Association has also sponsored visits by distinguished lecturers on various political, social and legal aspects of our society.

## The BFGoodrich Company Chair of Law

The BFGoodrich Company endowed a Professorial Chair of Law in International Transactions and Relations.

Its aim is to assist in the training of a law student as a counselor in business, government and private practice in international business transactions, and education in a global awareness of the economic and political problems of other nations, as reflected in their legal systems. With the cooperation of other academic units of the University, a unique opportunity is provided for an interdisciplinary study of subject matter areas such as in business, economics and government vital to counseling in international transactions and relations. Professor Hamilton DeSaussure is the holder of the BFGoodrich Company Chair of Law.

## Honors and Awards

The **Akron National Bank** provides an annual award of \$200 to the graduating senior who excels in the study of the law of trusts and estates, with the selection to be made by the dean.

The **Anderson Publishing Company** awards to the highest ranking graduating student in Corporations each year a copy of *Anderson's Ohio Corporation Desk Book*, and to the highest ranking graduating student in Wills a copy of *Lynn Will Clauses*.

The **Banks-Baldwin Law Publishing Company** awards annually a two-volume work entitled *Jacoby's Ohio Civil Practice Under the Rules* to the graduating law student displaying

scholarship in the study of Code Pleading, as determined by the dean, School of Law.

The **Bracton's Inn Award**, established by the Law Wives Club of the School of Law, is presented annually in recognition of superior performance in the law school's moot court program.

The **Bureau of National Affairs, Inc.** awards a one year complimentary subscription of *The United States Law Week* to a graduating student who, in the judgment of the faculty, has made the most satisfactory progress during the senior year.

The **Client Counseling Competition**, sponsored by Bracton's Inn and the Student Bar Association, offers an annual prize of a \$25 United States Savings Bond and a certificate to the winners of a simulated exercise in lawyer-client consultation and accompanying office memoranda, and an opportunity to compete in regional and national competition.

The **Dennis and Company Incorporated Law Book** publishers award is presented annually in recognition of superior performance in the Law School's Moot Court program.

The **Lawyers Co-operative Publishing Company and Bancroft-Whitney Company**, joint publishers of *American Jurisprudence*, award to top ranking students in about twenty-four courses a specially bound copy of the equivalent title from their multi-volume publication, as determined by the instructor(s) in charge.

The **Judge W. E. Pardee Memorial Award** of \$300 (established 1963-64) is presented annually to a participant (or team of participants) in Bracton's Inn (the Case Club of the School of Law) who best displays (display) advocacy skill and professional decorum, as determined by intramural competition.

The **Phi Alpha Delta Law Fraternity, International, Grant Chapter**, awards annually the Judge Florence E. Allen Memorial Award of a \$50 United States Savings Bond to a graduating law student predicated upon meritorius achievements in scholastics, community service and PAD, as determined by a committee chaired by the dean, School of Law.

**Prentice-Hall, Inc.** provides annually a complimentary subscription to its *Federal Tax Guide*, edition "A," to the graduate who has excelled in the study of taxation, as determined by the dean, School of Law.

The **West Publishing Company** annually awards four titles of *Corpus Juris Secundum* to students of all classes who have made the most significant contribution to overall legal scholarship, and four titles from the Hornbook Series to students with the highest academic average in each of the classes, as determined by the dean, School of Law.

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## Scholarships

The **Akron Bar Association Auxiliary Scholarship**, established by the Akron Bar Association Auxiliary, provides an annual scholarship not to exceed \$1,000 to a student in the full-time program of law study. The Akron Bar Association University Scholarship Committee, on the basis of scholarship, legal aptitude, character and need and with the advice of the dean, School of Law, shall make the selection giving first preference to a resident of Summit County, Ohio. A recipient may apply for an annual renewal of the scholarship.

The **Professor Hollis P. Allan Memorial Book Fund** was established in 1980 in memory of a beloved law professor and is awarded as determined by the dean, School of Law.

The **Evan B. Brewster Book and Scholarship Award** is funded by income from an endowment fund established in 1978 by Attorney Evan B. Brewster and is awarded to deserving law students, as determined by the dean, School of Law.

The **Briner, Catanzarite and Rakas University of Akron School of Law Taxation Scholarship**, established in 1978, is awarded annually in the amount of \$1,000 to an entering student in the full-time program of law study, on the basis of merit, who was the outstanding graduate of The University of Akron College of Business Administration, from the finance or accounting department, as determined by the dean, School of Law, upon recommendations submitted by the dean, College of Business Administration. The scholarship is not renewable to the recipient.

The **Goodyear Tire & Rubber Company Fund** is a fund established in 1969 by the Goodyear Tire & Rubber Company Fund, of which the principal and income will be used for scholarships and emergency expenses of students admitted to the School of Law under the Legal Education Opportunity Program, on the recommendation of the Dean, School of Law. The fund is administered by the University Development Foundation.

The **Howland Memorial Fund** provides Frank C. Howland Scholarships to deserving law students of demonstrated scholastic attainment, as nominated by the dean, School of Law.

The **Judge and Mrs. W. E. Pardee Memorial Scholarship** in an amount not to exceed \$500 is awarded annually to a deserving, full-time law student of demonstrated scholarship.

The **Judge James G. France Scholarship** is a fund established in 1979 by Mrs. France in memory of her husband James France, who gave the School of Law 22 years of distinguished service. The scholarship is awarded to a deserving law student demonstrating scholastic attainment as determined by the dean, School of Law.

The **Lee Ferbstein Scholarship Fund** established by the Akron Education Association (AEA) in 1979 as a tribute to Lee Ferbstein, for more than 30 years AEA legal counsel and a former member of the University's Board of Directors. The scholarship covers tuition, books, fees, room and board, all or in part, for a student enrolled in the School of Law, with primary interest in the field of labor law. The student should be a resident of Akron, Ohio, and a third year law student; otherwise there are no restrictions as to race, creed, color, sex or national origin. Selection of the recipient is determined by the dean of the School of Law, with assistance by the University Relations Committee of the AEA.

The **Herman Muehlstein Foundation of New York** established a fund to provide scholarships to qualified students from the New York City area, as nominated by the dean, School of Law.

The **Matthew 25:31-46 Scholarship Fund** is an endowed scholarship fund established in 1981 to provide tuition assistance for nuns enrolled in the School of Law preparing for service as poverty lawyers. Selection of the recipient and the amount of financial assistance is determined by the School of Law.

The **Ohio Law Opportunity Fund** is provided by members of the Bench and Bar in Ohio to assist Ohio residents from disadvantaged backgrounds as nominated by the dean, School of Law.

The **Phi Alpha Delta Law Fraternity, International**, annually makes available nationally twenty-one \$50 awards, and loans

up to \$1,000, to senior students who are members of the fraternity. Application should be made through the faculty adviser of the Grant Chapter, School of Law.

The **Judge and Mrs. Charles Sacks Scholarship** is a fund established in 1969-70, the Centennial Year of the University, in honor of Judge and Mrs. Charles Sacks by their children, Robert and Naomi Christman, Sy and Laurel Fischer and Harvey and Shirley Friedman, of which the income will be used to provide scholarships to deserving students in the School of Law, on the recommendation of the dean, School of Law.

The **Fully R. Spain, Jr., Memorial Fund** was established in 1980 by family and friends in loving memory of Fully R. Spain, Jr., a 1973 School of Law graduate. This scholarship provides \$1,000 annually for a student enrolled in the School of Law, as determined by the dean.

The **Joseph Thomas Memorial Law Scholarship Fund** is a fund established in 1976 by the Firestone Foundation in memory of Joseph Thomas, Esquire, the income from which is used to assist a financially deserving student or students of high academic potential and achievement residing in Summit County, on the recommendation of the dean, School of Law. The award may be renewed.

**The University Board of Trustees Tuition Remission Scholarships** are available for entering and continuing law students on the basis of scholarship and/or need as determined by the dean, School of Law.

For additional information and application forms for the above scholarships, contact the associate dean at the School of Law (216) 375-7331.

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## Activities and Organizations

**ARETE**, a student-managed publication, publishes a monthly newsletter intended to serve as a forum for law students, faculty and outside opinions on a wide range of contemporary issues related to law and the School of Law. ARETE is open to students after the first year.

The **Black American Law Student Association (BALSA)** was accredited as a law student organization in 1974 and is an affiliate of National BALSA, Inc. Dedicated to the twin objectives of increasing minority enrollment and retention, BALSA sponsors seminars on subjects such as legal rights of blacks, poor and oppressed people.

**Bracton's Inn**, styled after the old English inns at Court, is a student-run group having primary responsibility for developing student brief writing and oral advocacy programs. A student may become a member of the inn by engaging in any of the various oral advocacy programs offered during the school year. Among the activities sponsored by the inn are: client counseling competition, high school mock trial, voluntary mock trial, and Order of Barristers.

The **Delta Theta Phi Law Fraternity**, Seiberling Senate, was chartered in 1973, in honor of Congressman John F. Seiberling. The objective of Delta Theta Phi is to bring together congenial men and women of good will and common purpose who regard the study and practice of law as activities worthy of the highest human endeavor. A law student in good standing is eligible for membership after the first semester.

The **Law School Alumni Association** was formed in 1974 and has since supported activities and programs which

enhance the quality of education at the School of Law. The association operates in conjunction with the Law Placement Office and assists students and graduates in their placement efforts. Members in the association provide support for various school activities and receive a newsletter, alumni directory and other benefits.

Founded in 1971, the **International Law Society** emphasizes the study of and active participation in, international law. Interested students are encouraged to join to work towards the development of programming, panel discussions and competitive events highlighting this growing and exciting field of law. The International Law Society co-sponsors the annual International Law Symposium.

The **Phi Alpha Delta Law Fraternity, International**, Grant Chapter, was established in 1962. Through service to the student, the school and the legal profession, Phi Alpha Delta strives to advance not only the attainment of a high standard of scholarship, but also the development of a spirit of good fellowship among its men and women members. Speakers, workshops, parties, luncheons and the annual used-book sale

are among some of the activities sponsored by Grant Chapter. The fraternity welcomes all students in good standing after the first semester.

The **Student Bar Association** develops innovative educational programming, maintains ties with the legal community through joint ventures and plans the various student social and legal activities throughout the school year. Membership is open to all law school students. The student desiring an opportunity to actively direct the course of student law school involvement is encouraged to seek election to this body.

**Law Association for Women's Rights** is concerned with the evolving role of the woman attorney within our legal system, as well as the changing rights of women in the community. This association is of local origin, nonaligned with any national organization. Its membership is comprised of male and female law students and members of the local bar. The group has a multi-faceted approach to achieving its goals, which include providing undergraduate women with law school information, heightening community awareness of women's rights and problems and providing topical discussion groups.

6

Research Centers and Institutes;  
Continuing Education and Public Services

# Research Centers and Institutes

Alan N. Gent, Ph.D., *Dean of Graduate Studies and Research*  
Joseph M. Walton, Ph.D., *Associate Dean of Graduate Studies and Research*

John E. Mulhauser, M.A., J.D., *Associate Director of Research and Sponsored Programs*

In the past, colleges and universities have been thought of as ivy-covered storehouses of knowledge where neatly packed information was dispensed to eager students. But this has never been true, for it is here that much of the new knowledge developed. And with the accelerating tempo of our times, there is an increased call for the universities to provide more new knowledge to enable society to cope.

The University of Akron is alive to this challenge and has sought to develop its research program with an eye to the needs of the society it serves. Here the emphasis is on work that is relevant, not on mere knowledge for knowledge's sake. One consequence of the University's concern with relevant research has been the number of interdisciplinary teams that have been put together to tackle specific problems. For instance, problems in connection with water pollution have used the services of chemists, biologists and chemical, mechanical and civil engineers. While the planning and organization of a research project is usually carried out by or with the assistance of a faculty member, both the graduate and undergraduate student have the opportunity to participate, depending on the nature of the project and the skills and knowledge required.

Sponsored research activities on campus are coordinated by the Research Council founded in 1962; it also serves as the policy-making body for research. The council consists of the dean of graduate studies and research, the coordinator of research and the directors of the various research institutes.

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## Institute for Biomedical Engineering Research

This institute was established in 1979 to promote interdisciplinary studies in the rapidly growing areas of knowledge which overlap the fields of biology and medicine, on the one hand, and engineering and the physical sciences, on the other. It conducts seminars, courses and degree programs in biomedical engineering in association with the College of Engineering and individual departments.

In addition to its research and educational functions, the institute provides a research service to local hospitals and industry, as well as to private and government agencies. The premise for this program is that the combined resources of the University, Northeastern Ohio Universities College of Medicine and affiliated organizations will often permit more cost-effective solutions than would be possible by an individual or group doing the research independently.

The work of the institute is carried out by "members" selected from the faculties of The University of Akron and Northeastern Ohio Universities College of Medicine, as well as from the ranks of area physicians, engineers and scientists. A director appointed by the president of the University coordinates the activities of the institute through the senior vice president and provost.

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## Institute of Civic and Educational Research

H. Kenneth Barker, Ph.D., *Director*

Concerned with the increasingly complex human problems facing our society today, this institute is carrying out a number of studies designed to assist government and industry to meet the challenges of the times. In addition to studies whose concern is to improve the educational process, there are a number of programs which aim to improve governmental service, both by devising new solutions to problems and by bringing together experts in various fields to share their expertise with others.

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## Center for Economic Education

Fred M. Carr, Ph.D., *Director*

The center exists to improve the economic literacy of individuals in order to help them function competently as citizens, producers and consumers.

The center conducts workshops, seminars and economic programs for teachers, students and interested groups. It provides consulting services in the area of economic education and acts as a clearinghouse for the gathering and dissemination of economic education materials and programs. It also fosters an understanding and appreciation of the American economic system.

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## Center for Environmental Studies

Jim L. Jackson, Ph.D., *Director*

The Center for Environmental Studies matches the expertise of 95 affiliates in 33 disciplines with the needs of a student seeking study and research opportunities in complex environmental issues. Since its founding in 1970, the center has sponsored, or in other ways supported, activities appropriate to the goal of attaining a quality environment for mankind.

The center coordinates special forums, workshops and seminars that address major issues. Examples include the National Energy Forum, 1976; the World Food Forum, 1978; and the Application of Geologic and Soils Information, 1979. Teacher workshops on energy, natural history and environmental studies in England also emphasize the interdisciplinary approach to the resolution of issues.

The center is currently working with the National Park Service to provide a program of environmental studies in the Cuyahoga Valley National Recreation Area (CVNRA). These programs are operated through the University's Oak Hill Center for Environmental Studies. Located in the CVNRA, the center encourages research and educational opportunities in the park. Oak Hill activities are supported by grants from foundations, the National Park Service, The University of Akron and fees from program participants.

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## Institute for Futures Studies and Research

Gary Gappert, Ph.D., *Director*

The Institute for Futures Studies and Research was established in 1978 to provide a focal point, function as a catalyst and assist

in establishing curricula, studies and cross-disciplinary activities dealing with the future. Because of its very nature, the institute encourages involvement and cooperation of faculty and students from a variety of disciplines.

Among its major activities, the institute will work with faculty, administration and the University's standing Commission on Institutional Planning and Development to facilitate integration of futures research and awareness with academic programming, planning and decision making.

The institute also plans to involve local business, industry and government in futures studies by establishing a local chapter of the World Future Society to encourage interest in forecasting, trends and ideas about the future.

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## Center for International Programs

Laurence J. C. Ma, Ph.D., *Director*

The University of Akron serves a community that is very much on the international scene. The world's major rubber industries that are located here have plants in every part of the globe, as do many of the city's smaller industries. Our student population includes more than 400 foreign students. The University faculty has wide interests and has traveled extensively to various parts of the world. The various colleges of the University have developed programs to give the student an awareness of the global nature of knowledge. There are numerous courses in non-western studies, area concentrations, programs in international business and various opportunities for students and alumni to travel overseas.

Through its advisory committee, composed of faculty and students of the various colleges, the Center for International Programs attempts to find ways of committing the University to programs that produce a student who will be more knowledgeable about the total world. Hopefully, this can be done by increasing the international content of our various courses and finding ways to expose students and faculty to the various cultures of the world.

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## Institute for Life-Span Development and Gerontology

Harvey L. Sterns, Ph.D., *Director*

The Institute for Life-Span Development and Gerontology was formally established at The University of Akron in February 1976. The statement of purpose of the institute is to bring together disciplines and activities of the University — in training, in research and in public service — so that, in the broad application, we may improve the quality of life for the young, the middle aged and the elderly of our community. Thus, through interdisciplinary involvement, the institute is concerned with research and training in the areas of child and adult development as well as with response to the needs and wants of older adults.

Among the objectives of the institute are: to coordinate a multi-disciplinary program in life-span development and gerontology with undergraduate and graduate certificate programs to be received with associate, baccalaureate or graduate degrees in existing academic programs; to provide student placement experience which involves children and older adults in other community agencies and facilities.

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## Center for Organizational Development

Joseph C. Latona, Ph.D., *Director*

The Center for Organizational Development in the College of Business Administration is an outgrowth of the Institute of Business and Economic Research which was one of the four facets of the Research Council established in September 1962 by the University Board of Trustees. The institute was renamed in 1975 as its functions had been expanding to fill a community need. The general goal of the center is to update the organizational skills of area managers in all types of organizations and at all levels. The center cooperates with business, government, professional and service groups in evaluating and analyzing their specific needs, designing programs and coordinating programs to meet the particular needs of these groups.

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## Center for Peace Studies

Warren F. Kuehl, Ph.D., *Director*

The Center for Peace Studies has been established to study the subject of international peace within the threefold framework of the University's goal of education, research and public service. A peace studies certificate program is available for the student who wishes to pursue this course of study, and the center sponsors special campus programs, a film series and an international newsletter. It is engaged in research projects and cooperates with organizations in the community interested in peace and with institutes and peace centers on other campuses.

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## Center for Polymer Engineering

James L. White, Ph.D., *Director*

The Center for Polymer Engineering cooperates closely with the Institute of Polymer Science. The center provides an identifiable entity for submission of research proposals and the handling of applied research projects.

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## Institute of Polymer Science

Frank N. Kelley, Ph.D., *Director*

The Institute of Polymer Science carries out basic and applied research in polymer science and the graduate training of polymer scientists and engineers.

Because of its location in the heart of the world's largest concentration of rubber industries, The University of Akron has always maintained a special interest in the science of rubber, dating back to the establishment in 1908 of the world's first course in rubber chemistry by the late Dr. C. M. Knight. During World War II, the research activities were expanded under the impetus of the United States Government Synthetic Rubber Program. After the war, it soon became apparent that the phenomenal rise of the synthetic rubber industry had brought the whole science and technology of rubber into the broader field of polymer science, and the need for polymer scientists was fast outstripping the meager supply. Hence, the establishment of the Institute of Rubber Research in 1956 was accompanied by the inauguration of the University's first Ph.D. program — polymer chemistry.

Because polymer science and technology seek ultimately to relate the molecular structure of macromolecules to their physical behavior, it requires the combined efforts of chemists, physicists and engineers. Hence the best trained polymer scientist or engineer is one who has a broad understanding, including areas outside a specialty. To fill this need, the University, in 1964, broadened its original program into an interdisciplinary program in polymer science, available to chemists, physicists and engineers, and leading to M.S. and Ph.D. degrees in polymer science. This program is administered by the Department of Polymer Science, the academic arm of the institute.

The institute and department occupy the north tower of the Auburn Science and Engineering Center and the adjacent Whitby Hall. It includes both chemical and physical laboratories, the latter devoted to physical measurements on polymers and elastomers. These facilities enable a wide scope of research to be carried out, including organic reactions, polymerization studies, characterization of macromolecules and physical behavior and testing of polymers and elastomers. The well-equipped laboratories, together with the large interdisciplinary group of faculty, staff and graduate students, make the institute a unique facility in this field. It is now comprised of 13 full-time faculty members in various disciplines, a combined technical and non-technical staff of 10 and 65 full-time graduate students, mainly pursuing doctoral degrees. Thus, the institute is the largest academic facility of its kind in the United States.

The basic research work at the institute is performed by graduate degree candidates under the supervision of faculty. The character of this research makes it suitable for use in the graduate thesis or dissertation. The institute also operates an applied research section which undertakes projects as a service for government and industry, performed by a special staff.

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## **Institute for Technological Assistance**

Andrew L. Simon, Ph.D., *Executive Director*

This institute provides technical assistance, nationally and

internationally, to those seeking to advance their academic status. It assists individual faculty members in their research and educational efforts and carries out various functions as defined by protocols and contracts in this country and with foreign nations.

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## **Center for Urban Studies**

Frank J. Costa, Ph.D., *Director*

Edward H. Hanten, Ph.D., *Associate Director*

One of the greatest challenges facing the urban university is that of effectively using its many resources in urban analysis. The Center for Urban Studies was established in 1965 in response to this challenge and is the focus around which the University applies available knowledge to urban problem solution. The center seeks to organize and develop programs and research areas which use and stimulate faculty participation in urban area analysis. The center's objectives are to apply new methods and to experiment with new approaches in solving urban problems. Thus, it strives to stimulate, within the University, creative solutions to urban problems by coordinating the urban perspectives of the various disciplines and professions.

The center provides advisory and research expertise in a wide range of areas to both public and private agencies on all levels. Research covers such areas as urban and regional planning, administrative organization, cost-benefit analysis, community development, housing, intergovernmental relations, urban employment, criminal justice planning, recreation, social services planning and urban education.

The center represents a multidisciplinary approach to the analysis of the urban region. It augments its research capabilities by drawing upon the expertise of the faculties in the various colleges within the University. Through its programs in research, data accumulation and extension, the center provides the setting and facilities through which interested faculty and graduate students can become involved in urban research or public service activities.

# Continuing Education and Public Services

William A. Rogers, Ed.D., *Executive Dean*  
Kathryn Vegso, M.S.Ed., *Associate Dean*

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## Background

Since 1956, the University has offered special institutes, workshops and courses to professional groups. The University, through its academic departments, Institute for Civic Education, Department of Special Programs and its various institutes and centers will continue to provide "outreach" programs.

As an urban institution of higher learning, the University clearly identifies and supports its public service role. Off-campus programs have been developed throughout the calendar year.

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## Urban Commitment

The mission of most universities includes teaching, research and public service. Time and location dictates the varying manner by which institutions of higher education carry out their mission.

The rate of man's knowledge has accelerated at a staggering pace in the past three decades. The University's traditional mission to educate 18- to 22-year-olds and reproduce its own replacements in the doctoral format is too limiting a role for an urban institution. A society that supports urban public higher education expects the University to play a wider role and to intersect with almost all segments of its population. There now exists a greater need for continued education.

Some have observed that for the first time in our history, Americans are members of a learning society in addition to the working one. If an urban institution of higher learning is to fulfill its non-traditional role, different administrative structures within the institution are necessary to provide a proper balance among teaching, research and service. At The University of Akron, a variety of such units are dedicated to the support of the urban commitment.

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## Objectives

The primary objective is to provide University-level continuing education; programs for those beyond college age; and, other educational programs for adults interested in non-degree oriented activities. In addition, the establishment and maintenance of an effective liaison with all Akron area agencies responsible for formal and informal post-secondary education is part of the University's urban mission.

Other objectives include the following:

- To offer meaningful learning opportunities to those engaged in the various professions.
- To offer assistance to industry, business, labor, public officials and community leaders in developing staff personnel and programs that will help them function more effectively.
- To offer joint University and community assistance to local, specialized organizations, agencies and their community groups to help them achieve their educational goals.
- To offer a variety of opportunities to adults who wish to increase their personal awareness and insights as individual members of a larger society.
- To serve as a coordinating body for post-secondary activity for the Akron areas.
- To support and conduct research directed toward the identification of innovative approaches to continuing education and public service.
- To provide training programs for off-campus clients that will upgrade skills and help organizations improve the quality of their services.
- To motivate continuing education personnel to become sensitive to individual and group, implicit and explicit, needs within the community.

Therefore, Continuing Education and Public Services will cooperate with faculty and all campus offices to develop proposals for outside funds to help the University better serve its many audiences.

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## Institute for Civic Education

Marvin E. Phillips, M.A., *Director*

Mary Elizabeth Chesrown, B.A., *Assistant Director*

The Institute for Civic Education is the conference and seminar programming center for the University. Many informal programs are designed for the community, utilizing the resources of the entire University and community. These programs are conducted both on and off the University campus; they vary in length and frequency; many are free.

Universities cannot completely rely on the traditional academic classroom approach to fulfill the requirements of education for public responsibility because learning is a life-long process distilled from varied educational and practical experiences. The institute sees its role as the catalyst for bringing together the skills and expertise of University personnel and community leaders to focus on the issues and problems of the urban society.

The continuing educational services provided by the institute include:

- Conference and seminar planning for organizations both on and off campus.
- Organizing the College Ambassador program.
- Publishing the monthly *Civic Educalendar*, listing events and programs.
- Initiating the weekly Current Issues Forum.
- Coordinating University and community groups in the weekly Akron Area Film Society.

Programs are described in special announcements that are distributed through specialized and general mailing lists. The institute also represents the University in many community, state and national organizations including the Ohio Association for Adult Educators, United Community Council Conference of Executives and Foreign Policy Association.

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## Department of Special Programs

Richard R. Teaff, Ph.D., *Director*

Sandra B. Edwards, M.A., *Assistant Director*

Continuing education is a necessity for many persons wishing to improve work skills. For others, it is a leisure-time avocation for personal enrichment. Since 1937, The University of Akron, through the Department of Special Programs' year-round sessions, has offered courses, in both categories, for adults who do not require academic credit.

More than 175 classes, based upon the educational needs of the community, are offered each term. There are no requirements for admission to informal courses and any educational background is acceptable. Interest in learning in a relaxed and non-competitive environment is the only consideration.

Permanent student records are kept for all persons enrolled. Homework and examinations may be given; however, certificates of satisfactory completion are awarded based solely on attendance.

Following is a representative though partial listing of types of subjects taught in classes:

- Business and Industry — Accounting, bookkeeping for small business, building trades blueprint reading, diesetting, estimating for construction, federal income taxation, human relations, investing, psychology in business and industry, production and inventory control, quality control, selling, small business management, steam plant operation, supervision, technical drawing.
- Communications Skills (verbal and written) — Creative writing, effective oral communication, English as a second language — verbal, English grammar, English review for the college bound, practical journalism, reading improvement, skills in listening, speed reading, vocabulary improvement.
- Data Processing — Assembler language, business data processing and computer programming, cobol workshop, fortran, key punching.
- Electronics — Basic electronics, fundamentals of AC-DC circuitry.
- Humanities and Fine Arts — Antiques, glass blowing, interior decorating, Judaism, motion picture production, photography.
- Mathematics — Algebra, math for everyday use, plane geometry, trigonometry.
- Metallurgy — Metal casting.
- Modern Languages and Culture — Arabic, Chinese, French, German, Greek, Italian, Polish, Romanian, Russian, Serbo-Croatian, Spanish, Swahili.

- Physical Education and Recreation — Korean karate, physical fitness for men and women, scuba and skin diving, swimming for women, self-defense for women, yoga.
- Real Estate — Appraising, commercial property, communications, finance, fundamentals I and II, house construction, legal aspects, management and investment, marketing understanding real estate.
- Science — Air pollution, engineering refresher, German, Russian for polymer scientists.
- Secretarial Skills — Business machines, certified professional secretaries review seminar, Gregg shorthand, office receptionist, typewriting.

Courses can be developed to meet special needs of business and industry and may be offered on-site for the convenience of employees.

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## Adult Resource Center

Kathryn Vegso, M.S.Ed., *Director*

The Adult Resource Center is a brokerage service which provides educational information, guidance and referral, and reflects a collaboration among the educational, business, governmental and social service units of this community. This community education center provides career/life planning for persons and organizations in the greater Akron area. It also serves as a catalyst for community and University organizations which want to publicize and/or develop information and programming to meet the needs of a broader segment of the population. This brokerage service represents a new network of the community's educational services; a new approach to adults making role changes; a new focus on the adults of this community as prospective learners with unique needs.

To identify the interrelationships between education and work at various stages of life, the Adult Resource Center schedules seminars and workshops to focus on helping persons plan ways to make greater use of their human potential.

For the person who has experienced career/life changes and recognizes the value of continuing to learn over the lifespan, learning consultants, at both campus and community sites, help the individual identify and gain access to learning opportunities.

"Within each of us there is what we have not yet become."

7

Courses of Instruction

# Course Numbering System\*

## Index

### Department of Developmental Programs

1020 Developmental Programs

### English Language Institute

1030 English Language Institute

### University College

1100 General Studies

### Air Force ROTC

1500 Aerospace Studies

### Army ROTC

1600 Military Science

### Interdisciplinary Programs

1810 Afro-American Studies

1820 Institute for Future Studies and Research

1830 Environmental Studies

1850 Institute for Life-Span Development and Gerontology

1860 Peace Studies

1870 Honors Program

1880 Medical Studies

### Community and Technical College

2000 Cooperative Education

2020 Associate Studies

2100 Individualized Study

2200 Educational Technology

2210 Handicapped Services

2220 Criminal Justice Technology

2230 Fire Science Technology

2240 Commercial Art

2250 Public Service Technology

2260 Community Services Technology

2270 Labor Studies

2280 Hospitality Management

2420 Business Management Technology

2430 Real Estate

2440 Data Processing

2520 Marketing and Sales Technology

2540 Secretarial Science

2560 Transportation

2730 Histotechnology

2740 Medical Assisting

2760 Radiologic Technology

2770 Surgical Assisting

2780 Allied Health

2790 Respiratory Therapy

2840 Chemical Technology

2860 Electronic Technology

2880 Manufacturing Technology

2900 Instrumentation Technology

2920 Mechanical Technology

2940 Drafting Technology

2980 Surveying and Construction Technology

### Buchtel College of Arts and Sciences

3000 Cooperative Education

3100 Biology

3110 Biology/N.E.O.U.C.O.M.

3120 Medical Technology

3130 Cytotechnology

3150 Chemistry

3200 Classics

3210 Greek

3220 Latin

3250 Economics

3300 English

3350 Geography

3370 Geology

3400 History

3450 Mathematics

3460 Computer Science

3470 Statistics

3480 Mathematical Sciences

3500 Modern Languages

3520 French

3530 German

3550 Italian

3570 Russian

3580 Spanish

3600 Philosophy

3650 Physics

3700 Political Science

3750 Psychology

3850 Sociology

3870 Anthropology

3940 Polymer Science

3980 Urban Studies

### College of Engineering

4100 General Engineering

4200 Chemical Engineering

4300 Civil Engineering

4400 Electrical Engineering

4450 Engineering Computer Science

4600 Mechanical Engineering

4700 Polymer Engineering

4980 Construction Technology

### College of Education

5000 Cooperative Education

5100 Educational Foundations

5200 Elementary Education

5250 Reading

5300 Secondary Education

5400 Technical and Vocational Education

5550 Physical Education

5560 Outdoor Education

5570 Health Education

5600 Educational Guidance and Counseling

5610 Special Education

5620 School Psychology

5630 Multicultural Education

5700 Educational Administration

5800 Special Educational Programs

5850 Educational Technology

5900 Higher Education Administration

### College of Business Administration

6000 Cooperative Education

6200 Accounting

6400 Finance

6500 Management

6600 Marketing

### College of Fine and Applied Arts

7000 Cooperative Education

7100 Art

7400 Home Economics and Family Ecology

7500 Music

7510 Musical Organizations

7520 Applied Music

7600 Communication

7700 Communicative Disorders

7750 Social Work

7800 Theatre Arts and Dance

### College of Nursing

8000 Cooperative Education

8200 Nursing

### School of Law

9200 Law

\*A more detailed explanation of the numbering system can be found in "Course Numbering Systems," **Section 3** of this *Bulletin*.

# Department of Developmental Programs

## 1020: Developmental Programs

### 1020:040 BASIC WRITING I

4 credits\*

Provides basic instruction in composition skills: grammar, sentence structure, sentence combining and punctuation. Develops skills necessary to write expository paragraphs.

### 1020:042 BASIC WRITING II

Reviews essential areas of sentence structure, sentence combining and punctuation necessary for composition writing, but concentrates on writing expository paragraphs.

### 1020:050 BASIC MATHEMATICS I

4 credits\*

Introduces the basic concepts of elementary algebra and provides an extensive review of arithmetic operations.

### 1020:052 BASIC MATHEMATICS II

Designed to review and strengthen skills needed for credit mathematics courses.

### 1020:060 COLLEGE READING

4 credits\*

Designed to improve general reading ability and develop effective study strategies with emphasis on vocabulary development, basic comprehension, textbook reading, study and test-taking techniques.

### 1020:071,2 DEVELOPMENTAL NATURAL SCIENCE: CHEMISTRY

Review of mathematics as applied in chemistry; fundamental principles in scientific approach to solving problems; basic principles of general chemistry. May enroll for a second semester.

### 1020:299 SPECIAL TOPICS: DEVELOPMENTAL PROGRAMS

Selected topics and subject areas of interest in developmental education.

## 1030: English Language Institute

### 1030:091 ENGLISH LANGUAGE INSTITUTE: WRITING

Provides intensive instruction in English writing for native speakers of languages other than English who are planning to seek admission to a United States university.

### 1030:092 ENGLISH LANGUAGE INSTITUTE: READING

Provides intensive instruction in vocabulary and reading skills designed to develop the English reading ability of native speakers of languages other than English who are planning to seek admission to a United States university.

### 1030:093 ENGLISH LANGUAGE INSTITUTE: SPEAKING/GRAMMAR

Provides intensive instruction in English grammar, with an emphasis on oral skills, for native speakers of languages other than English who are planning to seek admission to a United States university.

### 1030:094 ENGLISH LANGUAGE INSTITUTE: LISTENING

Provides intensive laboratory and class instruction designed to improve the English listening skills of native speakers of languages other than English who are planning to seek admission to a United States university.

### 1030:095 ENGLISH LANGUAGE INSTITUTE: COMPREHENSIVE

Provides intensive instruction in English writing, reading, listening and speaking for speakers of languages other than English who are planning to seek admission to a United States university. Offered only during the summer.

# University College

## 1100: General Studies

### 1100:105 INTRODUCTION TO PUBLIC SPEAKING 3 credits

Introduction to principles and practice of speaking by reading examples of speeches, studying techniques and methods employed and applying them in a variety of speaking situations.

### 1100:106 EFFECTIVE ORAL COMMUNICATION 3 credits

Principles of communication in speaker-audience, group and informal settings, and application of the principles in speeches, group discussions and other oral and written assignments.

### 1100:111,2 ENGLISH COMPOSITION 4 credits each

Sequential. Proficiency in reading and writing of English is obtained. Reading materials used are literary works of our Western tradition.

### 1100:115,6 INSTITUTIONS IN THE UNITED STATES 3 credits each

Nonsequential. Descriptive and comparative study of development of modern American institutions. Covers various aspects of growth and elaboration of American governmental, social and economic institutions.

### 1100:120-81 PHYSICAL EDUCATION 1/2 credit each

Participation in individual and group sports. Individual can acquire knowledge and skill in activities which may be of value and satisfaction throughout life. One-half credit courses are offered one-half semester. Permission of coach necessary for enrollment in varsity sports (1100:170-181).\*

### 1100:120 ARCHERY

### 1100:146 SWIMMING (beginning)

### 1100:121 BADMINTON

### 1100:147 SWIMMING (Intermediate)

### 1100:122 BASKETBALL

### 1100:148 SWIMMING (advanced)

### 1100:123 BOWLING

### 1100:149 TEAM HANDBALL

### 1100:124 CANOEING

### 1100:150 TENNIS (beginning)

### 1100:125 DIVING

### 1100:151 VOLLEYBALL

### 1100:126 FITNESS

### 1100:152 WATER POLO

### 1100:127 GOLF

### 1100:154 WRESTLING

### 1100:128 GYMNASTICS (apparatus)

### 1100:132 KARATE\*\*

### 1100:129 GYMNASTICS (tumbling)

### 1100:133 LIFE SAVING\*\*

### 1100:130 HANDBALL

### 1100:139 SELF DEFENSE\*\*

### 1100:131 INDOOR SOCCER

### 1100:153 WATER SAFETY\*\*

### 1100:134 MODERN DANCE

### 1100:170 VARSITY BASEBALL

### 1100:135 RACQUETBALL

### 1100:171 VARSITY BASKETBALL

### 1100:136 RUGBY

### 1100:172 VARSITY CROSS COUNTRY

### 1100:137 SAILING

### 1100:173 VARSITY FOOTBALL

### 1100:138 SCUBA

### 1100:174 VARSITY GOLF

### 1100:140 SKIING (cross country)

### 1100:175 VARSITY SOCCER

### 1100:141 SKIING (downhill)

### 1100:176 VARSITY SOFTBALL

### 1100:142 SOCCER

### 1100:177 VARSITY SWIMMING

### 1100:143 SOCIAL DANCE

### 1100:178 VARSITY TENNIS

### 1100:144 SQUARE AND FOLK DANCE

### 1100:179 VARSITY TRACK

### 1100:145 SQUASH RACQUETS

### 1100:180 VARSITY WRESTLING

### 1100:181 VARSITY VOLLEYBALL

\*Varsity sports are one credit each.

\*\*One credit each. Two periods each week.

\*Institutional credit only.

**1100:221 NATURAL SCIENCE: BIOLOGY** 3 credits

Designed for nonscience majors to illustrate fundamental concepts of living organisms with emphasis on man's position in, and influence on, the environment.

**1100:222 NATURAL SCIENCE: CHEMISTRY** 3 credits

Designed for nonscience majors. Introduction to chemical principles at work in man and in the environment.

**1100:223 NATURAL SCIENCE: GEOLOGY** 3 credits

Study of basic principles and investigative techniques in various fields of geology with emphasis on relationship of geological processes to society.

**1100:224 NATURAL SCIENCE: PHYSICS** 3 credits

Introduction to, and commentary upon, some of the most significant principles, perspectives and developments in contemporary physics. Intended for nonscience majors.

**1100:320,1 WESTERN CULTURAL TRADITIONS** 4 credits each

Sequential. Prerequisite: 64 credits, or permission. Introduction to human experiences of the past as manifested in the ideas, music and visual arts of Western Civilization, the Greeks to the present. Two lectures/two discussions per week.

*Courses 1100:330-5 are designed to give a basic knowledge of past human experiences and an understanding of current events in some key areas of the non-Western world.*

**1100:330 EASTERN CIVILIZATIONS: CHINA** 2 credits

Prerequisite: 64 credits.

**1100:331 EASTERN CIVILIZATIONS: JAPAN** 2 credits

Prerequisite: 64 credits.

**1100:332 EASTERN CIVILIZATIONS: SOUTHEAST ASIA** 2 credits

Prerequisite: 64 credits.

**1100:333 EASTERN CIVILIZATIONS: INDIA** 2 credits

Prerequisite: 64 credits.

**1100:334 EASTERN CIVILIZATIONS: NEAR EAST** 2 credits

Prerequisite: 64 credits.

**1100:335 EASTERN CIVILIZATIONS: AFRICA** 2 credits

Prerequisite: 64 credits.

## Air Force ROTC

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### 1500: Aerospace Studies

**1500:113,4 FIRST YEAR AEROSPACE STUDIES** 1.5 credits each

(AS100), General Military Course. Missions and organizations of Air Force and current events discussed to show how the military contributes to national defense. Laboratory develops leadership skills.

**1500:253,4 SECOND YEAR AEROSPACE STUDIES** 1.5 credits each

(AS200), General Military Course. Emphasis on air power history. Films, lectures and class discussions. The politico-military environment is presented. Leadership Laboratory.

**1500:303,4 THIRD YEAR AEROSPACE STUDIES** 3 credits each

(AS300), Professional Officer Course. Management concepts in the military. Leadership theory, functions and practices; professionalism; and responsibilities. Communicative skills are developed. Leadership Laboratory.

**1500:453,4 FOURTH YEAR AEROSPACE STUDIES** 3 credits each

(AS400), Professional Officer Course. Focuses attention on the military profession, military justice systems, civil-military interactions, and the framework and formulation of defense policy. Communicative skills are developed. Leadership Laboratory.

## Army ROTC

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### 1600: Military Science

**1600:100 INTRODUCTION TO MILITARY SCIENCE I** 1.5 credits

Introduction to the United States Army, Army ROTC and career opportunities for ROTC graduates. Emphasis on the organization, capabilities and mission of the US Army. Rifle marksmanship, mountaineering techniques, and career planning. No military obligation incurred.

**1600:101 INTRODUCTION TO MILITARY SCIENCE II** 1.5 credits

A study of military map reading, first aid and leadership. Acquisition of cross-country skiing and pistol marksmanship skills. No military obligation incurred.

**1600:200 SMALL UNIT OPERATIONS** 1.5 credits

Application of the principles of war to the techniques of unit tactical operations. A study of national defense policies, military communications and mountaineering techniques. Acquisition of cross-country skiing skills. No military obligation incurred.

**1600:201 MILITARY LEADERSHIP** 1.5 credits

Investigation of the theory and techniques of military leadership and management. Study of military communications and weapon systems. Acquisition of cross-country skiing and marksmanship skills. No military obligation incurred.

**1600:300 ADVANCED LEADERSHIP I** 3 credits

Prerequisite: 100.1; 200.1 and/or permission. Intensive investigation of the leadership process to include applicatory work emphasizing officer ethics, duties and responsibilities.

**1600:301 ADVANCED LEADERSHIP II** 3 credits

Prerequisite: 300 and/or permission. Study and analysis of small unit leadership and tactics stressing application and problem-solving processes. Practical work with communications equipment and land navigation.

**1600:400 MILITARY MANAGEMENT I** 3 credits

Prerequisites: 300.1 or permission. Study and discussion of the Army training, logistics and personnel policies and programs. Examination and study of the American military experience in history in relationship to the principles of war. Study of the military judicial system.

**1600:401 MILITARY MANAGEMENT II** 3 credits

Prerequisites: 300.1 or permission. Study of the Army command and staff procedures. Examination of officer leadership and managerial responsibilities to include planning and organizing, delegation and control, and oral and written military communications.

## Interdisciplinary Programs

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### 1810: Afro-American Studies

**1810:401 GENERAL SEMINAR IN AFRO-AMERICAN STUDIES** 3 credits

Prerequisite: 3400:220 or permission. Exploration and intensive examination of variety of issues related to role and minority group relations which normally stand outside the compass of any one subject matter area.

### 1830: Environmental Studies

**1830:201 MAN AND THE ENVIRONMENT** 2 credits

Study of man's relationship with nature, his dependence upon his environment, and his control over it. An interdisciplinary approach, with lecturers from various University departments, government and industry describing their approaches to the environment. This course will not apply toward the student's major.

**1830:401 SEMINAR IN ENVIRONMENTAL STUDIES** 2 credits

Covers specific environmental topic or topics from interdisciplinary viewpoint each semester. Topics of current interest studied from varying viewpoints. The director of Environmental Studies coordinates course; resource persons are drawn from the University and surrounding community.

**1830:490/590 WORKSHOP IN ENVIRONMENTAL STUDIES** 1-4 credits

Prerequisite: Varies with topic. Credit in graduate program must have prior approval of adviser. Skills, attitudes and fundamental concepts dealing with timely environmental problems and issues covered. Instruction under direction of University faculty.

**1830:602 EVALUATION OF ENVIRONMENTAL DATA** 3 credits

Prerequisite: graduate standing, one year of chemistry, physics, job experience or coursework in chemical engineering. A review of environmental testing techniques in current use; emphasis on interpretation and limitations.

**1830:661 GRADUATE SEMINAR IN ENVIRONMENTAL STUDIES** 3 credits

Prerequisite: graduate standing. Explores topics of current environmental concerns. Emphasis on presentation of oral and written reports and subsequent student-faculty dialogue.

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## 1850: Institute for Life-Span Development and Gerontology

**1850:300 PERSPECTIVES ON GENDER IDENTITY AND ROLES** 3 credits

An examination of biological, historical, political, legal, economic, educational, intellectual and social influences which have shaped gender identity and roles in society.

**1850:450 INTERDISCIPLINARY SEMINAR IN LIFE-SPAN DEVELOPMENT AND GERONTOLOGY** 1 credit

(May be repeated for a total of two credits)  
Prerequisite: A certificate program student only. Guest speakers from various disciplines and services which have life-span development and gerontological components and from government and community facilities and services. A certificate program student must complete two semesters of this course.

**1850:490 WORKSHOP** 1-3 credits

(May be repeated)  
Group studies of special topics in life-span development and gerontology. May not be used to meet certificate requirements. May be used for elective credit only.

**1850:493 INDEPENDENT STUDY IN GENDER IDENTITY AND ROLES** 3 credits

Prerequisites: enrollment in the certificate program in Life-Span Development; Gender Identity and Roles, plus the completion of three certificate courses in addition to 1850:300 and permission. Supervised participation in research and/or community-agency work.

**1850:495 PRACTICUM IN LIFE-SPAN DEVELOPMENT AND GERONTOLOGY** 1-3 credits

(May be repeated)  
Prerequisite: permission. Supervised experience in research or community agency work.

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## Graduate Courses

**1850:660 INTERDISCIPLINARY SEMINAR IN LIFE-SPAN DEVELOPMENT AND GERONTOLOGY** 1 credit

Prerequisite: permission. The certificate program student only. Explores interdisciplinary issues in life-span development and gerontology. Guest speakers from various disciplines and services which have life-span development and gerontological components and from government and community facilities and services.

**1850:690 WORKSHOP** 1-3 credits

(May be repeated)  
Group studies of special topics in life-span development and gerontology. May be used as elective credit but not as part of certificate required courses.

**1850:695 PRACTICUM IN LIFE-SPAN DEVELOPMENT AND GERONTOLOGY** 3 credits

Prerequisite: permission. Supervised experience in research or community agency work.

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## 1860: Peace Studies

**1860:300 TOPICS IN PEACE STUDIES** 1-3 credits

(May be repeated for a total of three credits)  
Interdisciplinary topics related to peace studies.

**1860:301 VALUE CONCEPTS ON PEACE AND WAR** 3 credits

Interdisciplinary study of attitudes, concepts and realities regarding war and peace issues.

**1860:350 INDEPENDENT STUDY** 1-3 credits

(May be repeated for a total of three credits)  
Detailed study on selected topics related to peace.

**1860:360 THE VIETNAM WAR** 3 credits

An examination and evaluation of political, military, diplomatic and economic impact of the Vietnam War.

**1860:378 INTRODUCTION TO HUMAN RIGHTS CONCEPTS** 3 credits

Interdisciplinary and cross-cultural survey of basic concepts of human rights as recognized by international law. Limitations and future issues are raised.

**1860:390 WORKSHOP IN PEACE STUDIES** 1-3 credits

(May be repeated for a total of four credits)  
Group studies in peace and war-related subjects and issues.

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## 1870: Honors Program

**1870:250-350-450 HONORS COLLOQUIUM: HUMANITIES** 2 credits each

Prerequisite: admission to University Honors Program. Interdisciplinary colloquium on important issues in humanities.

**1870:260-360-460 HONORS COLLOQUIUM: SOCIAL SCIENCES** 2 credits each

Prerequisite: admission to University Honors Program. Interdisciplinary colloquium on important issues in social sciences.

**1870:270-370-470 HONORS COLLOQUIUM: NATURAL SCIENCES** 2 credits each

Prerequisite: admission to University Honors Program. Interdisciplinary colloquium on important issues in natural sciences.

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## 1880: Medical Studies

**1880:201 MEDICAL SEMINAR AND PRACTICUM I** 3 credits

Prerequisite: 3100:191 and permission. Provides field experiences in health care delivery in geographic area served by Northeastern Ohio Universities College of Medicine and The University of Akron. Student directed in supervised roles of professional and paraprofessional in meeting health care needs of community. Open to first-year student in Phase 1 of B.S./M.D. program, others by permission.

**1880:301 MEDICAL SEMINAR AND PRACTICUM II** 1-3 credits

(May be repeated to a maximum of three credits)  
Prerequisite: 201 and permission. Continuation of 201 offered at an advanced level of professional involvement. Open to second-year student in Phase 1 of B.S./M.D. program, others by permission.

**1880:310 SEMINAR ON HUMANITIES IN MEDICAL EDUCATION** 3 credits

Prerequisite: junior standing in B.S./M.D. program; others involved in health care delivery programs by permission. Introduction to the humanities as they bear upon history and practice of medicine. Seminar draws upon lecturers from the University and community, and includes performances, field trips, films and tapes appropriate to topics discussed.

**1880:401/501 SPECIAL TOPICS: MEDICAL EDUCATION** 1-3 credits

(May be repeated with a change of topic — maximum of three credits count toward graduation)  
Prerequisite: upper college student status and permission. Selected topics on medical education offered by professionals. Intended to provide advanced undergraduate education and continuing education for student and practitioners in the health sciences.

# Community and Technical College

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## 2000: Cooperative Education

### 2000:201,301 COOPERATIVE EDUCATION 0 credits

(May be repeated)

Prerequisite: Cooperative education students only. Work experience in business, industry or governmental agency. Comprehensive performance evaluation and written report required.

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## 2020: Associate Studies

### 2020:121 ENGLISH 4 credits

Employs various techniques including art, films, personal journals and critical reading, leading from pre-writing to development of structured expository essays.

### 2020:130 INTRODUCTION TO TECHNICAL MATHEMATICS 3 credits

Elements of basic algebra; operations on signed numbers and polynomials; solutions and applications of first- and second-degree equations; English and metric systems; various types of graphs with applications; linear systems; trigonometry of right triangle. May not be used to meet General Studies mathematics requirement.

### 2020:131 MATHEMATICAL ANALYSIS I 4 credits

Prerequisite: two units of high school mathematics. Fundamental algebraic concepts, ratio, proportion and variation, graphing equations, right triangle trigonometry, linear systems, factoring and algebraic fractions, quadratic equations, trigonometric functions, oblique triangles.

### 2020:132 MATHEMATICAL ANALYSIS II 3 credits

Prerequisite: 131 or equivalent. Exponents and radicals, exponential equations, logarithms, vectors, graphs of trigonometric formulas and identities, complex numbers.

### 2020:135 MATHEMATICS FOR DATA PROCESSING 3 credits

Prerequisite: 131 or equivalent. Sets and logic, basic probability and statistics, matrix algebra and business applications.

### 2020:222 TECHNICAL REPORT WRITING 3 credits

Prerequisite: 121 or equivalent. Prepares student to write the types of reports most often required of engineers, scientists, and technicians. Includes types of reports, memoranda, letters, techniques of research, documentation and oral presentations.

### 2020:224 WRITING FOR ADVERTISING 3 credits

Prerequisite: 121 or 1100:111. Study of language used in advertising; practice in writing advertisements for various media.

### 2020:233 MATHEMATICAL ANALYSIS III 3 credits

Prerequisite: 132. Analytic geometry of the conics, introduction to differentiation, the derivative, application of the derivative, integration, differentiation and integration of transcendental functions.

### 2020:240 HUMAN RELATIONS 3 credits

Examination of principles and methods which aid in understanding the individual's response to his society and relationship between society and individual.

### 2020:241 TECHNOLOGY AND HUMAN VALUES 2 credits

Examination of impact of scientific and technical change upon man, his values and his institution arrangements. Topics include biomedical technology, automation, economic growth, natural environment and technology and quality of life.

### 2020:242 AMERICAN URBAN SOCIETY 3 credits

Multidisciplinary treatment of urban processes and problems. Concerns historical, political, social, economic and other environmental forces which impact upon the individual in an urban setting.

### 2020:247 SURVEY OF BASIC ECONOMICS 3 credits

Introduction to economic analysis and issues designed for the student taking only one course in economics. Coverage includes economic systems, exchange, money and banking, national income, employment, fiscal policy and current domestic economic problems.

### 2020:251 WORK RELATIONSHIPS 2 credits

Examination of relationship between man and the work organization. Emphasis on involvement, sense of job satisfaction, supervision and goals of the organization.

### 2020:254 THE BLACK AMERICAN 2 credits

Examination of the Black American including origins, historical achievements and present striving to achieve first-class citizenship in American society. Emphasis on analysis of forces in American society that create racial separation.

### 2020:290 SPECIAL TOPICS: ASSOCIATE STUDIES 1-4 credits

(May be repeated with a change in topic)

Prerequisite: permission. Selected topics on subject areas of interest in associate studies.

### 2020:334 MATHEMATICS FOR TECHNICAL APPLICATIONS 3 credits

Prerequisite: 233. Applications of integration, methods of integration, series (including Fourier), numerical methods of approximation, introduction to differential equations, second-order differential equations, Laplace transforms.

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## 2100: Individualized Study

### 2100:190 INDIVIDUALIZED STUDY EVALUATION 1 credit

Prerequisite: admission to program. Analysis of interests, talents, goals expressed in three assigned papers; first shortly after enrollment in program, second after completing 12 to 16 credits; third after completing 52 credits. Topics include student's background of career and personal activities, effect of current coursework, opportunities resulting from educational experiences and application of ideas in planning areas of study. Student is required to enroll in this course in first semester.

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## 2200: Educational Technology

### 2200:100 INTRODUCTION TO LIBRARY TECHNOLOGY 3 credits

Introduces student to library technology program and career opportunities available as library technologists. Includes discussions, field observations, guest speakers, lecturers, readings and extensive practical hands-on experience.

### 2200:201 CATALOGING, CLASSIFYING AND PROCESSING MATERIALS 3 credits

Study of principles of descriptive cataloging, Dewey decimal system, Library of Congress classifications and subject headings. Problems, practice in typing catalog cards and filing.

### 2200:202 ORGANIZING AND OPERATING LIBRARY/MEDIA CENTERS 3 credits

Includes functional aspects of facility, ordering and processing materials, circulation procedures and other control systems. Operational functions include program development and implementation, services of library/media centers and public relations.

### 2200:203 MATERIALS SELECTION 2 credits

Introduction to tools used in selecting print and nonprint materials for libraries/media centers. Problems of censorship, intellectual freedom and academic freedom discussed as they relate to evaluation selection process.

**2200:204 REFERENCE PROCEDURES** 3 credits

Introduction to study and use of basic information tools including almanacs, encyclopedias, dictionaries, bibliographies, yearbooks and specialized reference tools. Actual reference practices and procedures used.

**2200:205 INFORMATION RETRIEVAL SYSTEMS IN LIBRARY TECHNOLOGY** 3 credits

Prerequisites: 201.4; or permission. Practical introduction to information retrieval systems and their application. Emphasis on Ohio College Library Center network and its impact on library technical and public services. Hands-on experience with OCLC and other on-line terminal operations.

**2200:245 INFANT/TODDLER DAY CARE PROGRAMS** 3 credits

Survey of infant/toddler development. Principles of infant/toddler caregiving. Design of environment and curriculum based on child's needs. Includes observation of children.

**2200:250 OBSERVING AND RECORDING CHILDREN'S BEHAVIOR** 3 credits

Prerequisite: 7400:265 or permission. Develops observing and recording skills using different types of records and assesses children's development and behavior. One-half of total hours spent in classroom and one-half on site in field.

**2200:290 SPECIAL TOPICS: EDUCATIONAL TECHNOLOGY** 1-2 credits

(May be repeated for a total of four credits)  
Prerequisite: permission. Selected topics on subject areas of interest in educational technology.

**2200:297 INDEPENDENT STUDY** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisite: permission. Selected topics and special areas of study under supervision and evaluation of selected faculty member with whom specific arrangements have been made.

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**2210: Handicapped Services****2210:100 INTRODUCTION TO INTERPRETING FOR THE DEAF** 4 credits

Prerequisites: 104 and 7700:271. Introduction to basic theories, principles and practice of interpreting for the deaf in general and in specialized settings. A survey course intended to familiarize the student with ethics and guidelines appropriate in situational settings. Will also emphasize interpreting/translating processes and skill building.

**2210:104 SIGN LANGUAGE, GESTURE AND MIME** 3 credits

Non-language aspects of communication which form base for communication in American Sign Language and international sign language. Emphasis on eye training use of gestures, pantomime, body language.

**2210:110 SPECIALIZED INTERPRETING** 3 credits

Prerequisites: 104, 7700:110. Introduction to interpreting in counseling, mental health, medical and social work settings with an overview and development of specific translations in these areas.

**2210:150 HANDICAPPED SERVICES PRACTICUM** 1-4 credits

(Must be repeated for a total of 8 credits)

**2210:200 REVERSE INTERPRETING** 3 credits

Prerequisites: 104, 7700:100. Designed to enhance skills in comprehending the various sign language systems; a continuum from gestural signs to American Sign Language to systems based on English. Deaf speakers, guests and videotapes will be featured to provide situational practice. Principles and problems of reverse interpreting manual, oral and written communications of deaf persons into its proper English equivalent will be covered.

**2210:230 SPECIALIZED INTERPRETING II** 3 credits

Prerequisite: 7700:150. Introduction to interpreting in the vocational/technical, legal, educational and religious settings with an overview and development of specific translations in these areas.

**2210:290 SPECIAL TOPICS: HANDICAPPED SERVICES** 1-3 credits

Selected topics or subject areas of interest in handicapped services.

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**2220: Criminal Justice Technology****2220:100 INTRODUCTION TO CRIMINAL JUSTICE** 3 credits

Overview of criminal justice system, its history, development and evolution within United States including subsystems of police, courts, corrections. Constitutional limitations, current criminal justice practices — human relations, professionalization, prevention.

**2220:101 INTRODUCTION TO SECURITY** 4 credits

Overview of functions, problems and strategies of contract and proprietary security agencies. Philosophy of the protection of assets based on risk analysis and cost effectiveness.

**2220:102 CRIMINAL LAW FOR POLICE** 3 credits

Prerequisite: 100. Historical development and philosophy of the law. Thorough study of modern criminal law including Ohio Criminal Code and defenses to particular crimes.

**2220:104 EVIDENCE AND CRIMINAL LEGAL PROCESS** 3 credits

Prerequisite: 100. Study of evidence law, constitutional perspectives and law enforcement officer's relationship thereto. Court procedures from arrest to incarceration.

**2220:106 JUVENILE JUSTICE PROCESS** 3 credits

Prerequisite: 100. Examination of juvenile justice system, functions of its various components; adolescent subculture, legislation, causative factors, prevention and treatment methodologies and programs.

**2220:110 SOCIAL VALUES AND THE CRIMINAL JUSTICE PROCESS** 3 credits

Prerequisite: 100. In-depth exploration stressing philosophy that social values and ethics are basic principles of a sound criminal justice process. Roles of administration of justice practitioners in relation to public they serve.

**2220:200 CRIMINAL JUSTICE THEORY AND PRACTICE** 3 credits

Prerequisites: 100, 150. Examination of criminal justice administrative problems in personnel selection, training, advancement and personnel utilization. Consolidation and cooperation between agencies. Advanced concepts for change within criminal justice system.

**2220:240 DYNAMICS OF VICE CRIME AND SUBSTANCE ABUSE** 3 credits

Prerequisites: 100 and permission. Introduction to problems of vice crime and narcotics and drug abuse in our society. Provides knowledge concerning issues involved in consensual acts. Impact on society of physical and psychological results of substance abuse.

**2220:250 CRIMINAL CASE MANAGEMENT** 6 credits

Prerequisites: 100, 2840:100 and permission. Reconstruction of chronological sequence of a crime including searching, collection, preserving and evaluation of physical and oral evidence. Scientific approach to criminal investigation.

**2220:290 SPECIAL TOPICS: CRIMINAL JUSTICE** 1-4 credits

(May be repeated for a total of six credits)  
Prerequisite: permission. Workshops and special programs in selected areas of criminal justice such as community relations, crime statistics, ethics, survival.

**2220:294 CRIMINAL JUSTICE INTERNSHIP EVALUATION** 1 credit

Prerequisites: 100, 30 credits and permission; corequisite: 295. Analysis by student and instructor of internship experience. A sharing of knowledge gained by student during internships.

**2220:295 CRIMINAL JUSTICE INTERNSHIP** 3 credits

Prerequisites: 100, 30 credits and permission. Supervised work experience in criminal justice agency for purpose of increasing student understanding of criminal justice process.

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**2230: Fire Science Technology****2230:100 INTRODUCTION TO FIRE SCIENCE** 3 credits

History and philosophy of fire protection; introduction to agencies involved; current legislative developments; discussion of current related problems, expanding future of fire protection and career orientation.

**2230:102 FIRE PREVENTION AND BUILDING CONSTRUCTION** 3 credits

Exploration of building construction and design with emphasis on fire protection concerns; review of related statutory and suggested guidelines — local, state and national scope.

**2230:104 FIRE INVESTIGATION METHODS** 3 credits

History of fire investigation; gathering of evidence and development of technical reports; fundamentals of arson investigation; processing of criminal evidence and procedures related to local and state statutes.

**2230:153 PRINCIPLES OF FIRE PROTECTION AND LIFE SAFETY** 3 credits

Recognition of specialized fire hazards. Maintenance and utilization of portable and automatic fire extinguishing devices. Fire prevention methods, code compliance. Organizing fire safety training programs.

**2230:202 FIRE-FIGHTING TACTICS AND STRATEGY** 3 credits

Efficient and effective utilization of manpower, equipment and apparatus. Emphasis on preplanning, fireground organization problem solving related to fireground decision making and attack tactics and strategy.

**2230:204 FIRE PREVENTION PRACTICES** 3 credits

Inspection techniques and procedures; setting up a fire prevention bureau. Recognition and correction of fire hazards. Public relations and code enforcement.

**2230:205 FIRE DETECTION AND SUPPRESSION SYSTEMS I** 3 credits

Design, installation, maintenance and utilization of portable fire extinguishing appliances and pre-engineered automatic systems; fire detection and alarm signaling systems operational capabilities, requirements.

**2230:206 FIRE DETECTION AND SUPPRESSION SYSTEMS II** 3 credits

Design, installation and operation of automatic fire suppression systems. Includes sprinkler, foam, carbon dioxide, dry chemical, halogenated agent systems.

**2230:250 HAZARDOUS MATERIALS** 4 credits

Prerequisite: 2840:100. Study of chemical characteristics and reactions related to storage, transportation and handling of hazardous materials. Emphasis on emergency situations, fire fighting and control.

**2230:254 LEGAL ASPECTS OF FIRE PROTECTION** 3 credits

Prerequisite: 104. Study of legal rights and duties, liabilities and responsibilities of fire department organizations.

**2230:257 FIRE PROTECTION FOR BUSINESS AND INDUSTRY** 3 credits

Industrial fire protection problems including specialized hazards, automatic extinguishing systems, codes and standards, fire safety planning, fire brigade organizations.

**2230:290 SPECIAL TOPICS: FIRE SCIENCE TECHNOLOGY** 1-2 credits

(May be repeated for a total of four credits)  
Prerequisite: permission. Selected topics or subject areas of interest in fire science technology.

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## 2240: Commercial Art

**2240:124 DESIGN IN COMMERCIAL ART** 3 credits

Projects in visual design fundamentals. Analysis of design/research process applied to advertising layout and composition. Design constructions in pattern and self-contained forms.

**2240:140 TYPOGRAPHY AND LETTERING** 3 credits

Prerequisite: 124. Letter symbols studied in terms of communication and aesthetic design. History of letter forms, type indication, copyfitting and type specification for commercial application. Analysis of contemporary type faces.

**2240:222 ADVERTISING PHOTOGRAPHY** 3 credits

Prerequisite: 7100:275. Creative commercial use of photographic materials and equipment. Photography studied for its use in advertising and creative

photo-illustration. Student must own or have use of camera with controllable shutter, lens, diaphragm and focus.

**2240:242 ADVERTISING LAYOUT DESIGN** 3 credits

Prerequisite: 140. Problems in commercial graphic design, analysis, research, visual experimentation and finished art. Emphasis on visual problem solving in advertising and communications.

**2240:243 PUBLICATION DESIGN** 3 credits

Prerequisites: 242 and 7100:275. Study of publications and design of promotional brochures, annual reports and other multi-paged communication devices. Emphasis on total design systems from concept to camera-ready art. Portfolio development.

**2240:245 DESIGNING FOR PRODUCTION** 3 credits

Prerequisite: 140. Analysis of design process as applied to commercial printing processes. Design projects taken to camera-ready art. Color separation systems, key-line, mechanicals and preparation of finished art procedures.

**2240:247 PACKAGING DESIGN** 3 credits

Prerequisite: 242 and 245. Visual design and development of protective devices for packaging, shipment and display of consumer products. Analysis of product marketing potential and point-of-purchase advertising.

**2240:290 SPECIAL TOPICS: COMMERCIAL ART** 1-3 credits

Prerequisite: permission of instructor. Selected topics or subject areas of interest in commercial art.

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## 2250: Public Service Technology

**2250:260 ADMINISTRATION AND SUPERVISION IN THE PUBLIC SERVICE** 3 credits

Prerequisite: 2220:100 or 2230:100. Examination and analysis of basic concepts of administration, supervision, policy formulation as they pertain to public service agencies. Practical application of supervisory responsibilities, functions of police/fire departments.

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## 2260: Community Services Technology

**2260:100 INTRODUCTION TO COMMUNITY SERVICES** 3 credits

Introductory course to familiarize student with role of community services technician in service delivery. Use, history and rationale for paraprofessionals, programs, volunteer experiences, self awareness and interaction in community services.

**2260:150 INTRODUCTION TO GERONTOLOGICAL SERVICES** 3 credits

Basic orientation to gerontology and role of community service technician in service delivery to aged. Topics include social, biological, economical and psychological aspects of aging; national and state legislation; services and service provider.

**2260:230 COMMUNITY BASED RESIDENTIAL SERVICES** 3 credits

Orientation to community-based residential services and role of community services technician in delivery of services to mentally disabled. Includes historical, social and legal forces in community-based services and practical aspects of operation of a residential facility.

**2260:240 DRUG USE AND ABUSE** 3 credits

Basic introduction to drug use and abuse. Includes pharmacology, basic helping and crisis intervention skills, motivations, theories of treatment and exploration of some typical drug crisis situations.

**2260:251 COMMUNITY SERVICES FOR SENIOR CITIZENS** 3 credits

Prerequisite: 150. A study of national and community resources for social service delivery to senior citizens. Specific agencies, program needs and senior citizens and resultant services.

**2260:252 RESIDENT ACTIVITY COORDINATION** 3 credits

Designed to prepare student to qualify as resident activity coordinator in Ohio nursing homes. General topics include: assessing and understanding the patient, administration of activities program, techniques of program planning.

**2260:260 ALCOHOL USE AND ABUSE** 3 credits

Survey of use and abuse of alcohol in our society with particular emphasis on replacing common stereotypes, myths and attitudes with improved understanding.

**2260:261 ALCOHOLISM TREATMENT** 3 credits

Prerequisite: 260. Survey of theory and practices in treatment of alcohol problems. Special emphasis on applicability and effectiveness of various resources and approaches.

**2260:262 BASIC HELPING SKILLS IN ALCOHOL PROBLEMS** 4 credits

Introduces the student to basic concepts of helping skills; provides opportunity to help; develops ability to give and receive feedback about relevancy and effectiveness of behavior; develops responsibility for their own learning as related to working with alcohol problems.

**2260:263 GROUP PRINCIPLES IN ALCOHOLISM** 4 credits

Prerequisite: 260 or permission. Introduces student to group dynamics; provides opportunity to examine their role as group members; and explores unique factors in alcoholism that influence group treatment. Practical group dynamics sessions.

**2260:276 TECHNIQUES OF COMMUNITY WORK** 4 credits

For those intending to work at community organization and outreach assignments in inner city and other poverty areas in United States and for others desiring an understanding of these newly developing technical community service roles.

**2260:279 TECHNICAL EXPERIENCE IN COMMUNITY AND SOCIAL SERVICES** 5 credits

Prerequisite: 278 or permission. Individual placement in selected community and social service agencies for educationally supervised experience in community and social services technician position. Does not substitute for 7750.421 or 495.

**2260:280 FUNDAMENTALS OF VOLUNTEER MANAGEMENT** 3 credits

Prerequisite: permission. For person wishing to increase professional skills in volunteer administration. Includes setting goals, developing work plans, evaluating volunteer performance, recruiting volunteers, writing job descriptions, handling human relations problems, developing office procedures, keeping records and evaluating volunteer program.

**2260:281 RECRUITMENT AND INTERVIEWING OF VOLUNTEERS** 3 credits

Prerequisite: 280 or permission. To provide knowledge for recruitment and interviewing of persons seeking volunteer positions. Will cover writing of volunteer job descriptions, methods of recruitment, techniques of interviewing; concentration on interviewing skills.

**2260:290 SPECIAL TOPICS: COMMUNITY SERVICES TECHNOLOGY** 1-3 credits

Prerequisite: permission. Selected topics or subject areas of interest in community services technology.

**2260:297 INDEPENDENT STUDY** 1-3 credits

Prerequisite: permission. Selected topics and special areas of study under the supervision and evaluation of a selected faculty member with whom specific arrangements have been made.

Skills required in negotiations and union/management responsibilities to community in collective bargaining. Strikes and impasse resolution.

**2270:122 LEGAL FRAMEWORK FOR COLLECTIVE BARGAINING** 3 credits

Legal framework within which collective bargaining process takes place. Rights of employees, union, employer under federal and state laws discussed in context of organizing, election and bargaining.

**2270:123 LABOR LEGISLATION AND ECONOMIC SECURITY** 3 credits

Prerequisite: 122 or permission. Federal and state legislation governing employment conditions and standards. Includes minimum wage, health and safety, unemployment compensation, TDI, civil rights and anti-discrimination, social security, labor management reporting and disclosure.

**2270:212 COLLECTIVE BARGAINING II** 3 credits

Prerequisite: 111. Mechanics and skills of formal grievance procedures in industrial, craft and public setting. Investigation, record keeping and presentation of grievance, as well as study of arbitration process and preparation and presentation of arbitration cases.

**2270:221 OCCUPATIONAL HEALTH AND SAFETY STANDARDS** 3 credits

Prerequisite: 122. Examination of William/Steiger Occupational Safety and Health Act and rights and responsibilities conferred on unions by this act. Includes not only workings of the law but also hazards recognition study.

**2270:224 LABOR LAW IN THE PUBLIC SECTOR** 3 credits

Prerequisite: 271. Provides basic understanding of legal requirements and restraints placed upon parties when bargaining within federal, state and local sectors as well as postal and educational areas. Legal framework of collective negotiations or contract administration.

**2270:231 FAIR PRACTICES AND EQUAL OPPORTUNITY** 2 credits

Prerequisite: 101. Rights and responsibilities of unions and union members as related to Title VII of the Civil Rights Act, the Voting Rights Act and development of EEOC.

**2270:241 UNION LEADERSHIP** 2 credits

Prerequisite: 101. Specific skills related to administration of local unions structure and duties and responsibility of officers.

**2270:251 PROBLEMS IN LABOR STUDIES** 3 credits

Prerequisite: final semester or permission. Each student required to combine field research and classroom time to identify, explore and propose an approach to a current problem in labor/management relations.

**2270:261 WAGE ADMINISTRATION** 3 credits

Prerequisites: 101, 111 or 122. Wage and salary determination: structure of wages, salaries and fringe benefits and use of merit and incentive plans. Methods of compensation analyzed. Impact of federal and state laws governing the payment of wages.

**2270:271 PUBLIC SECTOR LABOR RELATIONS** 3 credits

Prerequisite: 101. Analyzes current problems, developments and issues in public sector collective bargaining from growth of public employee unions to the nature of bargaining in the public sector. Includes bargaining issues, right-to-strike and use of arbitration in public sector.

**2270:290 SPECIAL TOPICS: LABOR STUDIES** 1-2 credits

(May be repeated for a total of four credits)  
Prerequisite: permission. Selected topics or workshops in labor studies.

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## 2270: Labor Studies

**2270:101 INTRODUCTION TO LABOR STUDIES** 3 credits

Overview of Trade Unionism in America from Eighteenth Century to present with emphasis on factors affecting growth of unions. Rise of industrial unionism as alternative to craft unions. Trade Union movements in other countries examined for their influence on American unions.

**2270:111 COLLECTIVE BARGAINING I** 3 credits

Review of collective bargaining dealing with wages, fringes and working conditions. Examination of contract content. Development of bargaining proposals.

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## 2280: Hospitality Management

**2280:120 SAFETY AND SANITATION** 3 credits

Introduction to food service sanitation, safety practices pertinent to hospitality manager. Emphasis on sanitation laws, rules, food microbiology, safe food handling, storage practices, accident prevention.

**2280:121 FUNDAMENTALS OF FOOD PREPARATION I** 4 credits

Skills and basic knowledge of food preparation procedures in a laboratory situation.

**2280:122 FUNDAMENTALS OF FOOD PREPARATION II** 4 credits

Prerequisite: 121 Continuation of Fundamentals of Food Preparation I. Advanced food preparation techniques presented in laboratory situations.

**2280:123 MEAT TECHNOLOGY** 2 credits

Intensive examination of meat cutting, portioning, determining product yield, and calculating cost.

**2280:135 MENU PLANNING AND PURCHASING** 3 credits

Principles of food purchasing procedures including policies, writing specifications, recognizing quality standards integrated with marketing techniques, menu merchandising, menu planning.

**2280:150 HOTEL/MOTEL FRONT OFFICE PROCEDURES** 3 credits

Prepares student for entry level positions in the hotel/motel industry. Basic principles of guest service, standard systems, techniques within hotel/motel industry.

**2280:152 MAINTENANCE AND ENGINEERING FOR HOTELS AND MOTELS** 3 credits

Familiarization with organization, terms, concepts, responsibilities common to engineering and building maintenance.

**2280:160 WINE AND BEVERAGE SERVICE** 2 credits

Intensive examination of wine as related to hospitality industry. Emphasis on business practices. History and development of viticulture, enology.

**2280:232 DINING ROOM SERVICE AND TRAINING** 2 credits

In-depth study of the styles of dining service, development of job descriptions, importance of courtesy, customer relations.

**2280:233 RESTAURANT OPERATIONS AND MANAGEMENT** 4 credits

Introduction to large quantity food service procedures with emphasis on sound principles of food handling service and sanitation in large quantity operations. Gourmet meals served in simulated restaurant atmosphere.

**2280:236 FOOD AND BEVERAGE COST CONTROL** 3 credits

Prerequisite: 135. Principles and procedures of effective food, beverage control. Adaptations to various types of operations. Control process with emphasis on calculating food costs, establishing standards, production planning.

**2280:237 INTERNSHIP** 1 credit

Prerequisite: permission. On/off campus observation/work experience integrated with academic instruction. Concepts applied to practical situations.

**2280:240 SYSTEMS MANAGEMENT AND PERSONNEL** 3 credits

Identifies systems utilized in successful food service operations. General principles of each system, its interrelationships with total food service organization explored.

**2280:243 FOOD EQUIPMENT AND PLANT OPERATIONS** 3 credits

Available food service equipment, its selection, use and care. Field trips taken to wholesale outlets and food service establishments to see food service equipment demonstrated and in operation.

**2280:254 HOTEL/MOTEL HOUSING MANAGEMENT** 3 credits

Analysis of housekeeping procedures; organization of successful housekeeping department.

**2280:255 HOTEL/MOTEL SALES PROMOTION** 3 credits

Sales promotion techniques; functioning of sales department; need for sales planning. Sales tools, selling techniques for food and beverage, group business. Advertising, community relations, internal personal, telephone selling.

**2280:256 HOSPITALITY LAW** 3 credits

Introduction to hotel, restaurant, travel law. Fundamental constitutional, statutory, administrative rules, regulations applicable to hospitality industry. Case study, problem-solving approaches applied to legal problems confronting hospitality executives.

**2280:261 BAKING AND CLASSICAL DESSERTS** 3 credits

Prerequisite: 122. Production of basic items in bakeshop; use of equipment, materials, cost control to produce the desired products.

**2280:262 CLASSICAL CUISINE** 3 credits

Prerequisites: 122, 123. Lecture-demonstration experience in preparation of traditional American hotel cuisine. Includes traditional repertoire of foods, spirits. Application of kitchen production controls; menu planning.

**2280:263 INTERNATIONAL FOODS** 2 credits

Prerequisite: 122. Lecture-demonstration laboratory experience in preparing

foods of different nationalities. Demonstration, preparation of select foods by visiting chefs. Recipe file developed.

**2280:290 SPECIAL TOPICS: HOSPITALITY MANAGEMENT** 1-3 credits

(May be repeated for a total of four credits)

Prerequisite: permission. Selected topics or subject areas of interest in food service management.

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## 2420: Business Management Technology

**2420:101 ELEMENTS OF DISTRIBUTION** 3 credits

Study of basic principles and methods in distribution. Presentation of marketing process as it relates to consumer and industrial products. Emphasis on pricing, product, promotion, as well as distribution.

**2420:103 THE ROLE OF SUPERVISION IN MANAGEMENT** 3 credits

Presentation of basic management techniques: motivation, planning, organizing, leading and controlling. Elements of group behavior, communication and employee compensation.

**2420:104 INTRODUCTION TO BUSINESS** 3 credits

Survey course of business in its entirety including production, distribution, finance control and personnel functions. Emphasis on descriptive materials, technical vocabulary and career opportunities and responsibilities in various business fields.

**2420:105 INTRODUCTION TO CREDIT UNIONS** 2 credits

Credit union as financial institution. History, structure, duties of board of directors, advisory committees, financial counseling, lending and analysis, evaluation of financial statements.

**2420:111 PUBLIC RELATIONS** 2 credits

Study of philosophy, techniques and ethics of the management function known as public relations. Defines variety of publics and methods of communication.

**2420:113 INTRODUCTION TO BANKING** 2 credits

Covers fundamentals of banking in operational perspective. Emphasis on bank functions, types of accounts, relationship to depositors, loans, investments trust, safe deposit operations, internal and external control, public service obligations.

**2420:115 CREDIT UNION OPERATIONS** 2 credits

Operations with emphasis on teller transactions, credit principles, services and load policies, financial planning and counseling, delinquency control and collections, credit union law.

**2420:117 SMALL BUSINESS MANAGEMENT I** 3 credits

Prerequisite: 104. Fundamentals of small business operations, emphasis on small business marketing.

**2420:118 SMALL BUSINESS MANAGEMENT II** 3 credits

Prerequisite: 117. Designed to provide greater insight into the management and financial aspects of small business operations. Emphasis on small business management.

**2420:123 FEDERAL REGULATION OF BANKING** 2 credits

Prerequisite: 113. Study of agencies regulating banks, bank charters, bank reports and examinations, federal limitations on banking operations and regulation of bank expansion. Supervision of employees to conform with regulation.

**2420:125 PERSONAL FINANCIAL COUNSELING** 3 credits

Family resource management, consumer decision making including consumer credit and family budget decisions, retirement planning, types of insurance, annuities and savings, consumer education, types and techniques of counseling.

**2420:170 BUSINESS MATHEMATICS** 3 credits

Review of fundamentals of math applicable to business, trade prices, retail pricing, interest and discounts, compound interest and annuities, consumer credit, payroll, income taxes, depreciation methods, financial statements and elementary statistics.

**2420:202 PERSONNEL PRACTICES** 3 credits

Provides information necessary to develop policies and programs that attract, retain and motivate employees. Includes staffing, human resources development, compensation plans, labor and management relations, appraisal systems and career planning.

**2420:211 BASIC ACCOUNTING I** 3 credits

Accounting for sole proprietorships and partnerships. Service and merchandising concerns. Journals, ledgers, work sheets and financial statements. Includes handling of cash, accounts receivable, notes, inventories, plant and equipment and payroll.

**2420:212 BASIC ACCOUNTING II** 3 credits

Prerequisite: 211. Study of accounting principles as applied to corporate form of business, and of manufacturing accounting for job order and process costing, budgeting and standard costs.

**2420:221 ADMINISTRATIVE OFFICE SUPERVISION** 2 credits

Aids student in developing supervisory leadership skills and includes basic concepts of function of office work, management of information, control of office services and work simplification.

**2420:225 CREDIT UNION LENDING AND COLLECTIONS** 2 credits

Credit and collections including nature and role of credit, types of consumer credit, their management and investigation, along with collection policies, practices, systems.

**2420:227 ENTREPRENEURSHIP** 4 credits

Prerequisite: 118. An overview of small business management. A project course during which students create a hypothetical business.

**2420:233 INSTALLMENT CREDIT** 2 credits

Prerequisite: 113. Pragmatic course emphasizing evaluation, maintenance of consumer, commercial credit. Covers evaluation, legal aspects, collection, direct and indirect installment lending, leasing and other special situations, credit department management.

**2420:243 SURVEY IN FINANCE** 3 credits

Prerequisites: three credits of economics and three credits of accounting. Survey of field including instruments, procedures, practices and institutions. Emphasis on basic principles.

**2420:245 CREDIT UNION FINANCIAL MANAGEMENT** 2 credits

Prerequisite: 211. Credit union accounting, financial statement analysis, budgeting and planning, management of cash and investments, liquidity, cost of funds, risk.

**2420:253 ELEMENTS OF BANK MANAGEMENT** 2 credits

Prerequisite: 113. Applied course in bank operation and management. Bank case studies utilized to focus on objectives, planning, structure, control and interrelationship of bank functions and departments.

**2420:273 MONETARY SYSTEMS AND THE PAYMENTS MECHANISM** 3 credits

Prerequisite: 280. Structure of banking system, Federal Reserve System policies and operations, Article IV of the 4CC, paperless electronic payments mechanism, bank responsibilities in deposit, collection, dishonor and return, payment of checks.

**2420:280 ESSENTIALS OF LAW** 3 credits

Brief history of law and judicial system, study of contracts with emphasis on sales, agency, commercial paper and bailments.

**2420:290 SPECIAL TOPICS: BUSINESS MANAGEMENT TECHNOLOGY** 1-3 credits

(May be repeated for a total of four credits) Prerequisite: permission. Selected topics or subject areas of interest in business management technology.

**2430:115 ELEMENTS OF HOUSING DESIGN AND CONSTRUCTION** 2 credits

Prerequisites: 105, 185. Discussions and readings on neighborhoods and sites, details of the interior and exterior of homes, mechanical systems and house construction which help professionals discharge agency responsibilities.

**2430:125 ELEMENTS OF LAND AND REAL ESTATE DEVELOPMENT** 2 credits

Prerequisites: 105, 185. Learning and applying step-by-step processes needed by professional developer in producing real estate for consumption.

**2430:185 REAL ESTATE LAW** 2 credits

Prerequisite: 105. Contents of contemporary real estate law. The student is responsible for readings covering units on estates, property rights, license laws, contracts, deeds, mortgages, civil rights and zoning.

**2430:205 INTRODUCTION TO REAL ESTATE MANAGEMENT** 3 credits

Prerequisites: 105, 185. Survey course focusing on application of management process to the specialized field and product of real estate. Discussion and research topics include property analysis, marketing and administration.

**2430:215 ESSENTIALS OF REAL ESTATE ECONOMICS** 2 credits

Prerequisites: 105, 185. Student learns and applies techniques of analysis found in economics to local real estate market and to parcels of real estate found within the market.

**2430:225 INDUSTRIAL REAL ESTATE** 2 credits

Prerequisites: 105, 185. Elements course focusing on functions of industrial real estate broker. Topics of discussion and research include site selection, development, marketing and financing transfer of industrial property.

**2430:235 COMMERCIAL REAL ESTATE** 2 credits

Prerequisites: 105, 185. Elements course focusing on functions of commercial real estate broker. Topics of discussion and research include site selection, development, marketing and financing transfer of commercial paper.

**2430:245 REAL ESTATE FINANCE** 2 credits

Prerequisites: 105, 185. Study of contents of contemporary real estate finance. Units on reading and discussion include mortgage instruments, financial institutions, mortgage market, governmental influence on finance and risk analysis and mortgage lending.

**2430:255 VALUATION OF RESIDENTIAL PROPERTY** 2 credits

Prerequisites: 105, 185. Methods used to estimate value in residential property including cost of reproduction, market data and income approach. Student prepares an appraisal on a residential property.

**2430:285 REAL ESTATE BROKERAGE** 2 credits

Prerequisites: 105, 185. Application of management functions of planning, organizing, directing, controlling and staffing to real estate brokerage office. Student activities include reading, discussion and research.

**2430:275 SPECIAL PROJECT IN REAL ESTATE** 2 credits

Prerequisites: 105, 185. Student demonstrates knowledge of real estate by preparing a written report covering brokerage process as it relates to a parcel of property.

**2430:285 APPLIED REAL ESTATE MATHEMATICS** 2 credits

Prerequisites: 105, 185. Student learns and applies mathematics necessary to profession of real estate. Topics include proration of taxes, area calculations, appraising math, mortgage math and closing statements.

**2430:290 SPECIAL TOPICS: REAL ESTATE** 1-3 credits

Prerequisite: permission. Selected topics or subject areas of interest in real estate.

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## 2430: Real Estate

**2430:105 REAL ESTATE PRINCIPLES** 2 credits

Introduction to real estate as a profession, process, product and measurement of its productivity. The student is responsible for reading and discussions relative to real estate and the American system.

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## 2440: Data Processing

**2440:120 INTRODUCTION TO INFORMATION PROCESSING** 2 credits

General overview of data processing techniques providing fundamentals necessary for subsequent computer-oriented courses.

**2440:130 BASIC PROGRAMMING FOR BUSINESS** 3 credits

Prerequisite: two years of high school algebra or equivalent. Introduces the

student to the fundamental concepts of computer programming via the BASIC language. Emphasis will be placed on developing computer programs on a microcomputer system. Larger systems utilizing timesharing also considered.

**2440:131 INTRODUCTION TO PROGRAMMING** 2 credits

Prerequisite: 120. Illustrates basic functions of computers and provides specific information about third-generation computers, including programming in actual and assembly language.

**2440:132 ASSEMBLER PROGRAMMING AND JCL** 4 credits

Prerequisite: 131. Involves in-depth coverage of basic assembler language including linkage conventions and macro construction. Fixed-point and decimal instruction set included.

**2440:133 COBOL PROGRAMMING** 2 credits

Prerequisite: 131. Introduction to Cobol with specific orientation toward the IBM system/370.

**2440:234 ADVANCED COBOL PROGRAMMING** 3 credits

Prerequisite: 133. Continuation of 133 including detailed applications in areas such as payroll and inventory. Disk concepts emphasized.

**2440:235 CURRENT PROGRAMMING TOPICS** 2 credits

Prerequisite: 234. Emphasizes topics varied to fit needs of the student at the time. Such topics as APL programming, teleprocessing and PL/1 programming may be included.

**2440:239 RPG II PROGRAMMING** 1 credit

Prerequisite: 133. Report Program Generator II (RPG II) programming. Includes training in RPG II coding and logical debugging as well as discussion of applications which lend themselves to the use of RPG II.

**2440:241 DATA PROCESSING SYSTEMS** 3 credits

Prerequisite: 132. Covers all phases of business systems analysis, design, development and implementation. Such principles as system and program flowcharting, and file and document design emphasized.

**2440:250 BASIC PROGRAMMING APPLICATIONS IN BUSINESS** 5 credits

Prerequisite: 130. Offers intensive training in business applications programming on microcomputer systems including data analysis; text processing; error trapping; sorting; development of menu driven programs; ISAM file creation and upkeep.

**2440:251 DATA PROCESSING PROJECTS** 5 credits

Prerequisite: 241. Provides workshop for the accomplished student to thoroughly apply learned material. Projects involve systems design and implementation using Cobol.

**2440:290 SPECIAL TOPICS: DATA PROCESSING** 1-3 credits

Prerequisite: permission. Seminar in topics of current interest in data processing or special individual student projects in data processing.

**2520:210 CONSUMER SERVICE FUNDAMENTALS** 2 credits

Prerequisite: 2420:101. Discussion of problems facing business today created by social issues in society. Emphasis on understanding viewpoints of all groups involved.

**2520:211 MATHEMATICS OF RETAIL DISTRIBUTION** 3 credits

Prerequisite: 2420:170. Basic course dealing with merchandising mathematics. Includes understanding markup types, retail method of inventory, (sales and stock planning) and open-to-buy computations.

**2520:212 PRINCIPLES OF SALESMANSHIP** 4 credits

Study of basic principles of selling, emphasizing individual demonstrations and sales projects. Includes review of sales function as integral part of marketing process.

**2520:290 SPECIAL TOPICS: MARKETING AND SALES** 1-3 credits

(May be repeated for a total of four credits)  
Prerequisite: permission. Selected topics or subject areas of interest in sales and merchandising.

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## 2540: Secretarial Science

**2540:119 BUSINESS ENGLISH** 3 credits

Fundamentals of English language with emphasis on grammatical correctness, acceptable usage, spelling and punctuation. Limited writing primarily involves choice of precise words and effective sentence structure with some attention to paragraph development.

**2540:121 OFFICE PROBLEMS** 3 credits

Introduction to concepts regarding role of office worker, human relations, communications, productivity, reference materials, technological advances in processing information and employment opportunities.

**2540:125 BUSINESS MACHINES** 2 credits

Basic operations of 10-key electronic calculators. Applied business problems in depreciation, retailing, payroll, interest, taxes, metrics, proration, expense reports, percentages, inventories and basis statistics.

**2540:140 TYPEWRITING FOR NON-SECRETARIAL MAJORS** 2 credits

Beginning typewriting for the non-secretarial student. Fundamentals in the operation of the typewriter; application emphasis on individual student needs such as resumes, application letters and forms, term papers, abstracting, etc. Video display terminal instruction. Credit not applicable toward Associate degree in Secretarial Science.

**2540:150 BEGINNING TYPEWRITING** 3 credits

For the beginning student or one who desires a review of fundamentals. Includes basic keyboard, letters, tables and manuscripts. Minimum requirement: 30 wam with a maximum of 5 errors for 3 minutes.

**2540:151 INTERMEDIATE TYPEWRITING** 3 credits

Prerequisite: 150 or equivalent. Further development of typewriting. Advanced letter styles, forms, reports and shortcuts. Minimum requirement: 40 wam with a maximum of 5 errors for 5 minutes.

**2540:171 SHORTHAND PRINCIPLES** 4 credits

Gregg shorthand theory is taught. Minimum attainments: reading from notes at 100 wam and taking dictation from new material at 50 wam for 3 minutes. Credit not allowed if taken after 172.

**2540:172 SHORTHAND REFRESHER AND TRANSCRIPTION** 4 credits

Accelerated review of Gregg shorthand theory. Minimum attainments: reading from notes at 100 wam and taking dictation from new material at 60 wam for 3 minutes. Credit allowed if taken after 171.

**2540:173 SHORTHAND AND TRANSCRIPTION** 4 credits

Prerequisite: 171; corequisite or prerequisite: 151. Emphasis on developing skill in taking shorthand dictation and transcribing at typewriter. Minimum speed attainment of 70 wam for 5 minutes on new material required.

**2540:241 INFORMATION MANAGEMENT** 3 credits

Prerequisite: 150 or equivalent. Study of creation, classification, encoding, transmission, storage, retention, transfer and disposition of information. Emphasis on written, oral and machine language communication media used in business information systems.

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## 2520: Marketing and Sales Technology

**2520:103 PRINCIPLES OF ADVERTISING** 3 credits

Review of basic principles and functions of current advertising practice. Includes overview of related distributive institutions, media types and economic functions of advertising.

**2520:106 VISUAL PROMOTION** 4 credits

Studio course in retail display and promotion techniques. Window, interior and point of purchase categories; principles of design as applied to commercial art; function in visual design, elements of design, color theory, lettering, printing process, layout to camera-ready art.

**2520:201 PRINCIPLES OF WHOLESALING** 2 credits

Examination of wholesaler and wholesaling function. Attention given to buying process and relationship of ultimate consumer to wholesaler.

**2520:202 RETAILING FUNDAMENTALS** 4 credits

Presents basic principles and practices of retailing operations, including site selection, buying, pricing and promotion practices. Use is made of extensive projects and investigations and actual retail operations.

**2540:253 ADVANCED TYPEWRITING** 3 credits

Prerequisite: 151 or equivalent. To increase student's ability to do office-style production typewriting with minimal supervision. Minimum requirement: 50 wpm with a maximum of 5 errors for 5 minutes.

**2540:254 LEGAL TYPEWRITING** 2 credits

Prerequisite: 151. Develops skill in typing legal documents and printed legal forms from rough draft materials; from straight-copy material.

**2540:263 BUSINESS COMMUNICATIONS** 3 credits

Prerequisites: 119 and 2200:121 or equivalent. Business writing with emphasis on communicating in typical business situations and expressing ideas effectively to achieve specific purposes. Includes business letters, memoranda, application letters, resumes and a business report.

**2540:274 ADVANCED DICTATION AND TRANSCRIPTION** 4 credits

Prerequisite: 173 or equivalent. Emphasis on building dictation speed, producing mailable transcripts, increasing business and shorthand vocabulary and reviewing theory and expert shortcuts. Minimum speed attainment: 90 wpm for 5 minutes.

**2540:276 EXECUTIVE DICTATION AND TRANSCRIPTION** 4 credits

Prerequisite: 274. Final shorthand course in Executive Secretarial program. Development of skills to level of employability in business office. Emphasis on vocabulary building in specialized areas of modern business and technology. Speed range 100-140 wpm.

**2540:277 LEGAL DICTATION AND TRANSCRIPTION** 4 credits

Prerequisite: 274. Develops shorthand and transcription skills of legal correspondence, basic pleadings, legal papers, reports and rules of practice. Minimum speed at end of course is 100 wpm.

**2540:279 LEGAL OFFICE PROCEDURES** 4 credits

Prerequisite: 254; corequisite: 277. Provides an understanding of various facets of the law, when and how to use documents, important legal procedures and typical office routine.

**2540:280 WORD PROCESSING CONCEPTS** 2 credits

Modern word processing and administrative management principles and practices in organization, operation and control of office functions. Special emphasis given to secretary's dual role as administrative assistant and corresponding secretary.

**2540:281 MACHINE TRANSCRIPTION** 2 credits

Prerequisite: 151 or permission. Transcription from taped dictation with emphasis on mailable documents. Special techniques for developing accuracy, increasing productivity will be emphasized.

**2540:286 KEYBOARDING ON WORD PROCESSING EQUIPMENT** 3 credits

Prerequisite: 253 or permission. Demonstration and laboratory practice on various word processing machines used to process data in a modern office. Word processors include those with magnetic or electronic storage.

**2540:287 WORD PROCESSING APPLICATIONS** 3 credits

Prerequisite: 286. Simulation of word processing center. Students assume various functional roles to produce real-life work assignments using up-to-date word processing equipment.

**2540:290 SPECIAL TOPICS: SECRETARIAL SCIENCE** 1-3 credits

(May be repeated for a total of four credits)  
Prerequisite: permission. Selected topics or subject areas of interest in secretarial science.

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**2560: Transportation****2560:110 TRANSPORTATION ECONOMIC POLICY** 3 credits

Analysis of role of transportation in nation's economic development. Survey of historical development and economic aspects of rail, highway, water, air and pipeline.

**2560:115 MOTOR TRANSPORTATION** 3 credits

Corequisite: 110 is to be taken in the first semester of the first year of the program. Study of economic characteristics of commercial motor industry

with emphasis on problems, practices, rates, regulations, fares, tariffs, operations, equipment and financial aspects.

**2560:116 AIR TRANSPORTATION** 2 credits

Prerequisite: 110. Analysis of economic characteristics of commercial air industry. Study of its problems, practices, regulations, rates, fares, tariffs and services.

**2560:117 WATER TRANSPORTATION** 2 credits

Prerequisite: 110. Theories, practices, regulations of inland and ocean-going water transportation including classification, rates, practices and tariffs.

**2560:118 TRANSPORTATION RATE SYSTEMS** 3 credits

Analysis of freight rates, tariffs and classifications with particular attention to their application in motor transport field and extensive study through progressive problem solving.

**2560:220 TRANSPORTATION: TERMINAL MANAGEMENT AND SAFETY OPERATIONS** 2 credits

Prerequisite: 110. Management problems, practices, decision making pertaining to location of facilities, personnel programs, operations, organization and control. Attention directed to safety aspects of transportation operations.

**2560:221 TRANSPORTATION TRAFFIC PRINCIPLES AND PRACTICES** 3 credits

Prerequisite: 110. Principles and practices applicable to industrial traffic management and factors affecting transportation decisions. Some items analyzed are operations, services, warehousing, privileges and documentation.

**2560:224 TRANSPORTATION REGULATION** 4 credits

Prerequisite: 224. Interstate Commerce Act and related acts including leading cases involving interstate commerce. Law of freight loss and damage. Regulatory procedures including practice and procedure before Interstate Commerce Commission.

**2560:227 TRANSPORTATION OF HAZARDOUS MATERIALS AND WASTES** 2 credits

Federal regulations; identification and classification of hazardous materials; handling, loading and shipping procedures.

**2560:228 INTRODUCTION TO TRAVEL** 2 credits

Travel geography, overview of passenger transportation systems, role of travel agent, discussion of trends in travel industry.

**2560:290 SPECIAL TOPICS: TRANSPORTATION** 1-3 credits

(May be repeated for a total of four credits)  
Prerequisite: permission. Selected topics, subject areas in transportation.

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**2730: Histotechnology****2730:225 HISTOTECHNOLOGY PRACTICUM** 5 credits

Prerequisite: 3100:366 and permission. Instruction and practical experience in a cooperative hospital, research laboratory.

**2730:290 SPECIAL TOPICS IN HISTOTECHNOLOGY** 1-2 credits

Prerequisite: permission. Selected topics or subject areas of interest.

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**2740: Medical Assisting****2740:120 MEDICAL TERMINOLOGY** 3 credits

Prerequisites: 3100:206, 2840:100. Vocabulary and terms used by medical personnel. Usage and spelling of medical terms.

**2740:130 MEDICAL ASSISTING TECHNIQUES I** 3 credits

Corequisite: 120. Theory and practice in medical assisting duties most often performed in physician's office. Includes medical ethics and law; microbiology; care of instruments; methods of sterilization; surgical and medical asepsis.

**2740:230 PHARMACOLOGY IN MEDICAL ASSISTING** 3 credits

Prerequisite: 130. Introduction to history of drugs; standardization; legislation;

principles of action and classification with emphasis on responsibilities of administration; and the metric system.

**2740:231 MEDICAL ASSISTING TECHNIQUES II** 2 credits

Prerequisite: 130. Laboratory techniques, orientation to urinalysis, hematology, roentgen rays, electrocardiograms, dentology terms; principles of medication, metric system and administration of injections.

**2740:232 MEDICAL ASSISTING TECHNIQUES III** 2 credits

Prerequisite: 231. Continuation of 231. Knowledge of diagnoses and disease; special diets; theory and practice in taking vital signs; parenteral injections; and orientation to physical examination.

**2740:240 MEDICAL MACHINE TRANSCRIPTION** 2 credits

Prerequisites: 231 and 2540:257. Designed to correlate medical terminology with secretarial skills and includes practice in various machines used in dictation and transcription found in medical offices.

**2740:241 MEDICAL RECORDS** 3 credits

Prerequisites: 130 and 2540:150. Preparing and handling medical records and reports used in hospitals and physicians' offices; filing procedures and systems; insurance forms; billing.

**2740:250 MEDICAL ASSISTING SPECIALTIES** 3 credits

Prerequisites: 231, graduate of the program, or special permission. Provides student precise knowledge in medical specialties.

**2740:290 SPECIAL TOPICS: MEDICAL ASSISTING** 1-2 credits

Prerequisite: permission. Selected topics or workshops of interest in medical assisting technology.

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## 2760: Radiologic Technology

**2760:101 INTRODUCTION TO RADIOLOGIC TECHNOLOGY** 2 credits

Prerequisite: admission to the program. Introduction to field of radiology including history of medicine and radiology. Ethical and professional responsibilities of radiologic technologist. Basic protection and basic skills. Orientation to radiology departments of affiliated hospitals. General patient care.

**2760:106,7 ANATOMY FOR RADIOLOGIC TECHNOLOGY I, II** 3 credits each

Prerequisite: admission to the program. Study of human structure and function approached and visualized through a number of imaging techniques and prepared specimens in the laboratory.

**2760:140 MEDICAL AND SURGICAL DISEASES, RADIOLOGY** 3 credits

Prerequisites: 101 and 161. Fundamental principles of disease processes, functional derangements. Background in pathology needed for radiographer will be provided by lecture and demonstrations.

**2760:161 PHYSICAL SCIENCE FOR RADIOLOGIC TECHNOLOGY I** 2 credits

Prerequisite: 2020:131 and permission. Introduction to systems of measurement. Matter, force, motion, work, power, energy, basic electricity and magnetism.

**2760:165,6 RADIOGRAPHIC PRINCIPLES I, II** 3 credits, 2 credits

Sequential. Prerequisite: 161. Elementary principles of ionizing radiation and their application in medical setting. Radiographic accessories and chemical processing of exposed x-ray film.

**2760:170 RADIOGRAPHIC POSITIONING I** 3 credits

Corequisite: 101. Introductory course in instructing student in basic positioning nomenclature and radiologic positions. Positioning laboratory experience included.

**2760:171 RADIOGRAPHIC POSITIONING II** 3 credits

Prerequisite: 170. Continuation of 170. Includes additional positioning and refinement of positioning strategies. Laboratory.

**2760:184 CLINICAL APPLICATION I** 4 credits

Corequisites: 101 and 170. Introduction to clinical procedures including clinical experience in hospital radiology departments. Lectures and laboratory experience correlated and clinical experience closely supervised. Film cri-

tique stressed. Observation rotation through nuclear medicine, therapy and diagnostic techniques. Largely student observation.

**2760:185 CLINICAL APPLICATION II** 4 credits

Prerequisite: 184. Continuation of 184 with more involvement by student continuing under close supervision. Special procedures introduced. Student observations and student participation.

**2760:230 RADIOGRAPHIC TECHNIQUE AND CONTROL** 3 credits

Prerequisite: 261. Technique and control as related to basic positioning procedures for various parts of body. Relationship among electricity, time, distance, films and contrast on radiograph. A student performs experiments to demonstrate effects of these factors. Energized but nonclinical equipment utilized.

**2760:261 PHYSICAL SCIENCE FOR RADIOLOGIC TECHNOLOGY II** 3 credits

Prerequisite: 161. Fundamentals of electricity and radiation physics. Principles of x-ray equipment and other radiation sources used in medical setting.

**2760:272 RADIOGRAPHIC POSITIONING III** 3 credits

Prerequisite: 171. Continuation of 171. Includes additional positioning and refinement of positioning strategies. Laboratory.

**2760:273 RADIOGRAPHIC POSITIONING IV** 3 credits

Prerequisite: 272. Continuation of 272 utilizing advanced techniques and providing concentration of different age groups in positioning care and special techniques for pediatric and geriatric patients. Laboratory.

**2760:286 CLINICAL APPLICATION III** 5 credits

Prerequisite: 185. Summer clinic internship in which student practices all radiographic procedures under supervision. Some independent performance with minimal supervision.

**2760:287 CLINICAL APPLICATION IV** 4 credits

Prerequisites: 286 and permission. Clinical performance with supervision. Application at an advanced level. Special techniques, nuclear medicine, therapy, medical surgical pathology, film examination and critique. Maintenance of equipment, department administration, ethical, legal and professional responsibilities. Clinical experience in hospital radiology departments.

**2760:288 CLINICAL APPLICATION V** 4 credits

Prerequisite: 287. Clinical experience and minimally supervised clinical procedures of diagnostic radiography.

**2760:289 CLINICAL APPLICATION VI** 5 credits

Prerequisite: 288. Continuation of 288; final internship. Terminal course including review, lecture on correlation and interpretation of radiologic technology. Prepares student for certification examination.

**2760:290 SPECIAL TOPICS: RADIOLOGIC SCIENCE** 1-3 credits

(May be repeated with a change in topic)  
Prerequisite: permission. More advanced study in one or more topics in radiological sciences. Emphasis and topics vary from year to year but will be in areas where a formal course is not otherwise available.

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## 2770: Surgical Assisting

**2770:100 INTRODUCTION TO SURGICAL ASSISTING TECHNOLOGY** 4 credits

Prerequisite: admission to the program. Study of basic principles which underlie patient care in the operating room. Role of operating room technician and legal and ethical responsibilities defined.

**2770:121 SURGICAL ASSISTING PROCEDURES I** 2 credits

Prerequisite: 100. Didactic and laboratory practice in principles and practices of surgical asepsis, the surgical patient, surgical procedures, care and maintenance of equipment and materials, immediate postoperative responsibilities and emergency situations in operating room.

**2770:131 CLINICAL APPLICATION I** 1 credit

Prerequisite: permission. Application of learned skills in care of patients in operating room of an affiliated hospital.

**2770:222 SURGICAL ASSISTING PROCEDURES II** 4 credits

Prerequisite: 121. Continuation of 121.

**2770:232 CLINICAL APPLICATION II** 3 credits

Prerequisite: 131. Application of learned skills in care of patients in operating room of an affiliated hospital.

**2770:233 CLINICAL APPLICATION III** 3 credits

Prerequisite: 232. Application of learned skills in care of patients in operating room of an affiliated hospital.

**2770:234 CLINICAL APPLICATION IV** 2 credits

Prerequisites: 232 and 242. A student is assigned to surgical services of affiliated hospitals. Assists in surgery and carries out preoperative and postoperative care procedures as assigned by, and under the supervision of, the surgeon or the resident surgical staff.

**2770:235 CLINICAL APPLICATION V** 3 credits

Prerequisite: 234. A student is assigned to surgical services of affiliated hospitals. Assists in surgery and carries out preoperative and postoperative procedures as assigned by, and under the supervision of, the surgeon or the resident surgical staff.

**2770:236 CLINICAL APPLICATION VI** 3 credits

Prerequisite: 235. A student is assigned to surgical services of affiliated hospitals. Assists in surgery and carries out preoperative and postoperative care procedures as assigned by, and under the supervision of, the surgeon or the resident surgical staff.

**2770:241 SURGICAL ANATOMY** 3 credits

Prerequisites: 100 and 3100:106. Surgical anatomy of the human body as it relates to the various surgical specialties.

**2770:242 SURGICAL LABORATORY PROCEDURES** 2 credits

Prerequisites: 121 and admission to program option; corequisite: 241. Classroom, laboratory instruction in surgical techniques, procedures.

**2770:243 INTRODUCTION TO MEDICINE** 2 credits

Prerequisites: 241, 242. Pathophysiology, clinical manifestations, therapeutic management of surgically related disorders.

**2770:244 MEDICAL HISTORY AND PHYSICAL EVALUATION** 2 credits

Prerequisites: 241, 242. Introduction to techniques of obtaining medical histories and physical evaluations. Techniques of interviewing and physical diagnosis.

**2770:245 ROENTGENOGRAM ASSESSMENT** 1 credit

Prerequisite: 242. Roentgenogram assessment and its use as a diagnostic tool. Recognition of gross abnormalities in roentgenograms of the head, neck, chest, abdomen, pelvis and extremities.

**2770:246 MEDICAL LABORATORY PROCEDURES** 1 credit

Prerequisite: 242. Introduction of collection, preparation, and analysis of biological fluids and other substances through standard procedures utilized in medical laboratories to aid the physician in diagnosis, treatment and prevention of disease.

**2770:247 PULMONARY ASSESSMENT AND ELECTROCARDIOGRAPHY** 2 credits

Prerequisite: 242. Oxygen administration, humidity control, breathing exercises, postural drainage, percussion techniques, intermittent positive pressure breathing, management of ventilators and bedside ventilation measurements. Electrocardiogram recording techniques, interpretation of electrocardiographic abnormalities-arrhythmias.

**2770:290 SPECIAL TOPICS: SURGICAL ASSISTING** 1-2 credits

Prerequisite: permission. Selected topics or workshops of interest in surgical assisting technology.

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## 2780: Allied Health

**2780:101 INTRODUCTION TO PHYSICAL THERAPY** 2 credits

History of physical therapy, survey of treatment procedures. Role and rationale for physical therapist assistant. Legal, ethical responsibilities.

**2780:290 SPECIAL TOPICS: ALLIED HEALTH** 1-2 credits

(May be repeated for a total of four credits)  
Prerequisite: permission. Selected topics or subject areas of interest in allied health.

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## 2790: Respiratory Therapy

**2790:121 INTRODUCTION TO RESPIRATORY THERAPY TECHNOLOGY** 3 credits

Prerequisite: admission to program. Basic science and laws governing gases as well as appliances to administer and monitor oxygen. Covers equipment used to generate and give aerosol therapy, including I.P.P.B. therapy. Lecture/Laboratory.

**2790:122 PATIENT CARE IN RESPIRATORY THERAPY** 3 credits

Prerequisite: 121. Covers basic hospital practices in sterile technique, suctioning and postural drainage. Lecture/Laboratory.

**2790:123 MECHANICAL VENTILATORS** 3 credits

Prerequisite: 122. Introduction to different brands of ventilators and their functions. Airway and airway complications.

**2790:131 CLINICAL APPLICATIONS I** 3 credits

Prerequisites: admission to program and 121. Introduction to work in hospital and hands-on experience on hospital equipment. Laboratory.

**2790:132 CLINICAL APPLICATIONS II** 2 credits

Prerequisites: 122, 131. First of several rotations through hospitals. Specialty area of each hospital covered at that hospital. Laboratory.

**2790:133 CLINICAL APPLICATIONS III** 5 credits

Prerequisites: 123, 132, 141, 201. Semester is broken into three, five-week rotations, one at each hospital to cover specialty area for that site. Laboratory.

**2790:134 CLINICAL APPLICATIONS IV** 5 credits

Prerequisites: 133, 142, 223. Semester has three, five-week sessions. They will be spent at different clinical sites working on their specialty areas. Laboratory.

**2790:141 PHARMACOLOGY** 2 credits

Prerequisites: 2840:100 and 3100:103. Drugs administered by respiratory therapy and effect, route of action in the body. Lecture.

**2790:142 PATHOLOGY FOR RESPIRATORY THERAPY** 2 credits

Prerequisites: 201 and 3100:103. Discussion of disease processes, diseases of lung and heart, their effect on respiratory therapy.

**2790:201 ANATOMY AND PHYSIOLOGY OF CARDIOPULMONARY SYSTEMS** 3 credits

Prerequisite: 3100:206; corequisite: 3100:207. Study of normal anatomy and physiology of heart and lungs. Lecture/Laboratory.

**2790:223 ADVANCED RESPIRATORY THERAPY** 3 credits

Prerequisites: 123, 141. Covers blood gas analysis, and machines, drawing arterial gases, pulmonary functions research studies and radioactive pulmonary function studies. Lecture/Laboratory.

**2790:224 PULMONARY REHABILITATION AND THE RESPIRATORY THERAPY DEPARTMENT** 2 credits

Prerequisites: 141, 142, 223. Covers area of pulmonary rehabilitation of chronic lung. Includes essentials of establishing a respiratory therapy department. Lecture/Laboratory.

**2790:290 SPECIAL TOPICS: RESPIRATORY THERAPY** 1-3 credits

(May be repeated for a maximum of three credits)  
Prerequisite: permission. Selected topics or subject areas of interest in respiratory therapy technology.

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## 2840: Chemical Technology

**2840:100 BASIC CHEMISTRY** 3 credits

Elementary treatment of facts and principles of chemistry emphasizing biological application. Elements and compounds important in everyday life, biological processes and medicine. Introduction to laboratory techniques. Primarily for medical assistant, criminal justice and allied health students. Laboratory.

**2840:101 INTRODUCTORY CHEMISTRY** 3 credits

Facts and theories of general chemistry. Elements and compounds and their uses. Elementary treatment of atomic structure, gaseous state, periodic table, water, solutions. For chemical technology and Bachelor of Technology students. Laboratory.

**2840:102 INTRODUCTORY AND ANALYTICAL CHEMISTRY** 3 credits

Prerequisite: 101 or permission. Chemical equilibria, ionization, radioactivity. Properties of selected metals and nonmetals. Introduction to organic chemistry. Basic concepts of qualitative analysis. Identifications of cations and anions. Laboratory.

**2840:103 CHEMICAL CALCULATIONS** 2 credits

Prerequisite: permission. Review of mathematics as applied to problems in introductory chemistry and other science courses. Topics include unit conversions, percentages, concentrations, pH, gas laws, chemical equilibria, solubility products. Suitable as a refresher course.

**2840:121 ORGANIC PRINCIPLES** 4 credits

Structure, nomenclature and classification of simple organic compounds: their physical and chemical properties, methods of separation, analysis and synthesis. Laboratory.

**2840:151 BASIC PHYSICS: MECHANICS** 3 credits

Corequisite: 2020:131. Principles of mechanics. Topics include force and motion, work and energy, properties of fluids and gases and introduction to atomic physics. Laboratory.

**2840:152 BASIC PHYSICS: ELECTRICITY AND MAGNETISM** 2 credits

Prerequisites: 151 and 2020:131. Principles of electricity and magnetism. Electrostatics, basic direct current circuits, magnetism and electromagnetism, alternating currents, basic AC circuits. Laboratory.

**2840:153 BASIC PHYSICS: HEAT, LIGHT AND SOUND** 2 credits

Prerequisites: 151 and 2020:131. Principles of heat, light and sound. Topics include thermal behavior of matter, wave motion, sound waves, light and illumination, reflection and refraction, mirrors and lenses, interference and diffraction. Laboratory.

**2840:201 QUANTITATIVE ANALYSIS** 4 credits

Prerequisite: 102. Theory of quantitative analytical chemistry including gravimetric, volumetric and electrochemical procedures. Laboratory.

**2840:202 INSTRUMENTAL METHODS** 4 credits

Prerequisites: 201 and one year of physics; or permission. Instrumentation employed in qualitative and quantitative analysis. Theory and practice in chromatographic, spectrophotometric and other instrumental methods. Laboratory.

**2840:210 SCIENTIFIC GLASS BLOWING** 1 credit

Laboratory instruction in art of glass blowing. Fabrication and blowing of scientific glassware and chemical apparatus.

**2840:250 ELEMENTS OF PHYSICAL CHEMISTRY** 3 credits

Prerequisites: 102, 153, 2020:132. Physical principles governing behavior of chemical systems. Introductory thermodynamics, solution properties, chemical equilibrium, phase rule, chemical kinetics and structure of matter. Laboratory.

**2840:255 LITERATURE OF SCIENCE AND TECHNOLOGY** 1 credit

Prerequisite: permission. Literature of science and technology as used to gather technical information. Techniques of abstracting and the computer search.

**2840:260 COMPOUNDING METHODS** 2 credits

Prerequisites: 102, 121 or permission. Principles and methods of selecting and compounding rubber for specific end uses. The compounder's art. Processing and testing of basic elastomers and products. Laboratory.

**2840:270 NATURAL AND SYNTHETIC ORGANIC POLYMERS** 4 credits

Prerequisite: 121 or permission. Structure and properties of macromolecules with particular reference to carbohydrates, proteins, nucleic acids, rubber. Synthetic thermoplastic, thermosetting and elastomeric polymers.

**2840:290 SPECIAL TOPICS: CHEMICAL TECHNOLOGY** 1-2 credits

(May be repeated for a total of four credits)  
Prerequisite: permission. Selected topics or subject areas of interest in chemical technology.

network analysis, DC instruments, magnetism, inductance, capacitance, transients and time constants.

**2860:122 AC CIRCUITS** 3 credits

Prerequisite: 120; corequisite: 2020:132. Sinusoidal voltage and currents, reactance and impedance, methods of AC circuit analysis, AC power, transformers, resonance, polyphase circuits.

**2860:123 ELECTRONICS I** 3 credits

Corequisite: 122. Physical theory, characteristics, operational parameters and incircuit consideration of solid-state electronic devices.

**2860:225 ELECTRONICS II** 3 credits

Prerequisite: 123. Linear devices and/or pertinent applications widely used in electronics. Topics include amplifier fundamentals, frequency response, operational amplifiers, special linear integrated circuits and power amplifiers.

**2860:227 MEASUREMENTS** 2 credits

Prerequisite: 123 or 271. Principles and use of electrical and electronic instruments including moving coil instruments, bridges, oscilloscopes and signal generators. Analysis of measurement errors.

**2860:231 CONTROL PRINCIPLES** 3 credits

Prerequisite: 225 or 271; corequisite: 2020:233. Principles and design of control of physical systems. Mathematical and analog computer modeling of physical systems. Principles of closed-loop control systems. Methods of analysis to predict performance. Design of simple servomechanisms.

**2860:237 DIGITAL CIRCUITS I** 4 credits

Prerequisite: 123. Introduction to devices and techniques used in design of combinational logic circuits. Topics include number systems, binary arithmetic, codes, Boolean algebra, Karnaugh mapping, and integrated circuit and its application in combinational solutions such as data selection, bridging, symmetrical functions and ROM synthesis.

**2860:238 DIGITAL CIRCUITS II** 4 credits

Prerequisite: 237. Continuation of combinational logic design plus introduction to sequential logic design and microcomputer. Integrated circuit information extended into MOS and CMOS devices. Microprocessors application.

**2860:242 MACHINERY AND CONTROLS** 4 credits

Prerequisite: 122 and 123 or 271. Principles, characteristics and applications of DC and AC generators and motors. Basic control circuits for rotating machinery. Principles of industrial electronic devices used in machinery control such as unijunctions, SCRs, triac, diacs. Laboratory practice with industrial machines in practical industrial circuits.

**2860:251 COMMUNICATIONS CIRCUITS** 3 credits

Prerequisite: 225. Principles of radio-wave propagation, modulation and demodulation. Fundamentals, components and circuits of communication systems. Electric and magnetic fields, antennas and propagation.

**2860:255 ELECTRONIC DESIGN AND CONSTRUCTION** 2 credits

Prerequisite: 123. General and electronic drafting fundamentals and techniques with emphasis on printed circuit boards. General shop safety practices. Care and use of hand tools and power tools. Chassis and sheet metal layout and fabrication: printed circuit board fabrication; metal finishing and packaging techniques. Performance testing and troubleshooting.

**2860:260 ELECTRONIC PROJECT** 2 credits

Prerequisites: final semester or permission and 255. Design, construction and test by student of an electronic circuit of choice. Progress reports, oral and written reports required. Discussion of electronic design and fabrication techniques.

**2860:270 SURVEY OF ELECTRONICS I** 3 credits

Corequisite: 2020:131. Fundamentals of electrical circuits. Surveys of electro-mechanical devices emphasizing electrical/mechanical interface. For non-electronic technology majors.

**2860:271 SURVEY OF ELECTRONICS II** 3 credits

Prerequisite: 270; corequisite: 2020:132. Survey of most commonly used solid-state circuit components including typical applications. For non-electronic technology majors.

**2860:290 SPECIAL TOPICS: ELECTRONIC TECHNOLOGY** 1-2 credits

(May be repeated for a total of four credits)  
Prerequisite: permission. Selected topics or subject areas of interest in electronic technology.

**2860:350 ADVANCED CIRCUITS** 4 credits

Prerequisites: 123, 242 and 2020:334. Analysis of linear circuits in frequency

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## 2860: Electronic Technology

**2860:120 DC CIRCUITS** 4 credits

Corequisite: 2020:131. Nature of electricity, current and voltage, Ohm's Law.

and time domain. Loop analysis by matrix methods, Fourier analysis of non-sinusoidal waveforms, Laplace transformations, power and power-factor correction, polyphase systems and mutual inductance.

**2860:351 INDUSTRIAL ELECTRICAL SYSTEMS** 3 credits

Prerequisites: 350 and 4450:206. Power system single-phase and three-phase analysis, balanced and unbalanced systems, fault calculations, symmetrical components with industrial applications.

**2860:352 DIGITAL SYSTEMS** 4 credits

Detailed study of several digital computing systems including topics in architecture, software and I/O. Specific systems studied include the 8085, 6802, respective support circuits.

**2860:353 CONTROL SYSTEMS** 4 credits

System analysis and design using Laplace transform, frequency response, Bode diagram, root locus methods of analysis. Analysis and design of control of industrial process variables such as pressure, temperature, flow, liquid level, position. Introduction into AC control systems, discrete control systems, digital control system.

**2860:400 DATA ANALYSIS** 3 credits

Prerequisites: 4450:206 and 3470:252. Application of statistics to electronic data. Problems include quality control, failure estimating and synthesizing equations of dependence. Analysis methods include hypothesis estimation, curve fitting regression, correlation and analysis of variance.

**2860:406 COMMUNICATION SYSTEMS** 3 credits

Prerequisites: 351 and 350. Antennas, transmission lines, matching networks, modulation systems, propagation, noise, radar and microwaves. Problems encountered in communication systems.

**2860:410 TECHNOLOGY PROJECT** 1 credit

Prerequisite: senior standing. Detailed study of problem selected by student. Includes problem definition, literature search, comparison of solutions and formal report.

**2860:497 SENIOR HONORS PROJECT: ELECTRONIC TECHNOLOGY** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisites: senior standing in Honors Program, permission of department preceptor and major in electronic technology. Independent research leading to completion of Senior Honors Thesis or other original work.

**2880:232 LABOR MANAGEMENT RELATIONS** 3 credits

Prerequisite: 100. Study of historical background of labor movement, management viewpoints, legal framework for modern labor organizations and collective bargaining process.

**2880:235 WORK MEASUREMENT PROCEDURES II** 2 credits

Prerequisite: 130. Continuation of 130. Work measurement techniques and establishment of production standards for optimization of lowered costs.

**2880:241 QUALITY CONTROL PROCEDURES** 3 credits

Prerequisite: 2020:131. Theory and practice of inspection and sampling techniques for measurement of quality, QC charts, sampling plans, mill specs, checking machine capabilities and setting tolerances.

**2880:290 SPECIAL TOPICS: INDUSTRIAL TECHNOLOGY** 1-2 credits

(May be repeated for a total of four credits)  
Prerequisite: permission. Selected topics or subject areas of interest in industrial technology.

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## 2900: Instrumentation Technology

**2900:121 FUNDAMENTALS OF INSTRUMENTATION** 4 credits

Prerequisites: 2840:151 and 2860:123 or 270. Study of variables encountered in process instrumentation, indicating and recording devices and applications of physical principles affecting measurement and control.

**2900:232 PROCESS CONTROL** 3 credits

Prerequisite: 231. Study of analysis and design of process control systems with emphasis on techniques and instrumentation used in process control. Digital control fundamentals introduced.

**2900:239 PULSE CIRCUIT TESTING** 3 credits

Prerequisite: 2860:237. General study and analysis of digital circuits and systems. Analog-to-digital and digital-to-analog conversion. Digital troubleshooting and analysis of digital interface.

**2900:240 CALIBRATION AND STANDARDIZATION** 1 credit

Prerequisite: 231. Laboratory experience in calibration and standardization of electrical, electronic and mechanical systems. Instrument theory, maintenance, troubleshooting, specifications, performance and safe working practices included.

**2900:241 INSTRUMENTATION PROJECT** 2 credits

Prerequisite: final semester or permission. Design construction and testing of an approved instrumentation project by an individual student, promoting independent study, initiative, assumption of responsibility and application of skills attained in related courses.

**2900:290 SPECIAL TOPICS: INSTRUMENTATION TECHNOLOGY** 1-2 credits

(May be repeated for a total of four credits)  
Prerequisite: permission. Selected topics or subject areas of interest in instrumentation technology.

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## 2920: Mechanical Technology

**2920:121 TECHNICAL DRAWING I** 3 credits

Lettering and proper use of drawing instruments; freehand sketching; geometric drawing; orthographic projection; pictorials; introduction to basic descriptive geometry.

**2920:122 TECHNICAL DRAWING II** 3 credits

Prerequisite: 121. Sections and conventions; dimensioning; allowances and tolerances; threads and fasteners; descriptive geometry; intersections; developments.

**2920:242 DESIGN MATERIALS** 3 credits

Prerequisite: 2980:125; corequisite: 2980:241. Fundamental properties of materials. Material testing. Applications of methods to control material properties.

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## 2880: Manufacturing Technology

**2880:100 INTRODUCTION TO MANUFACTURING MANAGEMENT** 3 credits

Introduction to functions of major sections of manufacturing concern. Departmental purposes identified with major emphasis on their sequential relationship with each other. Intended to identify and relate major functions encountered later in individual courses.

**2880:130 WORK MEASUREMENT PROCEDURES I** 2 credits

Prerequisite: 100. Familiarizes student with procedures for handwork and techniques for choosing the best method for accomplishing such tasks.

**2880:141 SAFETY PROCEDURES** 3 credits

Sources and causes of accidents. Philosophy of accident prevention. Appraisal of cost of accidents. Elements of an effective safety program. Human factors in safety, safety promotion and enforcement.

**2880:200 MANUFACTURING PROFITABILITY** 3 credits

Prerequisites: 100 and 2420:211. Profit defined. Cost analysis and control studied. Control of price and profit within market limitations discussed.

**2880:210 CONTROLLING AND SCHEDULING PRODUCTION** 2 credits

Prerequisite: 100. Production order followed from sales order through requisitioning, plant loading, expediting, scheduling and shipping. Also covers material control and inventory record keeping. Critical path, linear programming and EDP techniques discussed.

**2880:231 PLANT LAYOUT** 3 credits

Prerequisite: 100. Solution of activities for a production facility. Optimum arrangements of factors of production: manpower, materials and equipment.

**2920:243 KINEMATICS** 2 credits

Prerequisite: 2980:241. Study of rigid-body motions of simple linkages, cams, gears and gear trains. Graphical vector solutions emphasized. Industrial applications presented.

**2920:244 DYNAMICS** 2 credits

Prerequisites: 243, 2020:233 and 2980:125. Introduction to particle dynamics, displacement, velocity and acceleration of a constrained rigid body in plane motion. Kinetics of particles and rigid bodies; work and energy, mechanical vibrations.

**2920:245 MECHANICAL DESIGN I** 5 credits

Prerequisites: 122, 2980:241; corequisite: 242. Design of machine elements: springs, shafts, fasteners, welded joints. Combined stress and fatigue analysis. Design projects. Experimental stress analysis.

**2920:247 TECHNOLOGY OF MACHINE TOOLS** 3 credits

Setup and operation of tool room machines: Lathe, drill press, shaper, milling machine and tool grinder. Planning operations and layout.

**2920:249 APPLIED THERMAL ENERGY** 2 credits

Prerequisites: 2020:233, 2840:153. Thermodynamic principles. Study of power cycles. Applications in I.C. engines, compressors, steam power cycles, refrigeration.

**2920:251 FLUID POWER** 2 credits

Prerequisites: 2020:233, 2840:153. Statics and dynamics of fluids. Viscosity, energy and momentum relationships. Fluid machinery and measurements.

**2920:252 THERMO-FLUIDS LABORATORY** 1 credit

Prerequisite: 249; corequisite: 251. Laboratory experiments in applied thermal energy and fluid power.

**2920:290 SPECIAL TOPICS: MECHANICAL TECHNOLOGY** 1-3 credits

(May be repeated for a total of four credits)

Prerequisite: permission. Selected topics or subject areas of interest in mechanical technology.

**2920:310 ECONOMICS OF TECHNOLOGY** 3 credits

Prerequisite: 64 credits or permission. Economic principles as they pertain to technology. Equivalence, alternatives, costs, depreciation, valuation. Project studies.

**2920:335 WELDING, THEORY AND PRACTICE** 3 credits

Prerequisite: 242. Design of weldments and welding processes. Welding of ferrous, nonferrous and plastic materials.

**2920:336 WELDING PROJECTS** 1 credit

Prerequisite: 335. Individual projects containing elements of analysis, design and laboratory implementation.

**2920:339 ADVANCED SHOP METHODS AND PRACTICES** 2 credits

Prerequisite: 247; corequisite: 242. Selected topics dealing with sophisticated metal cutting techniques.

**2920:346 MECHANICAL DESIGN II** 3 credits

Prerequisite: 245. Continuation of design of machine components. Bearings, gears, brakes, clutches. Machine vibrations and dynamic loads.

**2920:347 PRODUCTION MACHINERY AND PROCESSES** 2 credits

Prerequisites: 247, 2020:344. Study of modern production machines, processes and techniques. Casting, forging, rolling, welding, powder metallurgy, plastics molding.

**2920:348 INTRODUCTION TO NUMERICAL CONTROL** 3 credits

Prerequisites: 121, 2020:132. Introduction to numerical control (N/C) of operation of machine tools and other processing machines. Includes programming, types of N/C systems, economic evaluation.

**2920:402 MECHANICAL PROJECTS** 1 credit

Prerequisite: senior standing. Individual projects emphasizing creative technical design.

**2920:448 NUMERICAL CONTROL PROGRAMMING** 3 credits

Prerequisite: 348. Introduction to computer-assisted interactive part programming system. Writing of milling and drilling programs.

**2920:495 INSPECTION TOURS** 1 credit

Prerequisite: senior standing. Trips through area industrial plants and technical facilities.

**2920:497 SENIOR HONORS PROJECT IN MECHANICAL TECHNOLOGY** 1-3 credits

(May be repeated for a total of six credits)

Prerequisite: senior standing in Honors Program, permission of area honors preceptor and major in mechanical technology. Independent research leading to completion of Senior Honors Thesis or other original work.

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**2940: Drafting Technology****2940:140 SURVEY OF ENGINEERING TECHNOLOGY** 3 credits

Prerequisite: 2020:131. Introductory course in basic concepts pertaining to mechanical, civil and electrical technology. A study of technical terminology, applied mathematics and applied physics. Graphical solutions will be emphasized.

**2940:150 DRAFTING DESIGN PROBLEMS** 2 credits

Prerequisite: 2020:131; corequisite: 151. Introductory course in basic concepts in engineering technology computations. A study of technical terminology and applied mathematics.

**2940:151 TECHNICAL COMPUTATIONS** 1 credit

Prerequisite: 2020:131; corequisite for drafting technology students only: 2940:150. Use of computer to solve typical problems in engineering technology. Concepts of flow charting, looping, variables, arrays, subroutines, examined. BASIC computer language introduced.

**2940:160 MANUFACTURING AND CONSTRUCTION PROCESSES** 2 credits

(One hour lecture/three hours laboratory)

Films and field trips in various technologies to familiarize student with manufacturing and construction processes. Written or oral reports will be required after each film or field trip.

**2940:170 SURVEYING DRAFTING** 3 credits

(One hour lecture/six hours laboratory)

Prerequisite: 2920:121; corequisite: 2020:131. Provides basic understanding of drafting procedures, techniques and tools required for the various phases of survey office work. Production of topographic maps, plan and profile drawings, cross-section drawings and earthwork calculations.

**2940:200 ADVANCED DRAFTING** 3 credits

(One hour lecture/six hours laboratory)

Prerequisite: 2920:122. Descriptive geometry and geometric dimensioning. Principles of descriptive geometry applied to practical problems pertaining to the civil and mechanical fields of technology. Geometric dimensioning.

**2940:210 COMPUTER DRAFTING** 3 credits

(One hour lecture/six hours laboratory)

Prerequisites: 2920:122 and 2020:131. Provides basic understanding of equipment used in computerized drafting and of numerical control (N/C) concept. Included are definitions of most important terminology and drawing standards relating to N/C.

**2940:230 MECHANICAL SYSTEMS DRAFTING** 3 credits

(One hour lecture/six hour laboratory)

Prerequisite: 2920:122. Familiarizes student with terms and drawing layouts for installations of systems concerning plumbing, heating and air conditioning. Also welding, gears, cams and fluid power drawings.

**2940:240 ELECTRICAL, ELECTRONIC AND INSTRUMENTATION DRAFTING** 3 credits

(One hour lecture/six hours laboratory)

Prerequisite: 2920:122. Familiarizes student with terms and layouts concerning electronic, electrical and instrumentation systems.

**2940:250 ARCHITECTURAL DRAFTING** 3 credits

(One hour lecture/six hours laboratory)

Prerequisite: 2920:121. Fundamentals of architectural drafting, including projection, sectioning, pictorial drawing, perspective, shades, shadows and architectural representation. Emphasis on construction details, interior space use, traffic patterns, exterior materials.

**2940:260 DRAFTING TECHNOLOGY PROJECT** 3 credits

Prerequisite: last semester or permission. Provides opportunity to work on a special drafting project within chosen field of interest.

**2940:290 SPECIAL TOPICS: DRAFTING TECHNOLOGY** 1-3 credits

(May be repeated for a total of four credits)

Prerequisite: permission. Selected topics on subject areas of interest in drafting technology.

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# 2980: Surveying and Construction Technology

## 2980:122 BASIC SURVEYING

3 credits

Basic tools and computations for surveying; measurements of distance, elevations and angles; traverse surveys. Field practice.

## 2980:123 SURVEYING FIELD PRACTICE

2 credits

Prerequisite: 122. Practical experience in use of surveying equipment and methods of surveying. Provides student with responsibility for making decisions and planning and directing complete project.

## 2980:125 STATICS

3 credits

Prerequisites: 2840:151 and 2020:132. Forces, resultants and couples. Equilibrium of force systems. Trusses, frames, first and second moment of areas, friction.

## 2980:222 CONSTRUCTION SURVEYING

3 credits

Prerequisite: 122. Methods and procedures for establishing line and grade for construction. Circular, spiral and parabolic curves. Cross-sectioning methods and earthwork. Field practice.

## 2980:224 LAND SURVEYING

3 credits

Prerequisite: 122 or permission. Historical development of boundaries, rectangular system of public land surveys, systems used to describe property, working and interpretation of deed descriptions, surveyor's rights, duties and responsibilities.

## 2980:225 ADVANCED SURVEYING

4 credits

Prerequisite: 122. Introduction to theory of errors, precise leveling, baseline measurements, triangulation, trilateration and bearings from celestial observation. Photogrammetry. Field practice.

## 2980:226 SUBDIVISION DESIGN

2 credits

Prerequisite: 222; corequisite: 224. Site analysis, land use controls and plotting procedures. Laboratory includes preparation of various types of projects leading to a complete subdivision.

## 2980:231 BUILDING CONSTRUCTION

2 credits

Materials and types of construction used in heavy construction. Encompasses buildings constructed with heavy timber, steel, concrete or a combination of these materials.

## 2980:232 CONSTRUCTION

3 credits

Prerequisite: 222 or permission. Planning of construction operations. Construction equipment and selection for typical jobs. Emphasis on heavy construction.

## 2980:233 CONSTRUCTION ADMINISTRATION

2 credits

Construction specifications. Office organization, preparation of construction documents. Bidding, bonds. Construction management and supervision. Agreements and contracts.

## 2980:234 ELEMENTS OF STRUCTURES

3 credits

Prerequisite: 241. Principles of stress and structural analysis, members in steel, timber and concrete connections.

## 2980:237 MATERIALS TESTING I

2 credits

Laboratory testing of soils with emphasis on physical properties of soil. Laboratory and field procedures used for quality control. Testing of concrete mixes.

## 2980:238 MATERIALS TESTING II

2 credits

Corequisite: 241. Mix design of concrete. Laboratory testing of ferrous and nonferrous metals, woods and concrete. Experiments demonstrate physical properties as related to design.

## 2980:241 STRENGTH OF MATERIALS

3 credits

Prerequisite: 125. Stress, strain and stress-strain relationships. Tension, compression, torsion, beams. Shear and moment diagrams.

## 2980:245 COST ANALYSIS AND ESTIMATING

3 credits

Quantity surveys in construction. Elements of cost in construction, determination of unit costs, analysis of cost records.

## 2980:250 STRUCTURAL DRAFTING

2 credits

Prerequisite: 2920:121. Duties of structural draftsman in preparation of detailed working drawings for steel, concrete and wood members. Emphasis on portrayal, dimensions and notes on a working drawing.

## 2980:290 SPECIAL TOPICS: SURVEYING AND CONSTRUCTION TECHNOLOGY

1-2 credits

Prerequisite: permission. Selected topics or subject areas of interest in surveying and construction technology.

# Buchtel College of Arts and Sciences

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## 3000: Cooperative Education

### 3000:301 COOPERATIVE EDUCATION 0 credits

(May be repeated)

For Cooperative Education Students only. Work experience in business, industry, or governmental agency. Comprehensive performance evaluation and written report required.

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## 3100: Biology

### 3100:100 NATURE STUDY: PLANTS 3 credits

Identification and biology of common plants of this region. Recommended for teachers of nature study. Not available for credit toward a degree in biology. Laboratory.

### 3100:101 NATURE STUDY: ANIMALS 3 credits

Identification and biology of common animals of this region. Recommended for teachers of nature study. Not available for credit toward a degree in biology. Laboratory.

### 3100:103 INTRODUCTION TO MICROBIOLOGY 3 credits

Basic microbiology; destruction, removal and inhibition of microorganisms; immunity and allergy; common pathogens. Not available for credit toward a degree in biology. Laboratory.

### 3100:104 ECOLOGY AND BIOLOGICAL RESOURCES FIELD LABORATORY 1 credit

Corequisite: 105. Short field trips and laboratory studies illustrating natural and man-modified characteristics of selected local ecosystems.

### 3100:105 ECOLOGY AND BIOLOGICAL RESOURCES 2 credits

Basic principles governing structure and function of natural ecosystems. Various options for managing natural resources, human populations, biotic communities and industrial technologies at global level emphasized. Not available for credit toward a degree in biology.

### 3100:111 PRINCIPLES OF BIOLOGY 4 credits

Molecular, cellular basis of life; energy transformations, metabolism; nutrient procurement, gas exchange, internal transport, homeostatic mechanisms, control systems in plants and animals. Laboratory.

### 3100:112 PRINCIPLES OF BIOLOGY 4 credits

Prerequisite: 111. Cell reproduction, genetics, development, evolution, classification, behavior, ecology of plants and animals. (111-112 are an integrated course for majors in biology and related fields.) Laboratory.

### 3100:130 PRINCIPLES OF MICROBIOLOGY 3 credits

Basic principles and terminology of microbiology; cultivation and control of microorganisms; relationships of microorganisms to man and his environment; medical microbiology. Laboratory.

### 3100:190,1 HEALTH CARE DELIVERY SYSTEMS\* 1 credit each

Health care principles and practices. Restricted to the student in NEOUCOM, six-year BS/MD program. Graded credit/noncredit. Not available toward credit as major in biological sciences.

### 3100:192 BIOLOGY OF AGING 3 credits

Prerequisite: 112 or 265 or equivalent. Introduction to anatomical and physiological changes occurring in organ systems of man during aging process; cellular basis for these changes; biological theories of aging. This course will not satisfy the natural science requirement.

### 3100:206,7 HUMAN ANATOMY AND PHYSIOLOGY 3 credits each

Sequential. Structure and function of the human body. Background of high school chemistry and biology recommended.

### 3100:211 GENERAL GENETICS 3 credits

Prerequisite: 112. Principles of heredity, principles of genetics.

### 3100:212 GENETICS LABORATORY 1 credit

Prerequisite or corequisite: 211. Fundamental principles of genetics illustrated by experiments with *Drosophila* and other organisms.

### 3100:215 ORGANIC EVOLUTION DISCUSSION 1 credit

Informal discussions of various aspects of organic evolution of general or special interest.

### 3100:216 ORGANIC EVOLUTION 2 credits

Prerequisite: 112. Early concepts of evolution; Darwinian theory, supporting evidence; mechanisms of evolution; molecular evolution; evolutionary trends in plants and animals.

### 3100:217 GENERAL ECOLOGY 2 credits

Prerequisite: 112. Study of interrelationships between organisms and environment.

### 3100:264 ANATOMY AND PHYSIOLOGY OF SPEECH AND HEARING 3 credits

Prerequisite: 265. Study of anatomy and physiology of organs directly and indirectly responsible for sound perception and production of speech. Laboratory.

### 3100:265 INTRODUCTORY HUMAN PHYSIOLOGY 4 credits

Study of physiological processes in human body, particularly at organ systems level. Not open to preprofessional majors. Laboratory.

### 3100:290,1 HEALTH CARE DELIVERY SYSTEMS 1 credit each

Health care principles and practices. A continuation of 190,1 for a second year student in NEOUCOM six-year BS/MD program. Graded credit/non-credit. Not available toward credit as major in biological sciences. Some field trips.

### 3100:311 CELL BIOLOGY 3 credits

Prerequisites: 112 and 3150:202 (organic and biochemistry). Study of structure and function of cells using microbial and animal cells for demonstration of common tenets.

### 3100:331 MICROBIOLOGY 4 credits

Prerequisites: 112 and 3150:202 or equivalent. Survey of protists with emphasis on the bacteria: their morphology, cultivation and chemical characteristics. Relationships of microorganisms to man and his environment. Laboratory.

### 3100:332 MICROBIOLOGY 4 credits

Prerequisite: 331 or equivalent. Basic elements of microbial genetics, and temporary variation in the bacteria. Classification and identification of major groups of bacteria. Laboratory.

### 3100:341 FLORA AND TAXONOMY I\* 3 credits

Prerequisite: 112. Collection-identification of autumn-flowering plants, their family characteristics and discussion of methods used to determine their relationships. Plants used by man discussed and plant collection required. Laboratory.

### 3100:342 FLORA AND TAXONOMY II\* 3 credits

Prerequisite: 112. Classification systems, international rules governing application of names and collection-identification of spring-flowering plants. Family characteristics. Plant collection. Laboratory.

### 3100:351 INVERTEBRATE ZOOLOGY\* 4 credits

Prerequisite: 112. Invertebrate groups, their classification, anatomy and life history of representative forms. Laboratory.

### 3100:353 GENERAL ENTOMOLOGY\* 4 credits

Prerequisite: 112. Structure, physiology, life cycles and economic importance of insects; survey of orders and major families. An insect collection is made. Laboratory.

### 3100:355 PARASITOLOGY 4 credits

Prerequisite: 112. Principles of parasitism; survey of the more important human and veterinary parasitic diseases. Laboratory.

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\*Field trips involved; minor transportation costs.

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\*Field trips involved; minor transportation costs.

**3100:356 ORNITHOLOGY\*** 3 credits

Prerequisite: 112. Introduction to biology of birds: classification, anatomy, physiology, behavior, ecology, evolution, natural history and field identification. Laboratory.

**3100:361,2 HUMAN ANATOMY AND PHYSIOLOGY** 3 credits each

Sequential. Prerequisite: one year of college chemistry. Study of structure and function of the human body. Laboratory.

**3100:365 HISTOLOGY I** 3 credits

Prerequisite: 311. Microscopic study of animal tissue preparations and histochemical stains; emphasis on functional differences. Laboratory.

**3100:366 HISTOLOGY II** 3 credits

Prerequisite: 365. Cellular structure of organs in relation to their functional activity, life history, comparative development. Laboratory.

**3100:381 HUMAN GENETICS** 2 credits

Prerequisite: 112 or 362. Principles of genetics in the human, immunogenetics, mutation, genetics of population, selection and eugenics. Not open to biology majors.

**3100:383 LABORATORY TECHNIQUES AND INSTRUMENTATION IN BIOLOGY** 2 credits

Prerequisite: 112; corequisite: 384. Instruction in techniques and instrumentation used in biological laboratories.

**3100:384 TECHNIQUES AND INSTRUMENTATION LABORATORY IN BIOLOGY** 1 credit

Corequisite: 383. Application of biological techniques and instrumentation with emphasis on isolation and identification of cellular components and metabolites; also includes enzymology, use of radioisotopes and light and electron microscopy.

**3100:400/500 FOOD PLANTS** 2 credits

Prerequisites: 112, or permission of instructor. A survey of the plants used for human food, including their history, structure, uses.

**3100:422/522 CONSERVATION OF BIOLOGICAL RESOURCES\*** 4 credits

Prerequisite: 218 or permission. Basic principles for management of plant and animal resources and natural areas. Political, economic and social aspects of resource management. Laboratory with field trips.

**3100:424/524 LIMNOLOGY\*** 3 credits

Prerequisite: 218. Field, laboratory study of lake ecosystems. Species composition of selected biotic communities, community energetics, nutrient cycling. Limnological survey of a local lake. Laboratory.

**3100:426/526 APPLIED AQUATIC ECOLOGY\*** 3 credits

Prerequisite: permission. Biological methods for assessing quality of natural waterways. Emphasis given to use of benthic invertebrates as indices of water quality. Laboratory.

**3100:428/528 BIOLOGY OF BEHAVIOR** 2 credits

Prerequisites: 211, 216 and 217. Biological basis of behavior: ethological theory; function, causation, significance, evolution and adaptiveness of behavior.

**3100:431/531 BACTERIAL PHYSIOLOGY** 3 credits

Prerequisites: 332 and 3150:202 (organic and biochemistry). Biochemical activities in bacterial cell, emphasizing enzymatic mechanisms of metabolic transformations. Energy relationships in catabolic and biosynthetic pathways stressed.

**3100:433/533 PATHOGENIC BACTERIOLOGY** 4 credits

Prerequisite: 332. Study of major groups of bacteria which produce infections in man. Biochemical properties of microorganisms which engender virulence and nature of host resistance. Laboratory.

**3100:435/535 VIROLOGY** 4 credits

Prerequisite: 332. Physical, chemical and biological properties of viruses including mechanisms of infection, genetics and tumor formation; methods of cultivation and identification. Laboratory.

**3100:437/537 IMMUNOLOGY** 4 credits

Prerequisite: 332; recommended: 433. Nature of antigens, antibody response and antigen-antibody reactions. Site and mechanism of antibody formations, hypersensitivity, immunologic tolerance and immune diseases considered. Laboratory.

**3100:438/538 HEMATOLOGY** 4 credits

Prerequisite: 437/537 or permission of instructor. Quantitative and qualitative evaluation and interpretation of formed elements of blood including study of hereditary, metabolic, nutritional, inflammatory, immunologic and neoplastic diseases encountered in field of hematology. Lecture/Laboratory.

**3100:440/540 MYCOLOGY** 4 credits

Prerequisite: 112. Structure, life history, classification of representative fungi with emphasis on the importance of fungi to man. Laboratory.

**3100:441/541 PLANT DEVELOPMENT** 4 credits

Prerequisites: 112 and one year of organic chemistry. Embryology and morphogenesis of plants in relation to physical, chemical, genetic and spatial factors. Laboratory.

**3100:442/542 PLANT ANATOMY** 3 credits

Prerequisite: 112. Structure and development of cells, tissues, organs and organ systems of seed plants. Laboratory.

**3100:443/543 PHYCOLOGY** 4 credits

Prerequisite: 112. Examination of the major groups of algae with emphasis on life histories and their relationship to algal form and structure. Laboratory.

**3100:445/545 PLANT MORPHOLOGY\*** 4 credits

Prerequisite: 112. Structure, reproduction, life cycles, ecology, evolution, economic significance of land plants-bryophytes, club-mosses, whisk ferns, horsetails, ferns, seed plants. Laboratory.

**3100:447/547 PLANT PHYSIOLOGY** 3 credits

Prerequisites: 112 and one year of organic chemistry. Water, soil and mineral requirements of plants, and their metabolism, growth and response to internal and external stimuli. Laboratory.

**3100:449/549 PLANT BIOSYSTEMATICS** 2 credits

Prerequisite: four credits of botany at 400 level. Current research methods and theories in plant phylogeny and taxonomy. Includes study of original publications, discussion of experimental methods and use of herbarium in research.

**3100:458/558 VERTEBRATE ZOOLOGY** 4 credits

Prerequisite: 218 or permission. Biology of vertebrates, except birds — evolution, ecology, behavior, systematics and anatomy. Laboratory with field trips.

**3100:461,2/561,2 HUMAN PHYSIOLOGY** 4 credits each

Prerequisite: senior or graduate standing. Detailed study of function of the human body with special emphasis on neuromuscular, cardiovascular, respiratory, renal and endocrine physiology. Laboratory.

**3100:464/564 GENERAL AND COMPARATIVE PHYSIOLOGY** 4 credits

Prerequisites: 112 and one year of organic chemistry. Study of cellular, osmoregulatory, respiratory, cardiovascular, endocrine and neural mechanisms involved in understanding physiology of variety of invertebrate and vertebrate animals. Laboratory.

**3100:465/565 ADVANCED CARDIOVASCULAR PHYSIOLOGY** 3 credits

Prerequisite: 462 or 562 or permission. Study of biological mechanisms involved in heart attack, strokes, fluid balance, hypertension and heart disease. Controversial issues in each area will be examined and current research presented.

**3100:466,7/566,7 DEVELOPMENTAL ANATOMY** 4 credits each

Prerequisite: 112. Sequence designed to introduce process of vertebrate development. Lecture and laboratory work includes descriptive and experimental embryology, phylogenetic development of major vertebrate orders and individual study research. Laboratory.

**3100:468/568 THE PHYSIOLOGY OF REPRODUCTION** 2 credits

Prerequisite: 462/562 or permission. Study of the physiological mechanisms of reproduction throughout the animal kingdom with special emphasis upon mammalian endocrinological control. Controversial issues in the field will be examined and current research presented.

**3100:480/580 RADIATION BIOLOGY\*** 3 credits

Prerequisite: permission. Principles of radioactivity, interaction with matter, particularly its effects on biological systems. Detection devices, radiation safety and dosimetry, use of radiolabeled compounds in laboratory. Laboratory.

\*Field trips involved; minor transportation costs.

\*Field trips involved; minor transportation costs.

**3100:481/581 ADVANCED GENETICS** 3 credits

Prerequisite: 211. Nature of the gene; genetic codes; hereditary determinants; mutagenesis and genes in population. Lecture and seminar.

**3100:484/584 PHARMACOLOGY** 3 credits

Prerequisite: 311; recommended: college-level physiology. Interactions of drugs and living systems with emphasis on molecular and cellular mechanisms of action, drug metabolism and excretion, and selected aspects of environmental toxicology. Clinical aspects and specific drug therapies not considered in detail.

**3100:485/585 LABORATORY ANIMAL MANAGEMENT\*** 3 credits

Prerequisites: 112 and permission. Principles involved in maintaining laboratory animals. Emphasis on selection of animal models, proper care, nutrition and legal aspects of animal use. Laboratory.

**3100:494/594 WORKSHOP IN BIOLOGY** 1-3 credits

(May be repeated)  
Prerequisite: permission of instructor. Group studies of special topics in biology. May not be used to meet undergraduate or graduate major requirements in biology. May be used for elective credit only.

**3100:495 SPECIAL TOPICS: BIOLOGY** 1-3 credits

(May be repeated)  
Prerequisite: permission. Special courses offered once or only occasionally in areas where no formal course exists. A maximum of six credits may be applied to requirements for a major.

**3100:497,6/597,8 BIOLOGICAL PROBLEMS** 1-2 credits each

Prerequisite: permission. Honors-level work, usually consisting of laboratory investigations.

**3100:499 SENIOR HONORS PROGRAM IN BIOLOGY** 1-3 credits

(May be repeated for a total of five credits)  
Prerequisite: senior standing in Honors Program and approval of honors preceptor. Open only to biology majors in Honors Program. Independent study leading to completion of approved senior honors.

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## Graduate Courses

**3100:631 EXPERIMENTAL BACTERIAL PHYSIOLOGY** 4 credits

Prerequisite: 531 or permission of instructor. Basic techniques peculiar to study of microbial physiology and modification of selected biochemical techniques for application to microbial systems. Laboratory.

**3100:660 ENVIRONMENTAL PHYSIOLOGY** 3 credits

Prerequisites: 561,2. Study of physiological reactions of healthy mammals to natural changes or extremes of physical environment.

**3100:667 EXPERIMENTAL EMBRYOLOGY** 3 credits

Prerequisite: permission. Principles and experimental methods of developmental biology. Practical application to oncology, drug interaction and inductive mechanisms. Laboratory.

**3100:681 CYTOLOGY** 3 credits

Prerequisite: 311. Structure and functional organization of cells at ultrastructural level. Three lecture hours a week.

**3100:685 ANIMAL TISSUE CULTURE** 3 credits

Prerequisite: 332. Tissue culture techniques; biology and physiology of animal cells and tissues under in vitro conditions; application of these techniques to radiobiology, cancer chemotherapy and animal cell genetics. Laboratory.

**3100:686,7 RESEARCH IN THE BIOLOGY OF AGING** 3 credits each

Sequential. Prerequisite: graduate standing in biology, or by approval in related fields. Introduction to research techniques in study of biological aspects of aging and experience in special research project in the field.

**3100:688 PRINCIPLES OF TRANSMISSION ELECTRON MICROSCOPY** 3 credits

Prerequisite: 311 or 681 or equivalent. Modern cytological methods using transmission electron microscope. Portfolio required to demonstrate proficiency in fixation techniques, use of ultramicrotome, light and electron microscopes and darkroom techniques.

**3100:689 PRINCIPLES OF SCANNING ELECTRON MICROSCOPY** 3 credits

Prerequisites: 311, 681 or equivalent. An introduction of modern cytological methods using the scanning electron microscope. A portfolio is required to demonstrate proficiency in fixation techniques, the use of supplemental equipment such as the critical point drying apparatus and the sputter-coating apparatus and the efficient use of the scanning electron microscope.

**3100:695 SPECIAL TOPICS: BIOLOGY** 1-3 credits

(May be repeated)  
Prerequisite: permission. Special courses offered once or only occasionally in areas where no formal course exists.

**3100:697,6 SEMINAR IN BIOLOGY** 1 credit each

(May be repeated)  
Prerequisite: permission. Attendance at all departmental seminars and presentation of seminar based on original research. Required of all thesis option students who shall present their thesis research.

**3100:699 MASTER'S RESEARCH** 1-6 credits

(May be repeated)  
A minimum of six credits is required for thesis option student.

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## 3110: Biology/NEOUCOM

**3110:620 MICROSCOPIC ANATOMY** 4 credits

Prerequisite: graduate standing, permission and cell biology; histology suggested. Morphological basis for normal and disturbed functions; structure-function relationships in human microscopic anatomy. Lectures, special laboratory, learning techniques using human tissues.

**3110:630 HUMAN GROSS ANATOMY AND EMBRYOLOGY** 3 credits

Prerequisite: graduate standing and permission. An intensive survey of human macromorphology.

**3110:631 HUMAN GROSS ANATOMY AND EMBRYOLOGY LABORATORY** 3 credits

Corequisite: 630. An intensive survey of human macromorphology.

**3110:641 FUNCTIONAL NEUROANATOMY** 4 credits

Prerequisite: permission or graduate standing. Study of structure and function of mammalian nervous system with emphasis on human brain and human behavior. Laboratory.

**3110:643 NEUROPHYSIOLOGY** 4 credits

Prerequisite: 641. The relation of aspects of the neurosciences to the fundamental properties of nervous tissue, establishing a firm base in experimental neurobiology. Laboratory.

**3110:680 RADIOISOTOPES IN MEDICINE** 1 credit

Prerequisite: permission or graduate standing. A survey of the use of radioisotopes in medicine and research. Successful completion of this course qualifies the student for approval by the Nuclear Regulatory Commission for use of radioisotopes in research. Laboratory.

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## 3120: Medical Technology

**3120:401 SPECIAL TOPICS LABORATORY MANAGEMENT, EDUCATION AND SAFETY** 1-4 credits

Seminars, lectures, workshops in medical technology not included in formal clinical courses. Minimum one credit required for graduation.

**3120:410 CLINICAL ANALYSIS OF URINE AND OTHER BODY FLUIDS I** 1 credit

Prerequisite: 3100:361,2 or equivalent. Physiology of renal system; theory of renal functions in health and disease states. Theory of other fluid systems in diagnosis of disease.

**3120:411 CLINICAL ANALYSIS OF URINE AND OTHER BODY FLUIDS II PRACTICUM** 1 credit

Prerequisite: 3100:361,2 or equivalent. Renal function tests to include chemical and microscopic examination of urine. Methods of detection of chemical and cellular elements of other body fluids.

\*Field trips involved, minor transportation costs.

**3120:420 CLINICAL CHEMISTRY AND BIOCHEMISTRY I** 4 credits  
Prerequisites: 3100:383.4 or equivalent; 3150:201, 02, 335, 36 or equivalent. Concepts of clinical biochemistry; identification and quantification of specific chemical substances in body fluids in normal and disease states; principles of instrumentation and quality control.

**3120:421 CLINICAL CHEMISTRY AND BIOCHEMISTRY II PRACTICUM** 4 credits  
Prerequisites: 3100:383.4 or equivalent; 3150:201, 02, 335, 36 or equivalent. Clinical application by various analytical techniques; clinical correlation of results with disease states.

**3120:430 CLINICAL HEMATOLOGY I** 2 credits  
Prerequisites: 3100:311 and 3100:361.2 or equivalent. Theory of blood cell formation; identification of blood and bone marrow cells; differentiation of erythrocytes, leukocytes, morphology.

**3120:431 CLINICAL HEMATOLOGY II PRACTICUM** 2 credits  
Prerequisites: 3100:311 and 3100:361.2 or equivalent. Clinical application and practice of blood cell mounting procedures using automated and manual techniques.

**3120:432 CLINICAL COAGULATION** 1 credit  
Prerequisites: 3100:311 and 3100:361.2 or equivalent. Theory of coagulation mechanisms and their relationship to disease states. Emphasis on identification of coagulation deficiencies and abnormalities.

**3120:440 CLINICAL IMMUNOHEMATOLOGY I** 2 credits  
Prerequisites: 3100:437, 211 or equivalent. Theory of principles of immunology applied to blood grouping, cross matching; blood components; transfusion; blood collection, processing and preservation.

**3120:441 CLINICAL IMMUNOHEMATOLOGY II PRACTICUM** 2 credits  
Prerequisites: 3100:437, 211 or equivalent. Clinical application of theory; crossmatching; blood donors; blood bank management.

**3120:450 CLINICAL IMMUNOLOGY I** 1 credit  
Prerequisite: 3100:437 or equivalent. Antigens and antibodies and their interaction in disease states.

**3120:451 CLINICAL IMMUNOLOGY II PRACTICUM** 1 credit  
Prerequisite: 3100:437 or equivalent. Qualitative and quantitative serological laboratory procedures in immunology.

**3120:460 CLINICAL MICROBIOLOGY I** 4 credits  
Prerequisites: 3100:331.2 or equivalent. Theory of diagnosis of medical microbiology with emphasis on pathogenic bacteria and their relationship to disease.

**3120:461 CLINICAL MICROBIOLOGY II PRACTICUM** 4 credits  
Prerequisites: 3100:331.2 or equivalent. Isolation and identification of pathogenic bacteria, media making, sensitivity and antimicrobial agents, principles of sterilization and asepsis.

**3120:462 CLINICAL MYCOLOGY** 1 credit  
Study of pathogenic fungi, basic methods of cultivation and identification, treatment and safety precautions.

**3120:463 CLINICAL PARASITOLOGY** 1 credit  
Prerequisite: 3100:355 or equivalent. Study of parasites common to man, life cycles, and relationship to man, procedure for handling and examining, identification by morphological characteristics.

## 3130: Cytotechnology

**3130:401 INTRODUCTION TO CYTOLOGY** 1 credit  
A brief course in which by means of lecture and demonstration the student becomes familiar with the cytotechnologist's role and with cytology laboratory. Areas covered include historical background of clinical cytology, microscopy and basic histology.

**3130:410 CYTOPREPARATION** 2 credits  
Combined lecture and laboratory of different cytologic techniques, stain preparation, staining procedures, mounting and cover slipping of specimens. Also included are pertinent laboratory measurements, record keeping and safety measures for cytopreparation laboratory.

**3130:411 GYNECOLOGIC CYTOPATHOLOGY** 5 credits  
Anatomy, histology and cellular morphology of female reproductive system. Study of disease, processes and endocrinopathies, inflammation and benign lesions. Stressed are premalignant lesions of cervix and endometrium, as well as malignant neoplasms and their cytologic characteristics. A study of extruterine and metastatic tumors is included.

**3130:412 GENITO-URINARY CYTOPATHOLOGY** 3 credits  
Study of anatomy, histology, pertinent physiology and cellular morphology of kidneys, ureters, bladder and lower urinary tract. Emphasis on recognition of cancer cells and various benign pathologic conditions in the urinary tract by microscopic studies of urine sediment.

**3130:413 RESPIRATORY CYTOPATHOLOGY** 3 credits  
Study of disease processes as related to cytology of respiratory tract. Covers general anatomy, normal histology and cytology, inflammatory and mycotic diseases, benign proliferative disorders and malignant neoplasms with emphasis on their associated cell morphology.

**3130:414 BODY FLUIDS CYTOPATHOLOGY** 4 credits  
Anatomy, histology and clinical aspects of benign and malignant diseases involving body cavities, central nervous system and synovial cavities are presented. Emphasis is placed in cellular morphology of primary and metastatic tumors and in different cytodagnosis.

**3130:415 CYTOPATHOLOGY OF THE ALIMENTARY TRACT** 3 credits  
Anatomy, histology and pertinent physiology of the oral cavity, esophagus, stomach, small and large intestines, rectum and anal canal. The biologic behavior, clinical presentation and cellular morphology of various benign epithelial lesions and malignant tumors emphasized.

**3130:416 BREAST SECRETION AND NEEDLE ASPIRATION SMEARS** 2 credits  
The study of anatomy and histology of body organs subject to needle aspiration biopsy with emphasis on cellular morphology of both benign and malignant tumors.

**3130:417 CYTOGENETICS** 1 credit  
Basic genetic principles are taught to lay foundation for study of chromosomal aberrations and their pathological manifestations. Include techniques of sex chromatin determination, culturing and harvesting of blood cells, preparation of metaphase plate and preparation of karyotypes.

**3130:418 CYTOLOGY SEMINARS AND RESEARCH** 3 credits  
Collections of American Society of Cytology Seminars are presented. Current cytology cases from within department are also utilized. Based on projected slides and pertinent clinical history, a student formulates opinions on each case. Each case presented is discussed in depth by student with faculty moderator. A term paper on an independently selected topic in cytology is to be submitted and presented to the class and faculty.

**3130:420 CYTOLOGY PRACTICUM** 5 credits  
Involves five hours of daily prescreening of routine gynecologic and non-gynecologic specimens. Abnormal cases are reviewed with a proctor who is a registered cytotechnologist or pathologist. Correlation of clinical data, follow-up of patients and proper reporting is emphasized. The goal is to be able to screen accurately at least 40 cases of gynecologic specimens per day.

## 3150: Chemistry

**3150:121,2 INORGANIC CHEMISTRY I,II** 3 credits each  
Sequential. Designed primarily for a student in medical technology. Fundamental laws and theories of chemistry; the more important elements and their components. Laboratory.

**3150:124 CHEMISTRY** 3 credits  
Fundamentals of organic, inorganic and physiological chemistry. Discussion.

**3150:129,130 INTRODUCTION TO GENERAL, ORGANIC AND BIOCHEMISTRY I, II** 4 credits each  
Sequential. Introduction to principles of chemistry and fundamentals of inorganic and biochemistry. Structure and chemistry of carbohydrates, lipids, proteins; biochemistry of enzymes, metabolism, body fluids and radiation effects.

**3150:132 PRINCIPLES OF CHEMISTRY I** 4 credits  
Introduction to basic facts and principles of chemistry including atomic and

molecular structure, states of matter and thermodynamics. For chemistry major, premedical student and most other science majors. Laboratory.

**3150:133 PRINCIPLES OF CHEMISTRY II** 3 credits

Prerequisite: 132. Continuation of 132, including aqueous solution theory, chemical kinetics, equilibrium, electrochemistry and nuclear chemistry. For chemistry major, premedical student and most other science majors.

**3150:134 QUALITATIVE ANALYSIS** 2 credits

Corequisite: 133. Laboratory course applying principles of chemical equilibrium to inorganic qualitative analysis.

**3150:201,2 ORGANIC CHEMISTRY AND BIOCHEMISTRY I, II** 4 credits each

Sequential. Prerequisite: 122. Designed especially for student in medical technology. Principles of organic chemistry with emphasis on biological systems. Laboratory.

**3150:203 NUTRITIONAL BIOCHEMISTRY** 3 credits

Prerequisite: 122 or 130. Catabolic processes for energy production and nutritional requirements in liver, heart and skeletal muscle and adipose tissue. Biochemistry of diabetes, heart disease, obesity, atherosclerosis, and dietary treatment of these diseases. May not be used to meet undergraduate major requirements in chemistry.

**3150:263,4 ORGANIC CHEMISTRY LECTURE I, II** 3 credits each

Sequential. Prerequisite: 134 or permission. Structure and reactions of organic compounds, mechanism of reactions.

**3150:265,8 ORGANIC CHEMISTRY LABORATORY I, II** 2 credits each

Sequential. Corequisites: 263,4. Laboratory experiments to develop techniques in organic chemistry and illustrate principles.

**3150:300,1,2 COOPERATIVE EDUCATION WORK PERIOD** 0 credits each

For cooperative education student. Work experience in industry and business. Written reports of the work experience required.

**3150:303,4 ELEMENTARY PHYSICAL CHEMISTRY I, II** 3 credits each

Sequential. Prerequisites: 264, 3650:232, 262 or 292, 3450:222 or permission of instructor. Chemical thermodynamics and kinetics (I) and molecular structure and spectra (II). Not accepted for credit toward B.S. degree in chemistry or chemical engineering.

**3150:313,4 PHYSICAL CHEMISTRY LECTURE I, II** 3 credits each

Sequential. Prerequisites: 264, 3450:235, 3650:292 or permission of instructor. Gases, thermodynamics, thermochemistry, solutions, dilute solutions, chemical equilibrium, phase rule, chemical kinetics, electrochemistry, electrolytic equilibria, atomic and molecular structure.

**3150:315,6 PHYSICAL CHEMISTRY LABORATORY I, II** 2 credits each

Sequential. Corequisite for 315 is 314. Laboratory designed for illustrating techniques and equipment used in physical chemical investigations.

**3150:335,6 ANALYTICAL CHEMISTRY FOR LABORATORY TECHNICIANS I, II** 4 credits each

Sequential. Prerequisites: 133,4 or 122. Intended primarily for preparing to become a laboratory or hospital technician. Theory and calculations in qualitative and quantitative analysis, laboratory, methods used in hospital laboratories.

**3150:401/501 BIOCHEMISTRY LECTURE I** 3 credits

Prerequisite: 264. Biochemistry of amino acids and proteins; enzymes, role as biocatalysts; structure, biochemistry of nucleotides, nucleic acids, carbohydrates and lipids; energy storage, utilization.

**3150:402/502 BIOCHEMISTRY LECTURE II** 3 credits

Prerequisite: 401/501. Carbohydrate, lipid and amino acid metabolism, protein, nucleotide and nucleic acid biosynthesis and gene function.

**3150:403 COOPERATIVE EDUCATION WORK PERIOD** 0 credits

For the cooperative education student only. Work experience in industry and business. Comprehensive written reports of the work experience are required.

**3150:404/504 BIOCHEMISTRY LABORATORY I** 1 credit

Corequisite: 401/501. Investigation of amino acids, proteins, carbohydrates, lipids and nucleic acids. Chromatography, oxygen measurements, spectrophotometry and use of radioisotopes.

**3150:405/505 BIOCHEMISTRY LABORATORY II** 1 credit

Prerequisite: 404/504; corequisite: 402/502. Biological synthesis and degradation; role of enzymes, their characteristics and utilization of energy released during oxidation of biological compounds.

**3150:404/508 THE PROFESSIONAL CHEMIST IN INDUSTRY** 2 credits

Prerequisite: senior year or degree in chemistry or chemical engineering or permission. Business, legal, societal, economic and other nonchemical aspects of a chemist's profession.

**3150:411/511 PHYSICAL CHEMISTRY FOR BIOLOGY MAJORS** 3 credits

Prerequisites: 266 and 3450:148 and permission. Gases, thermodynamics, electrochemistry, chemical kinetics, macromolecules and colloids; special topics in biochemistry, biophysics and molecular biology.

**3150:415/515 CHEMICAL INSTRUMENTATION** 3 credits

Prerequisite: permission. Principles and applications of electrical and electronic devices and various transducers for chemical analysis. Laboratory.

**3150:416/516 INSTRUMENTAL METHODS OF ANALYSIS** 3 credits

Prerequisites: 415/515. Principles and applications of analytical chemical techniques based on physical measurements. Laboratory.

**3150:421/521 QUALITATIVE ORGANIC ANALYSIS** 4 credits

Prerequisite: 266. Identification and characterization of organic substances, separation and identification of components of organic mixtures. Laboratory.

**3150:423 QUANTITATIVE ANALYSIS** 3 credits

Prerequisite: 134. Theoretical principles of quantitative analysis. Techniques and calculations, gravimetric and volumetric methods.

**3150:425 QUANTITATIVE ANALYSIS LABORATORY** 2 credits

Corequisite: 423. Laboratory techniques employed in gravimetric, volumetric and instrumental analysis.

**3150:427 ANALYTICAL CHEMISTRY LECTURE** 3 credits

Prerequisite: 304 or 314, 316 or permission. Instrumental analysis with emphasis on newer analytical tools and methods.

**3150:428 ANALYTICAL CHEMISTRY LABORATORY** 2 credits

Corequisite: 427. Laboratory techniques employed in gravimetric, volumetric, instrumental analysis; emphasizes instrumental analysis.

**3150:463/563 ADVANCED ORGANIC CHEMISTRY** 3 credits

Prerequisite: 264, 304 or 314 or permission. Introduction to study of mechanisms of organic reactions.

**3150:472/572 ADVANCED INORGANIC CHEMISTRY** 3 credits

Prerequisite: 304 or 314. Concepts of atomic structure integrated in systematic classification of elements. Periodic table. Chemistry of the representative elements. Transition elements including coordination compounds, organometallics and metal carbonyls.

**3150:490/590 WORKSHOP IN CHEMISTRY** 1-3 credits

(May be repeated)  
Group studies of special topics in chemistry. May not be used to meet undergraduate or graduate major requirements in chemistry.

**3150:498 SPECIAL TOPICS: CHEMISTRY** 1-3 credits

**3150:499 RESEARCH PROBLEMS** 2 credits

(May be repeated for a total of eight credits)  
Prerequisite: permission. Assignment of special problems to student, designed as an introduction to research problems.

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## Graduate Courses

**3150:601,2 CHEMISTRY OF POLYMERS I, II** 2 credits each

Sequential. Prerequisites: 264 and 266 or permission of instructor. History, classification and nomenclature; natural polymers. Types and methods of polymerization. Ring vs. chain stability. Natural and synthetic polypeptides, nucleic acids.

**3150:604,5 CHEMISTRY OF POLYMERS LABORATORY I, II** 2 credits each

Sequential. Prerequisites: 264, 266. Preparation, identification of polymers to illustrate polymerization methods in 601, 602, 649.

- 3150:609 MICROQUANTITATIVE ORGANIC ANALYSIS** 2 credits  
Prerequisites: 266, 428 and permission. Microquantitative analytical methods for determination of carbon, hydrogen, nitrogen, sulfur and halogens in organic substances. Laboratory.
- 3150:610 BASIC QUANTUM CHEMISTRY** 2 credits  
Prerequisite: 314. Quantum mechanics with applications to molecular systems. Include angular momentum, molecular hamiltonians, variation and perturbation methods and molecular orbital theories.
- 3150:611 CHEMICAL BONDING AND SPECTROSCOPY** 2 credits  
Prerequisite: 610. Application of quantum chemistry to elucidation of chemical bonding, structure and interpretation of molecular spectra.
- 3150:613 SYNTHETIC METHODS OF ORGANIC CHEMISTRY** 2 credits  
Prerequisite: 264. Discussion of synthetic organic chemistry. Standard synthesis of organic compounds as well as newer techniques.
- 3150:621,2 ADVNCD PREPARATIONS I, II** 1-2 credits each  
Prerequisite: permission. Methods for preparing and purifying organic and inorganic compounds. Laboratory.
- 3150:625 COLLOID CHEMISTRY** 2 credits  
Prerequisites: 427, 428. Thermodynamic and kinetic approach to interfacial, electrokinetic and colligative phenomena. Application of Schlieren optics. Debye double layer concept and colloid stability. Micelles. Adsorption and related phenomena.
- 3150:629,30 THEORETICAL INORGANIC CHEMISTRY I, II** 2 credits each  
Sequential. Prerequisites: 314, 472 or permission. Detailed treatment of chemistry of transition elements. Group theoretical applications, ligand field theory, kinetics and mechanism, magnetism, electronic spectra, molecular orbital theory.
- 3150:635 THERMODYNAMICS, STATISTICAL THERMODYNAMICS AND KINETICS I** 2 credits  
Prerequisites: 313, 314. Rigorous treatment of laws of thermodynamics and application to selected chemical systems — gases, solutions and surfaces. Fundamentals of statistical thermodynamics.
- 3150:636 THERMODYNAMICS, STATISTICAL THERMODYNAMICS AND KINETICS II** 2 credits  
Prerequisite: 635. Applications of statistical thermodynamics to chemical systems in equilibrium. Theories of rate processes. Fundamentals of chemical kinetics, methods of investigation and interpretation of data.
- 3150:638,9 ADVANCED PHYSICAL CHEMISTRY LABORATORY I, II** 1 credit each  
Prerequisite: permission. Laboratory, physical chemistry.
- 3150:649 CHEMISTRY OF ELASTOMERS** 2 credits  
Prerequisites: 264, 266 or permission. Study of molecular structure and chemical reaction and properties of natural and synthetic rubbers; polymerization processes in formation of synthetic elastomers.
- 3150:651,2 QUANTUM CHEMISTRY I, II** 3 credits each  
Sequential. Prerequisite: 3450:236 or permission. Wave mechanics: exactly soluble problems and approximation methods in many-particle systems; structure, properties, symmetry and spectroscopy of molecules; self-consistent field techniques.
- 3150:660 BIO-ORGANIC REACTIONS** 2 credits  
Prerequisites: 264, 313, 314, 402 or permission. Bio-organic mechanisms, including nucleophilic displacements on carbonyl and phosphorus; hydration and redox reactions; chemistry of cofactors; enzyme catalysis and models.
- 3150:665 BIOENERGETICS** 2 credits  
Prerequisites: 313, 314, 402 or permission. Energy production, utilization in living systems: historical aspects, thermodynamics, glycolysis, phosphorylation, citric acid cycle, respiratory chain, electron transport, metabolic control, active transport and muscle contraction.
- 3150:667 ADVANCED BIOCHEMISTRY TECHNIQUES** 2 credits  
Prerequisites: 402, 405, 428 or permission. Advanced analytical course in biochemistry laboratory; purification and characterization of D.N.A., R.N.A. and chromatin; study of metabolic pathways in bacteria using advanced biochemistry techniques.
- 3150:670 CHEMICAL MICROSCOPY AND MICROCHEMICAL ANALYSIS** 2 credits  
Prerequisite: 462 and permission. Microscale titrations, physical measurements, phase studies; identifications; microchemical procedures.
- 3150:671 THERMOANALYTICAL TECHNIQUES** 2 credits  
Prerequisite: permission. Methods of differential thermal analysis, thermogravimetry and related techniques and methods of programming, recording, data treatment and effects of atmosphere and sample parameters described with applications.
- 3150:672 ADVANCED ANALYTICAL CHEMISTRY** 2 credits  
(One lecture, one laboratory period)  
Prerequisite: 428 or equivalent. Advanced techniques for separation, determination and identification; classical as well as recent techniques.
- 3150:673 STEREOCHEMISTRY OF ORGANIC COMPOUNDS** 2 credits  
Prerequisite: 264. Stereochemistry and its application to reactions of organic chemistry.
- 3150:674,5 PHYSICAL CHEMISTRY OF POLYMERS I, II** 2 credits each  
Sequential. Prerequisite: 314 or permission of instructor. Basic statistical ideas. Molecular weights, distributions, sizes and shapes. Kinetics and mechanism of polymerization. Copolymerization. Degradation. Thermodynamics of polymer solutions.
- 3150:685,6 EXPERIMENTAL PHYSICAL CHEMISTRY OF POLYMERS I, II** 2 credits for 685; 2-3 credits for 686  
Sequential. Prerequisite or corequisite: 674, 675, respectively. Laboratory to illustrate methods and principles discussed in 674 and 675.
- 3150:688 ADVANCED CHEMICAL THERMODYNAMICS** 2 credits  
Prerequisite: 636. Thermodynamics of solutions, fluctuation theory, generalized thermodynamic potential, irreversible thermodynamics.
- 3150:691 ADVANCED INSTRUMENTAL ANALYSIS** 2 credits  
Prerequisite: 416/516. Modern instruments.
- 3150:692 ADVANCED INSTRUMENTATION** 2 credits  
Prerequisites: 316, 428. Theory and application of instrumental measurements. Interpretation of data.
- 3150:699 MASTER'S RESEARCH CHEMISTRY** 1-6 credits  
For properly qualified candidates for master's degree. Supervised original research in analytical, inorganic, organic, physical or biochemistry.
- 3150:710 SPECIAL TOPICS: ANALYTICAL CHEMISTRY** 1-2 credits  
(May be repeated)  
Prerequisite: permission. Topics in advanced analytical chemistry. Electroanalysis, activation analysis, atomic absorption spectrometry, mass spectrometry, liquid-liquid, liquid-solid and gas chromatography, ion exchange, thermoanalytical methods, separations, standards, sampling, recent developments.
- 3150:711 SPECIAL TOPICS: INORGANIC CHEMISTRY** 1-2 credits  
(May be repeated)  
Prerequisite: permission. Consideration of topics in modern inorganic chemistry such as coordination compounds, chemistry of the solid state, representative elements, nonaqueous solvents, organometallic compounds, homogeneous catalysis.
- 3150:712 SPECIAL TOPICS: ORGANIC CHEMISTRY** 1-2 credits  
(May be repeated)  
Prerequisite: permission. Topics in advanced organic chemistry such as natural products, heterocyclic compounds, photochemistry.
- 3150:713 SPECIAL TOPICS: PHYSICAL CHEMISTRY** 1-2 credits  
(May be repeated)  
Prerequisite: permission. Subject from modern physical chemistry.
- 3150:714 SPECIAL TOPICS: POLYMER CHEMISTRY** 1-2 credits  
(May be repeated)  
Prerequisites: 264, 266, 314, 316 or permission. Study of topical subjects of current interest. Chemistry of macromolecules encompassing organic, inorganic or physical chemistry aspects and including laboratory work where applicable. Lectures and/or laboratory.
- 3150:715 SPECIAL TOPICS: BIOCHEMISTRY** 1-2 credits  
(May be repeated)  
Prerequisite: permission. Consideration of topics in biochemistry such as

isoenzymes and disease, genetic engineering, membrane structure and functions and recent developments in field.

**3150:783,4 PHYSICAL ORGANIC CHEMISTRY I, II** 3 credits each  
Sequential. Corequisite: 610 or permission. Consideration of physical-chemical principles that determine course of an organic chemical reaction; discussion of reactive intermediates.

**3150:786 THEORETICAL ORGANIC CHEMISTRY** 2 credits  
Prerequisite: 784. Application of modern quantum chemistry and thermodynamics to problems of organic chemistry.

**3150:899 DOCTORAL RESEARCH CHEMISTRY** 1-16 credits  
Open to qualified student accepted as a candidate for degree of Doctor of Philosophy in chemistry. Supervised original research undertaken in organic, inorganic, physical, analytical or biochemistry.

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## 3200: Classics

**3200:189 MYTHOLOGY OF ANCIENT GREECE** 3 credits  
Myth, legend and folktale in ancient Greece, with some attention to religion (Olympian deities, Orphism, etc.) and the transmission of Greek myth to Rome and the West. No foreign language necessary.

**3200:190 THE MAKING OF ENGLISH WORDS FROM LATIN AND GREEK ELEMENTS** 3 credits  
The influence of Latin and Greek on English vocabulary with some attention to the use of these languages in the scientific and legal fields. No foreign language is necessary.

**3200:313 ARCHAEOLOGY OF GREECE** 3 credits  
The ruins and monuments of Greece; history reconstructed by examination of the material remains. No foreign language necessary. Required of majors.

**3200:314 ARCHAEOLOGY OF ROME** 3 credits  
The ruins and monuments of Rome; history reconstructed by examination of the material remains. No foreign language necessary. Required of majors.

**3200:361 THE LITERATURE OF GREECE** 3 credits  
Major writers of Ancient Greece and their influence on later European literature. No foreign language necessary. Required of majors.

**3200:362 THE LITERATURE OF ROME** 3 credits  
Major writers of Ancient Rome and their influence on later European literature. No foreign language necessary. Required of majors.

**3200:401,2/501,2 EGYPTOLOGY** 3 credits each  
(May be repeated with change of subject)  
Prerequisite: permission of instructor. Classical Egyptian (standard hieroglyphic of Eighteenth Dynasty); history and antiquities of Egypt as far as Roman occupation.

**3200:404,5/504,5 ASSYRIOLOGY** 3 credits each  
(May be repeated for credit with another cuneiform language)  
Prerequisite: permission of instructor. The Akkadian language; history and antiquities of Mesopotamia.

**3200:407,8/507,8 ANCIENT NEAR EASTERN ARCHAEOLOGY** 3 credits each  
(May be repeated for credit with change of subject)  
Prerequisite: permission of instructor. Palestine, Mesopotamia, Asia Minor, adjacent lands; Old Testament in light of material evidence.

**3200:450/550 SELECTED TOPICS IN ANCIENT CULTURES** 3 credits  
(May be repeated with change of subject)  
Varied offerings in literature, art and archaeology and religion. No foreign language necessary.

**3200:497,8/597,8 READING AND RESEARCH IN THE ANCIENT NEAR EAST** 1-3 credits  
Prerequisite: permission of instructor. Advanced work in various aspects of Ancient Near Eastern Studies (Archaeology, Assyriology, Egyptology, etc.).

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## 3210: Greek

**3210:121,2 ELEMENTARY GREEK** 4 credits each  
Sequential. Standard language of Hellenistic times with some attention to Modern Greek.

**3210:223,4 INTERMEDIATE GREEK** 3 credits each  
Prerequisite: 121,2. A survey of readings of the less difficult authors such as Homer, certain dialogues of Plato, Herodotus, Xenophon, New Testament or the like.

**3210:303,4 ADVANCED GREEK** 3 credits each  
(May be repeated with a change of subject)  
Tragedy, comedy, philosophy, history, lyric poetry, prose composition or epigraphy.

**3210:497,8/597,8 GREEK READING AND RESEARCH** 3 credits each  
(May be repeated for credit with change of subject)  
Prerequisite: permission of instructor. Homer, Sophocles, Plato or the like.

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## 3220: Latin

**3220:121,2 ELEMENTARY LATIN** 4 credits each  
Sequential. Some attention to development of Romance languages, especially Italian.

**3220:223,4 INTERMEDIATE LATIN** 3 credits each  
Prerequisite: 121,2. A survey of readings of the less difficult authors such as Pliny, Caesar, Plautus, Cicero's Letters or equivalent material.

**3220:303,4 ADVANCED LATIN** 3 credits each  
(May be repeated for credit with change of subject)  
Prerequisite: 223,4 or equivalent. Satirists, dramatists, philosophical, religious writers, lyric and elegiac poets, medieval writers.

**3220:497,8/597,8 LATIN READING AND RESEARCH** 3 credits each  
(May be repeated for credit with change of subject)  
Prerequisite: permission of instructor. Generally Latin epigraphy, prose composition of philology; numismatics or certain other archaeological topics may be offered.

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## 3250: Economics

**3250:100 INTRODUCTION TO ECONOMICS** 3 credits  
May not be substituted for 201,2, 244. Economics primarily considered in a broad social science context. Adequate amount of basic theory introduced.

**3250:201 PRINCIPLES OF MACROECONOMICS** 3 credits  
Study of the economic factors which affect the price level, national income, employment, economic growth. No credit if 244 already taken.

**3250:202 PRINCIPLES OF MICROECONOMICS** 3 credits  
Analysis of decision-making on the part of the firm and household, and the market processes affecting price, output and resource allocation. No credit if 244 already taken.

**3250:244 INTRODUCTION TO ECONOMIC ANALYSIS** 3 credits  
For engineering majors. Intensive introduction to analysis of modern industrial society and formulation of economic policy. Structure of economic theory and its relation to economic reality. No credit to a student who has completed 201,2.

**3250:248 CONSUMER ECONOMICS** 3 credits  
Spending habits of American consumers; influences affecting their spending decisions, personal finance, budget planning, saving programs, installment buying, insurance, investments, housing finance.

**3250:330 LABOR PROBLEMS** 3 credits

Prerequisite: 201.2. Labor economics, principles and public policy. Study of structure of labor market and impact unions have on labor management relations.

**3250:333 LABOR ECONOMICS** 3 credits

Prerequisite: 330. Theoretical tools used in analysis of problems of labor in any modern economic system. Emphasis given to examination of determinants of demand for and supply of labor.

**3250:360 INDUSTRIAL ORGANIZATION AND PUBLIC POLICY** 3 credits

Prerequisite: 201.2. Role of industrial structure and firm conduct in performance of industry and way in which antitrust policy is designed to provide remedies where performance is unsatisfactory.

**3250:380 MONEY AND BANKING** 3 credits

Prerequisite: 202. Institutions of money, banking and credit, monetary expansion and contraction, public policies affecting this process, development of our money and banking system.

**3250:385 ECONOMICS OF NATURAL RESOURCES AND THE ENVIRONMENT** 3 credits

Prerequisites: 100, 202, 244 or permission. Introduction to economic analysis of use of natural resources and economics of environment. Problems of water and air pollution, natural environments, natural resource scarcity, conservation, economic growth.

**3250:389 ECONOMICS OF ENERGY** 3 credits

Prerequisites: 201.2 or permission of the instructor. Frame of economic theory is applied to analyze the energy sector. Theoretical issues relating energy with inflation, economic growth and public policy will also be examined.

**3250:400 MACROECONOMICS** 3 credits

Prerequisites: 201.2. Changes in national income, production, employment, price levels, long-range economic growth, short-term fluctuations of economic activity.

**3250:405 PUBLIC FINANCE** 3 credits

Prerequisites: 201.2. Tax systems and other sources of revenue of federal, state and local governments; changing patterns of public expenditures; fiscal policy and debt management; economic effects of public policy.

**3250:406/506 STATE AND LOCAL PUBLIC FINANCE** 3 credits

Prerequisite: 410; recommended: 405. Examines economic rationale and problems for provision of goods and services by different governmental units. Considers alternative revenue sources and special topics.

**3250:410 MICROECONOMICS** 3 credits

Prerequisite: 201.2. Advanced analysis of consumer demand, production costs, market structures, determinants of factor income.

**3250:420 MATHEMATICAL ECONOMICS I** 3 credits

Prerequisites: 201, math modules or permission. Mathematical treatment of economic theory in framework of comparative statics. Emphasis on theory of the firm, theory of consumer behavior, general equilibrium analysis and welfare analysis.

**3250:421 MATHEMATICAL ECONOMICS II** 3 credits

Prerequisite: 420/520 or permission. Use of calculus and linear algebra to dynamic economic analysis: solution techniques; some significant dynamic models from literature.

**3250:426 STATISTICAL APPLICATIONS IN ECONOMICS** 3 credits

Prerequisites: 201.2, 6500:321.2, or the equivalent or permission. Techniques of making forecasts as basis for decisions in business and government as well as for verification of hypotheses.

**3250:430/530 HUMAN RESOURCE POLICY** 3 credits

Prerequisite: 330. Comprehensive overview of dimensions of human resource policy; issues in human resource development, allocation, maintenance and utilization.

**3250:431/531 LABOR AND THE GOVERNMENT** 3 credits

Prerequisites: 201.2, 330. Development of public policy for control of industrial relations, from judicial control of Nineteenth Century to statutory and administrative controls of World War II and postwar periods.

**3250:432 THE ECONOMICS AND PRACTICE OF COLLECTIVE BARGAINING** 3 credits

Prerequisites: 201.2, 330. Principles and organization of collective bargaining, collective bargaining agreements, issues presented in labor disputes and

settlements, union status and security, wage scales, technological change, production standards, etc.

**3250:435/535 THE DEVELOPMENT OF AMERICAN CORPORATE STRUCTURE** 3 credits

Traces evolution of American corporate structure from late Nineteenth Century to present. Explains and analyzes changing dimensions of corporate structure and response of government. Case studies analyzed.

**3250:440/540 SPECIAL TOPICS: ECONOMICS** 3 credits

Prerequisite: permission. Opportunity to study special topics and current issues in economics.

**3250:450 COMPARATIVE ECONOMIC SYSTEMS** 3 credits

Prerequisites: 201.2. Systems of economic organization, ranging from theoretical extreme of unregulated private enterprise to that of Marxian communism.

**3250:480/560 ECONOMIC DEVELOPMENT AND PLANNING FOR UNDERDEVELOPED COUNTRIES** 3 credits

Prerequisite: 201.2. Basic problems in economic development. Theories of development. Government planning for development. Trade and development of underdeveloped countries. No credit for graduate majors in economics.

**3250:481 PRINCIPLES OF INTERNATIONAL ECONOMICS** 3 credits

Prerequisites: 201.2. International trade and foreign exchange, policies of free and controlled trade, international monetary problems.

**3250:475/575 DEVELOPMENT OF ECONOMIC THOUGHT** 3 credits

Prerequisite: 201.2. Evolution of theory and method, relation of ideas of economists to contemporary conditions.

**3250:481/581 MONETARY AND BANKING POLICY** 3 credits

Prerequisites: 380, 400. Control over currency and credit, policies of control by central banks and governments, United States Treasury and Federal Reserve System.

**3250:486 GHETTO ECONOMIC DEVELOPMENT** 3 credits

Prerequisite: 201.2. Stresses careful study of question of economic planning and development at urban level, in response to pervasive phenomena of urban ghetto structures.

**3250:487 URBAN ECONOMICS: THEORY AND POLICY** 3 credits

Prerequisite: 410. Theoretical and empirical analyses of allocation, growth and structure in urban economy. Urban problems. Special attention given to resource allocation in urban public sector.

**3250:490 INDEPENDENT STUDY IN ECONOMICS** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisite: permission of instructor. Independent study in economics under supervision and evaluation of selected faculty member.

**3250:491/591 WORKSHOP IN ECONOMICS** 1-3 credits

(May be repeated)  
Group studies of special topics in economics. May not be used to meet undergraduate or graduate major requirements in economics. May be used for elective credit only.

**3250:497 HONORS PROJECT** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisite: senior standing in Honors Program. Individual senior honors thesis on a creative project relevant to economics, approved and supervised by faculty member of the department.

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## Graduate Courses

**3250:600 FOUNDATIONS OF ECONOMIC ANALYSIS** 3 credits

Prerequisite: graduate standing. Determination of national income, employment and price level; aggregate consumption, investment and asset holding; decision problems faced by household and firm. Partial equilibrium analysis of competition and monopoly and general equilibrium analysis. May not be substituted for 602, 603, 611, or applied toward the 30 graduate credits required for M.A. in economics.

**3250:602 MACROECONOMIC ANALYSIS I** 3 credits

Construction of static macroeconomic models. Analysis predominantly in terms of comparative statics with only relatively brief mention of dynamic models.

**3250:603 MACROECONOMIC ANALYSIS II** 3 credits

Prerequisite: 602. Macrodynamics and stability analysis of closed and open Keynesian systems. Inclusive coverage of post-Keynesian theories of economic growth.

**3250:606 PUBLIC FINANCE** 3 credits

Examination of public sector economies emphasizes public revenues, public expenditures. Develops objectives of taxation, welfare aspects of the public sector, theory of public goods. Considers specific taxes, cost-benefit analysis, expenditures analysis, fiscal federalism.

**3250:610 FRAMEWORK OF ECONOMICS ANALYSIS** 3 credits

Prerequisite: graduate standing. Development of theoretical and analytical framework for decision making. Discussion of applications of the framework to situations concerning demand, cost, supply, production, price, employment and wage.

**3250:611 MICROECONOMIC THEORY I** 3 credits

Modern theory of consumer behavior and of the firm. Determination of market prices. Optimization models, establishment of criteria for productive, allocative and distributive efficiency.

**3250:612 MICROECONOMIC THEORY II** 3 credits

Prerequisite: 611. Continuation of 611. Covers multimarket equilibrium, general equilibrium and welfare economic theory, and applications in public choice and applied welfare theory.

**3250:615 INDUSTRIAL ORGANIZATION** 3 credits

Prerequisite: 611 or permission. Examines link between market structure, firm conduct and economic performance. Measurement and effects of monopoly power, industrial concentration and changes

**3250:616 ANTITRUST ECONOMICS** 3 credits

Prerequisite: 615 or permission of instructor. Economic rationale behind legislative and judicial decisions affecting mergers, vertical, horizontal restraints, monopolization, collusion, price discrimination.

**3250:617 THE ECONOMICS OF REGULATION** 3 credits

Prerequisite: 615 or permission of instructor. Examines rationale, methods and success of government regulation of public utility, transportation and communications industries.

**3250:620 APPLICATIONS OF MATHEMATICAL MODELS TO ECONOMICS** 3 credits

Prerequisites: calculus, intermediate microeconomics or permission of the instructor. Review of selected topics of differential and integral calculus and their application to economic analysis. Theory of optimization in production and consumption; static macroeconomic models. Analysis of growth and stability.

**3250:621 APPLICATION OF LINEAR MODELS IN ECONOMIC ANALYSIS** 3 credits

Prerequisite: intermediate microeconomics. Review of selected topics of linear algebra, application to economic theory. Static open and closed input-output tables, dynamic models, consumption technology and theory of demands, linear programming, general equilibrium analysis.

**3250:626 STATISTICS FOR ECONOMETRICS** 3 credits

Prerequisites: elementary differential and integral calculus, 620 or permission. A review of statistical theory and its application to research in economics. Emphasis is on estimation and hypothesis testing as a prelude to econometrics.

**3250:627 ECONOMETRICS** 3 credits

Prerequisite: 626 or equivalent. Formulation of functional relations among economic variables suitable for statistical estimation from observational data and construction of multiequation econometric models and methods of estimation.

**3250:628 SEMINAR IN RESEARCH METHODS** 3 credits

Prerequisite: permission of instructor. A seminar in the research use of applied mathematical economics or econometrics. Emphasis is on individual development of a theoretical proposition or research statement, its empirical examination and policy implications.

**3250:633 THEORY OF WAGES AND EMPLOYMENT** 3 credits

Analytical approach to integration of economic theory with observed labor market phenomena. Discussion of wage and employment theories, effects of unions, collective bargaining theories and effects of government regulation.

**3250:634 COLLECTIVE BARGAINING** 3 credits

Economic issues and implications involved in hours of work, employment and

unemployment, and the impact of trade unions upon basic institutions of a free private enterprise economy.

**3250:635 LABOR LAW** 3 credits

Evaluation of labor relations laws. Public policy affecting public, private worker organizations; collective bargaining; strikes; picketing.

**3250:636 COLLECTIVE BARGAINING II** 3 credits

Prerequisite: 635 or permission of instructor. Examination of process of negotiation. Course core is an actual contract negotiation. Student decides on issues, positions and tactics, then negotiates contract.

**3250:637 LABOR LAW II** 3 credits

Intensive study of selected aspects of current labor legislation affecting employer-employee relationship. Special focus on arbitration law, public sector bargaining law and employment discrimination.

**3250:639 PUBLIC EMPLOYEE COLLECTIVE BARGAINING** 3 credits

Prerequisite: 635 or permission of instructor. Examination of unique problem of public employees under collective bargaining agreements. Focus on legal framework, tripartite nature of negotiations and special situations facing public employees.

**3250:664 SEMINAR ON ECONOMIC GROWTH AND DEVELOPMENT** 3 credits

Review of main theories of economic growth since age of classical economics. Problems in development of emerging countries. Discussion of aggregative macromodels of capital formation, investment, technology and external trade.

**3250:665 SEMINAR ON ECONOMIC PLANNING** 3 credits

Types, methods and applications of planning. Planning for growth. Application of input-output, linear programming, computer simulations and other statistical and mathematical methods of planometrics.

**3250:666 SEMINAR ON REGIONAL ECONOMIC ANALYSIS AND DEVELOPMENT** 3 credits

Study of a particular national or international regional development. Any one or a combination of following regions may be considered. Middle East, North Africa, areas within Latin America, Southern Europe, Southeast Asia or Eastern Europe.

**3250:670 INTERNATIONAL MONETARY ECONOMICS** 3 credits

International financial relations. Foreign exchange market and exchange rate adjustments. Balance of payments adjustment policies. International monetary system.

**3250:671 INTERNATIONAL TRADE** 3 credits

Traditional trade theory. Recent developments in trade theory, policy implications in trade relations among developed and developing economics.

**3250:683 MONETARY ECONOMICS** 3 credits

Intensive study of important areas of monetary theory. Emphasis on integration of money and value theory among other areas, plus some pressing policy issues.

**3250:697,8 READING IN ADVANCED ECONOMICS** 1-4 credits each

(A maximum of six credits may be applied toward the master's degree in economics.)

Intensive investigation of selected problem area in advanced economics under supervision of instructor. Since the subject matter is decided upon in each case, the course may be taken repeatedly for credit.

**3250:699 RESEARCH AND THESIS** 3 credits

(May be repeated for a total of six credits)

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## 3300: English

**3300:270 INTRODUCTION TO LINGUISTICS** 3 credits

Broad range of topics on language and introduction to its scientific study. Topics include language origins and history, dialects, sound systems, syntax, semantics, animal language, writing systems and language universals.

**3300:275 SPECIALIZED WRITING** 3 credits

(May be repeated for different topics, with permission)

Principles and practice of style, structure and purpose in writing, with special applications to writing demands of a specific career area.

**3300:277 INTRODUCTION TO POETRY WRITING** 3 credits

Practice in writing poems. Study techniques in poetry, using contemporary poems as models. Class discussion of student work. Individual conferences with instructor to direct student's reading and writing.

**3300:278 INTRODUCTION TO FICTION WRITING** 3 credits

Practice in writing short stories. Study of various techniques in fiction, using contemporary stories as models. Class discussion of student work. Individual conferences with instructor to direct student's reading and writing.

**3300:279 INTRODUCTION TO SCRIPT WRITING** 3 credits

Practice in writing scripts. Study of various techniques in script writing, using contemporary models for study. Class discussion of student work. Individual conferences with instructor to direct student's reading and writing.

**3300:280 POETRY APPRECIATION** 3 credits

Close reading of wide selection of British and American poems with emphasis on dramatic situation, description, tone, analogical language, theme and meaning.

**3300:281 FICTION APPRECIATION** 3 credits

Focus on some modern masters of short story and novel: Conrad, Faulkner, Joyce, Lawrence, Malamud, Bellow and Barth, approaching fiction as experience and as art.

**3300:282 DRAMA APPRECIATION** 3 credits

(May be repeated for credit as a text or a film appreciation course) Dramatic material in terms of theme, characterization and style.

**3300:283 FILM APPRECIATION** 3 credits

Introduction to 1) dramatic choices made by filmmakers in scripting, directing, editing and photographing narrative films; and 2) qualities of reliable film reviews.

**3300:289 STUDIES IN LITERATURE** 3 credits

(May be repeated for credit, with permission, as different topics are offered, but not for credit toward an English major.) Concentrated, in-depth study of thematically-grouped fiction, drama, poetry and/or exposition.

**3300:301 ENGLISH LITERATURE I** 4 credits

Studies in English literature from Old English to 1800, with emphasis upon specific representative works and upon the cultural and intellectual background which produced them. Literature to be read will include both major and minor poetry, prose and drama.

**3300:302 ENGLISH LITERATURE II** 4 credits

Studies in English literature 1800-1950. Emphasis will be given to cultural and intellectual backgrounds and to the development of various modes and genres.

**3300:315 SHAKESPEARE: THE EARLY PLAYS** 3 credits

Introduction to early drama of Shakespeare with close reading of eight to 10 plays including tragedies, histories and comedies. Includes explanatory lectures of both the plays and their backgrounds.

**3300:316 SHAKESPEARE: THE MATURE PLAYS** 3 credits

Study of eight to 10 of Shakespeare's plays after 1598, beginning with mature comedies. Concentration on major tragedies and romances.

**3300:319 ENGLISH DRAMA TO 1642** 3 credits

Development of non-Shakespearean drama from earliest Mystery plays to death of Queen Elizabeth, 1603.

**3300:320 ENGLISH DRAMA: 1660-1800** 3 credits

Study of major dramatic works from reopening of English theatre in 1660 to end of Eighteenth Century.

**3300:329 THE ENGLISH NOVEL BEFORE 1830** 3 credits

Development of English novel before 1830. Focus on works of Defoe, Richardson, Fielding, Smollett, Sterne, Austen and Scott.

**3300:330 THE ENGLISH NOVEL: 1830-1900** 3 credits

Reading of at least five major novels of Victorian era, of varying length, by Emily Bronte, Dickens, Eliot, Thackeray and Hardy. Characterization, theme and attitude toward life emphasized.

**3300:341 AMERICAN LITERATURE I** 3 credits

Historical survey of major and minor American writers to 1865.

**3300:342 AMERICAN LITERATURE II** 3 credits

Readings in major, minor American writers from 1865 to present.

**3300:350 BLACK AMERICAN LITERATURE** 3 credits

Survey of representative Black American writers from Nineteenth Century to present, with particular attention to historical and social backgrounds.

**3300:360 THE OLD TESTAMENT AS LITERATURE** 3 credits

History of Hebrews to 586 B.C., as revealed through epic, fiction, saga and poetry, viewed against background of the Oriental World.

**3300:361 THE NEW TESTAMENT AND APOCRYPHA AS LITERATURE** 3 credits

These two bodies of literature read with emphasis on form of gospel and epistle, and concept of apocalypse. Both are viewed against their historical and social backgrounds.

**3300:365 CONTINENTAL DRAMA** 3 credits

Study of masterpieces of European drama emphasizing evolution of dramatic forms, styles and subjects from Greek, Roman, Italian, Spanish, French, German, Scandinavian and Russian playwrights.

**3300:366 EUROPEAN BACKGROUNDS OF ENGLISH LITERATURE** 3 credits

Representative continental texts from Homer to Cervantes, selected both for their excellence and for their important influence on English and American literature.

**3300:367 MODERN EUROPEAN LITERATURE** 3 credits

Representative European writers from about 1850 to present, in translation. Focus on fiction of such writers as Zola, Tolstoy, Dostoyevsky, Mann, Proust, Kafka and Solzhenitsyn.

**3300:370 INTERMEDIATE LINGUISTICS** 3 credits

Prerequisite: 270 or permission. In-depth scientific look at language structure, especially the relation of sentences and their meanings. The variety of the English language's methods for constructing complex sentences from simple ideas is investigated.

**3300:377 ADVANCED POETRY WRITING** 3 credits

Prerequisite: 277 or permission. Advanced practice in writing poems, emphasis on shaping publishable works. Survey of market. Class discussion of student poems; individual conference with instructor.

**3300:378 ADVANCED FICTION WRITING** 3 credits

Prerequisite: 278 or permission. Advanced practice in writing short stories, emphasis on shaping publishable works. Survey of market. Class discussion of student stories; individual conference with instructor.

**3300:389 SPECIAL TOPICS: LITERATURE AND LANGUAGES** 3 credits

(May be repeated for credit as different topics are offered) Prerequisite: 1100;112. Traditional and nontraditional topics in English literature and language, supplementing course listed in *University Bulletin*, generally constructed around theme, genre and language study.

**3300:390 PROFESSIONAL WRITING I** 3 credits

Designed to help prepare student for a career as professional business writer. Stresses theory and practice of written and oral communication in business organization. Individual and group performance, relating to communication theories, concepts of semantics. Functional writing as well as special needs of business are illustrated by actual cases. Adapting style and organization is practiced.

**3300:391 PROFESSIONAL WRITING II** 3 credits

Designed to help prepare student for a career as a professional technical writer. Covers principles and practices concerning editing company technical communications, such as specifications, annual reports, promotional brochures for technical products, services, scientific abstracts, proposals. Also treats problems of adapting materials to formats, graphic display of technical information, adaptation of technical material to nontechnical reader.

**3300:400/500 ANGLO SAXON** 3 credits

Studies in Old English language and Old English prose and poetry, including Beowulf.

**3300:406/506 CHAUCER** 3 credits

Close study of Chaucer's major works — *The Canterbury Tales* and *Troilus and Criseyde* in Middle English.

**3300:407/507 MIDDLE ENGLISH LITERATURE** 3 credits

Study of genres, topics, styles and writers of Middle English literary works from Twelfth to Fifteenth Century. Readings in Middle English.

**3300:410/510 SIXTEENTH CENTURY LITERATURE** 3 credits

Prose and poetry from early Tudor period to later Elizabethan period, excluding drama. Literature studied in context of general intellectual and artistic movements of the age.

**3300:417/517 SEVENTEENTH CENTURY LITERATURE** 3 credits

Overview of major authors of earlier Seventeenth Century, especially Bacon, Donne, Bunyan, Jonson and several fiction writers. Involves genre study, historical and cultural perspectives and new critical analysis.

**3300:418/518 MILTON** 3 credits

Emphasis on Milton's major poems and prose works. *Paradise Lost*, *Paradise Regained*, *Areopagitica*, the divorce tracts, and poems of the 1645 edition. Student becomes acquainted with Milton the man and Milton the artist.

**3300:420/520 THE EIGHTEENTH CENTURY** 3 credits

First half of course examines satire as major mode in work of Butler, Dryden, Pope, Swift and others. Second half emphasizes Johnson and Boswell.

**3300:425/525 LITERATURE OF THE ROMANTIC PERIOD** 3 credits

Literary, philosophical, psychological and social revolutions of romantic period as reflected in works of such major writers as Wordsworth, Byron and Keats.

**3300:430/530 LITERATURE OF THE VICTORIAN PERIOD** 3 credits

Poetry, prose of later Nineteenth Century, excluding fiction, with attention to Tennyson, Browning, Arnold, Carlyle, Ruskin and other major writers.

**3300:435/535 TWENTIETH CENTURY BRITISH POETRY** 3 credits

Concentrated study of major poems of Yeats, Eliot and Auden, with attention also to Hardy, Housman, Spender, C. Day Lewis, Dylan Thomas and others.

**3300:437/537 BRITISH FICTION SINCE 1925** 3 credits

Study of important British novelists since 1925, excluding Lawrence, Joyce and Woolf. Attention to development of British short story from 1925 to present.

**3300:439/539 MODERN BRITISH AND IRISH DRAMA** 3 credits

Study of major British dramatists, principally those of post-World War II. Focal figures are Shaw, Galsworthy, O'Casey, Osborne, Arden and Pinter.

**3300:447/547 AMERICAN NONFICTION** 3 credits

Study of nonfictional writing including journals, notebooks, autobiographical writings, biographies and essays of major American writers.

**3300:448/548 AMERICAN FICTION: TO 1885** 3 credits

Examination of early American fiction, tracing its genesis, romantic period and germinal movements toward realism. Writers discussed include Cooper, Poe, Hawthorne, Melville and Twain.

**3300:449/549 AMERICAN FICTION: 1885-1918** 3 credits

Examination of American writers of realistic and naturalistic fiction (e.g., Howells, James, Crane, Dreiser), tracing developments in American fiction against background of cultural and historical change.

**3300:450/550 AMERICAN FICTION SINCE 1918** 3 credits

Study of significant American short and long fiction from Sherwood Anderson to Kurt Vonnegut.

**3300:451/551 AMERICAN POETRY TO 1900** 3 credits

Survey of American poetry, Seventeenth, Eighteenth and Nineteenth Centuries, beginning with Ann Bradstreet and ending with Stephen Crane.

**3300:452/552 AMERICAN POETRY FROM 1900 TO PRESENT** 3 credits

Survey of Twentieth Century American poetry beginning with Edwin Arlington Robinson and ending with contemporary poets.

**3300:454/554 TWENTIETH CENTURY AMERICAN DRAMA** 3 credits

Examination of major, established playwrights and sampling of new and rising ones. Includes O'Neill, Miller, Williams, Albee and Rabe.

**3300:470/570 HISTORY OF ENGLISH LANGUAGE** 3 credits

Development of English language, from its beginnings: sources of its vocabulary, its sounds, its rules; semantic change; political and social influences on changes; dialect origins; correctness.

**3300:475/575 THEORY OF RHETORIC** 2 credits

Ancient and modern theories of rhetoric, with attention to classical oration, "topics" of rhetoric and their application to teaching of English.

**3300:480 HONORS IN ENGLISH** 2 credits

Prerequisites: senior standing and permission. Directed studies in individual and group sessions to encourage independent reading and thought, based on series of readings arranged by instructor.

**3300:481 HONORS IN ENGLISH** 2 credits

Prerequisites: senior standing and permission. Directed studies in individual and group sessions to encourage independent reading and thought, based on series of readings arranged by instructor. 480 and 481 may be taken once each.

**3300:482 SENIOR HONORS PROJECT IN ENGLISH** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisites: senior standing in Honors Program and approval of honors preceptor; open only to English majors enrolled in Honors Program. Independent study leading to completion of senior honors thesis or other original work.

**3300:489/589 SEMINAR IN ENGLISH** 2-3 credits

(May be repeated with different topics.)  
Special studies, and methods of literary research, in selected areas of English and American literature and language.

**3300:490/590 WORKSHOP IN ENGLISH** 1-3 credits

(May be repeated with different topics)  
Group studies of special topics in English. Cannot be used to meet undergraduate or graduate major requirements in English; for elective credit only.

**3300:498 INDEPENDENT STUDY** 1-3 credits

Prerequisite: permission of instructor. Directed study in a special field of interest chosen by student in consultation with instructor.

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## Graduate Courses

**3300:600 TEACHING COLLEGE COMPOSITION PRACTICUM** 1 credit

Prerequisite: teaching assistantship. Orientation and weekly analysis of teaching rationale and practice, limited to teaching assistants in the Department of English.

**3300:615 SHAKESPEAREAN DRAMA** 3 credits

Concentrated study of several Shakespearean plays with emphasis on historical, critical and dramatic documents pertinent to development of Shakespeare's art.

**3300:616 SHAKESPEARE'S CONTEMPORARIES IN ENGLISH DRAMA** 3 credits

Readings in such playwrights as Lyly, Greene, Marlowe, Jonson, Beaumont, Fletcher, Webster, Middleton and Ford and in contemporary writings relevant to theory and practice of drama.

**3300:627 KEATS AND HIS CONTEMPORARIES** 3 credits

Writings of John Keats, studied against background of romantic poetic theory and poetry of Keat's contemporaries.

**3300:632 VICTORIAN POETS** 3 credits

Study of major poems of Tennyson, Browning, Arnold and Hopkins, in light of Victorian intellectual currents and theories of poetry. Brief attention to Swinburne, D. G. Rossetti and later Victorian poets.

**3300:639 THEORY AND PRACTICE OF MODERN POETRY** 3 credits

Study of modern prosody, critical theories of modern poetry and relation between writer's theory and practice, with particular attention to Frost, Stevens, Yeats and Eliot.

**3300:645 AMERICAN ROMANTIC FICTION** 3 credits

Intensive exploration of American romantic fiction, focusing especially on writings of Poe, Hawthorne and Melville.

**3300:649 REALISM AND NATURALISM IN AMERICAN FICTION** 3 credits

Analysis of relevant works of J.W. DeForest, Stephen Crane, Theodore Dreiser, Harold Frederic, W.D. Howells, Frank Norris and selected writers of local color and native honor.

**3300:665 LITERARY CRITICISM** 3 credits

Inquiry into nature and value of literature and problems of practical criticism as represented in major statements of ancient and modern critics.

- 3300:670 MODERN LINGUISTICS** 3 credits  
Introductory examination of methods and results of modern grammatical research in syntax, semantics, phonology and dialects. Goals include understanding of language variation and background preparation for linguistic studies of literature.
- 3300:673 THEORIES OF COMPOSITION** 3 credits  
Study of composition theories and research, with attention to their implications for writing and writing instruction. Particular focus on such topics as composing processes, invention, form, style, modes of writing, language varieties and evaluation of writing. Class sessions include discussion of readings and presentations.
- 3300:679 SCHOLARLY WRITING** 2 credits  
Study of theories of good and bad writing styles and forms of scholarly writing, with special attention to thesis and dissertation writing and scholarly essay, and to special requirements of journal articles. Class discussion and demonstration, drawn from scholarly and dissertation writing and from student's own writing.
- 3300:689 SEMINAR IN ENGLISH** 2-3 credits  
(May be repeated with change of topics)  
Special topics within the general field of literature and language, usually focusing on major figures or themes.
- 3300:691 BIBLIOGRAPHY AND LITERARY RESEARCH** 2 credits  
Choosing research topics, typical problems in literary scholarship, abstracting of scholarly material and bibliographic sources for literary research. Bibliographic exercises done, models of literary scholarship read.
- 3300:698 INDIVIDUAL READING IN ENGLISH** 1-3 credits  
Individual study under guidance of professor who directs and coordinates student's reading and research.
- 3300:699 THESIS** 1-6 credits  
Original work in the field of literature and language and completion of graduate student's required thesis.

**3350:335 RECREATION RESOURCE PLANNING** 3 credits  
Prerequisite: 230 or permission. Effect of physical and economic environment on recreational patterns. Case studies of important recreational activities and areas in which tourism contributes significantly to the area economy.

**3350:340 CARTOGRAPHY** 3 credits  
Use of graphic / cartographic principles and techniques as a means of presenting information.

**3350:350 ANGLO AMERICA** 3 credits  
Prerequisite: 100 or permission. Regional and topical study of United States and Canada, with emphasis on environmental, economic and cultural patterns and their interrelationships.

**3350:351 OHIO: ENVIRONMENT AND SOCIETY** 3 credits  
Regional and topical analysis of cultural, economic and environmental patterns; also in comparison with other states.

**3350:353 LATIN AMERICA** 3 credits  
Prerequisite: 100 or permission. Analysis of relationship of cultural and economic patterns to physical environment in Mexico, Central America, the Caribbean and South America.

**3350:356 EUROPE** 3 credits  
Prerequisite: 100 or permission. Regional and topical analysis of cultural, economic and environmental patterns, excluding U.S.S.R.

**3350:358 U.S.S.R.** 3 credits  
Prerequisite: 100 or permission. Regional and topical analysis of cultural, economic and environmental patterns, with comparison to other major world regions.

**3350:360 ASIA** 3 credits  
Prerequisite: 100 or permission. Environmental, cultural and economic geography of East, Southeast, South Asia and Middle East with emphasis on the contemporary.

**3350:363 AFRICA SOUTH OF THE SAHARA** 3 credits  
Prerequisite: 100 or permission. Environmental and human bases of regional contrasts. Emphasis on tropical environmental systems and changing patterns of resource utilization.

**3350:385 PLANNING SEMINAR** 1 credit  
Prerequisite: permission of instructor. Development of planning studies including completion of paper covering a planning topic in depth. Projects are presented by student and critically analyzed.

**3350:397 SPECIAL PROBLEMS** 1-3 credits  
(May be repeated for a total of five credits) Prerequisite: permission of instructor. Directed reading and research in special field of interest.

**3350:405/505 GEOGRAPHIC INFORMATION SYSTEMS** 3 credits  
Prerequisite: six credits of advanced geography courses at the 300 level or above, but not including regional courses; or permission. Concentrates on the requirements and techniques for using all types of Geographic Information Systems (GIS). Designed for students who wish to become applied geographers, physical and social scientists, resource managers, planners, environmental analysts, who will be making decisions based on data which have geographic significance.

**3350:422/522 TRANSPORTATION SYSTEMS PLANNING** 3 credits  
Prerequisite: 320 or permission. Study and analysis of transportation Systems from a geographic perspective. Emphasis on transportation problems and issues, elements of transportation planning.

**3350:428/528 INDUSTRIAL AND COMMERCIAL SITE LOCATION** 3 credits  
Prerequisite: 220 or permission. Relationship between land, resources, population, transportation and industrial and commercial location process.

**3350:433/533 URBAN, REGIONAL AND RESOURCE PLANNING** 3 credits  
Prerequisite: 230 or permission. Role of geographic investigation in city, regional and resource planning.

**3350:436/536 URBAN LAND USE ANALYSIS** 3 credits  
Prerequisite: 230 or permission. Land use classification systems and their spatial variation in urban areas. Land use data are collected by student by field work and analyzed to identify the associations and structure of subregions.

**3350:438/538 WORLD METROPOLITAN AREAS** 3 credits  
Prerequisite: 230 or permission. Comparative analysis of metropolitan regions.

## 3350: Geography

**3350:100 INTRODUCTION TO GEOGRAPHY** 3 credits  
Analysis of world patterns of population characteristics, economic activities, settlement features, landforms, climate as interrelated.

**3350:102 FOOD, ENERGY AND PEOPLE** 3 credits  
Present and future significance of interrelationships of population growth, food and energy availability at a worldwide scale will be studied by both forecasting methods and scenario considerations.

**3350:210 PHYSICAL AND ENVIRONMENTAL GEOGRAPHY** 3 credits  
Landforms, weather and climate, soils and vegetation and natural hazards. Nature and distribution of these environmental elements and their significance to man. Laboratory.

**3350:240 MAPS AND MAP READING** 3 credits  
Interpretation and use of various map materials. Study of basic map elements, symbolism and methods of creating maps. Historical aspects associated with these developments also considered. Laboratory.

**3350:314 CLIMATOLOGY** 3 credits  
Prerequisite: 210 or permission. Analysis and classification of climates, with emphasis on regional distribution. Basic techniques in handling climatic data.

**3350:320 ECONOMIC GEOGRAPHY** 3 credits  
Geographical basis for production, exchange, consumption of goods. Effect of economic patterns on man's culture and politics.

**3350:326 ENERGY AND ECOLOGY** 3 credits  
Prerequisite: 220 or permission. Traditional fossil fuels and recently developed alternative sources of energy studied along with electricity production. Production and consumption patterns, effects of conservation and environmental damage and energy policy considered.

**3350:330 RURAL AND URBAN SETTLEMENT** 3 credits  
Origin, function and rationale of settlements. Includes analysis of rural settlement landscape as well as fundamentals of urban geography.

Urbanism, land use, housing, transportation, population and role of cities in economic development in different cultures.

**3350:442/542 THEMATIC CARTOGRAPHY** 3 credits

Prerequisite: 240 or permission. Principles and techniques used in thematic mapping. Stresses use of maps to indicate certain characteristics of classes of information both qualitative and quantitative.

**3350:444/544 MAP COMPILATION AND REPRODUCTION** 3 credits

Prerequisite: 240 or permission. Production of new/improved maps from existing maps, aerial photographs, surveys, new data and other sources. Includes special cartographic considerations for photography, lithography and printing.

**3350:447/547 INTRODUCTION TO REMOTE SENSING** 3 credits

Prerequisite: 240 or permission. Study of aerial photography and non-photographic imagery developed by radar, thermal, multispectral and satellite scanners. Emphasis on use in geographical, geological, biological and engineering research.

**3350:448/548 AUTOMATED COMPUTER MAPPING** 3 credits

Prerequisite: 240 or permission. Study of computer-assisted map compilation and execution. Emphasis on integration of computer and cartographic skills and techniques. Problems adapted to specialized interests of student.

**3350:449/549 ADVANCED REMOTE SENSING** 3 credits

Prerequisite: 447/547 or permission. Current research in remote sensing. Applications in study of man's cultural and biophysical environment. Practice in planning, design, execution and interpretation of remote sensing studies.

**3350:481/581 GEOGRAPHIC RESEARCH METHODS** 3 credits

Prerequisite: 12 credits in geography. Techniques in geographic research. Library resources, techniques of professional writing.

**3350:483/583 SPATIAL ANALYSIS** 3 credits

Prerequisite: 481/581 or permission. Analysis of mapped statistical surfaces. Principles for use of map as model for statistical evidence, prediction, hypothesis testing.

**3350:490/590 WORKSHOP IN GEOGRAPHY** 1-3 credits

(May be repeated for a total of six credits)  
Group studies of special topics in geography.

**3350:495/595 SOIL AND WATER FIELD STUDIES** 3 credits

Prerequisite: 210 or permission. Properties, origins and uses of major soil and water regime landscapes. Stresses relationships between soil and the hydrological cycle, urbanization, suburbanization and agriculture. Field trips required.

**3350:496/596 FIELD RESEARCH METHODS** 3 credits

Prerequisite: 481/581 or permission. Field work enabling student to become competent in collecting, organizing and analysis of data while carrying out field research projects.

**3350:498 HONORS RESEARCH IN GEOGRAPHY** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisite: permission of department honors preceptor, honors student only. Exploration of research topics and issues in contemporary geography. Selection of research topic and writing of research paper in proper scholarly form under direction of faculty member.

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## Graduate Courses

**3350:600,1,2 SEMINAR** 3 credits each

(Each may be repeated for a maximum of six credits)  
Prerequisite: permission. Investigation and analysis of selected topics in particular fields of geography. Specialization indicated by second portion of title.

**3350:680 ADVANCED SPATIAL ANALYSIS** 3 credits

Prerequisite: 483/583 or permission. Advanced concepts and methodologies in geographic research. Emphasis on quantitative revolution in geographical analysis including multivariate procedures as factor, discriminant and economical analysis, and multidimensional scaling.

**3350:685 PLANNING: FIELD EXPERIENCE** 2 credits

Prerequisite: permission. Individual experience in selected planning agencies for supervised performance in professional planning work.

**3350:687 HISTORY OF GEOGRAPHIC THOUGHT** 3 credits

Prerequisite: 481/581 or permission. Critical review of major developments in geographic concepts from ancient times to present.

**3350:696 INDIVIDUAL READING AND RESEARCH** 1-3 credits

(May be repeated for a total of five credits)  
Prerequisite: permission of instructor. Intensive investigation of selected topics under guidance of faculty member.

**3350:699 THESIS RESEARCH** 2 credits

(May be repeated twice)  
Prerequisite: permission of department head. Supervised original research.

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## 3370: Geology

**3370:100 EARTH SCIENCE** 3 credits

Introduction to earth science for nonscience majors. Survey of earth in relation to its physical composition, structure, history, atmosphere, oceans; and relation to solar system and universe.

**3370:101 INTRODUCTORY PHYSICAL GEOLOGY** 4 credits

Comprehensive survey of minerals, rocks, structures and geologic processes of solid earth. Laboratory.

**3370:102 INTRODUCTORY HISTORICAL GEOLOGY** 4 credits

Prerequisite: 101. Geologic history of earth, succession of major groups of plants and animals interpreted from rocks, fossils. Laboratory.

**3370:200 ENVIRONMENTAL GEOLOGY** 3 credits

Analysis of geologic aspects of man's environment with emphasis on geologic hazards and environmental impact of society's demand for water, minerals and energy.

**3370:201 EXERCISES IN ENVIRONMENTAL GEOLOGY** 1 credit

Prerequisite or corequisite: 200. Recognition, evaluation of environmental problems related to geology through field, laboratory exercises and demonstrations which apply concepts from 200.

**3370:202 GEOLOGY OF THE NATIONAL PARKS** 3 credits

Prerequisite: 1100:223, or 3370:100 or 101. Geologic setting of major national parks, interpreted in terms of geological principles and processes which shaped them in past and/or currently affect them, including the rock cycle, evolution of landscapes and plate tectonics.

**3370:210 GEOMORPHOLOGY** 3 credits

Prerequisite: 101. Landforms of the earth. Emphasis on origins, geologic processes and distributions. Laboratory.

**3370:230 CRYSTALLOGRAPHY** 3 credits

Prerequisites: 101 and 3150:132. Study of morphological crystallography and crystal chemistry of minerals. Laboratory.

**3370:231 MINERALOGY** 3 credits

Prerequisites: 101 and 3150:132. Recommended: 230. Emphasis on physical, structural, chemical properties and the occurrences of minerals. Laboratory.

**3370:233 PETROLOGY** 2 credits

Prerequisite: 230. Megascopic identification, classification, origin concepts of igneous, sedimentary, metamorphic rocks. Laboratory.

**3370:271 OCEANOGRAPHY** 3 credits

Prerequisite: 101. Introduction to physical processes, geologic history and development of marine areas.

**3370:324 SEDIMENTATION AND STRATIGRAPHY** 3 credits

Prerequisite: 102. Introduction to processes and environments of sedimentation and stratigraphic principles employed in examination of sedimentary strata. Hand specimens and sequences of sedimentary strata studied. Laboratory.

**3370:350 STRUCTURAL GEOLOGY** 4 credits

Prerequisite: 101 or permission. Origins and characteristics of folds, faults, joints and rock cleavage. Structural features of sedimentary, igneous and metamorphic rocks. Laboratory.

**3370:360 INTRODUCTORY INVERTEBRATE PALEONTOLOGY** 4 credits

Prerequisite: 102 or permission. Introductory course emphasizing morphology and evolution of major invertebrate groups with consideration of practical applications of paleontology. Laboratory.

**3370:395 FIELD METHODS IN GEOLOGY** 2 credits

Prerequisites: 101 and 102 or permission. Use of geologic field equipment including Brunton compasses, alidades and plane tables, stereoscopes and aerial photographs.

**3370:404/504 ASTROGEOLOGY** 3 credits

Prerequisites: 3450:222, 3650:292 or permission. Relations of planet earth to the solar system and universe. Analysis and implications of data from lunar and space probes.

**3370:410/510 REGIONAL GEOMORPHOLOGY OF NORTH AMERICA** 3 credits

Prerequisites: 101, 102, 210 or permission; recommended: 350. Examination of physiographic provinces of North America emphasizing structure, tectonic setting, stratigraphy and processes responsible for landforms in each province. Laboratory.

**3370:411/511 GLACIAL GEOLOGY** 3 credits

Prerequisite: 210 or permission. Causes and effects of Pleistocene expansion of polar ice masses with emphasis on glacial deposits and world climactic changes.

**3370:425/525 STRATIGRAPHY** 3 credits

Prerequisites or corequisites: 360, 324 or permission. Nomenclature; sedimentary facies; fossils in subdivision of the rock record and correlation; geologic time, time-rock and rock units. Field studies.

**3370:432/532 OPTICAL MINERALOGY** 3 credits

Prerequisite: 230 or equivalent. Introduction to petrographic microscope. Optical properties and identification of minerals in thin section and as crushed fragments. Laboratory.

**3370:433/533 PETROGRAPHY** 3 credits

Prerequisite: 432/532. Origin and petrogenesis of igneous, metamorphic and sedimentary rocks as determined by microscopic studies of textures and mineral assemblages in thin section.

**3370:435/535 PETROLEUM GEOLOGY** 3 credits

Prerequisite: 350 or permission; recommended: 324. Natural occurrences of petroleum. Characteristics, origin, entrapment and exploration methods.

**3370:436/536 COAL GEOLOGY** 3 credits

Prerequisites: 101, 102; recommended: 324. Origin, composition and occurrence of coal with emphasis on depositional environments, coalification processes, exploration, evaluation and exploitation. Laboratory.

**3370:437/537 ECONOMIC GEOLOGY** 3 credits

Prerequisites: 350 and 433. Study of metallic and nonmetallic mineral deposits emphasizing paragenesis and exploration. Laboratory.

**3370:441/541 FUNDAMENTALS OF GEOPHYSICS** 3 credits

Prerequisites: 3450:223 or permission and 3650:292. Fundamental concepts in solid earth geophysics, planetary physics, geodesy, and geomagnetism. Contributions of geophysics to recent major developments in geoscience.

**3370:446/546 EXPLORATION GEOPHYSICS** 3 credits

Prerequisites: 3450:223, 3650:292 or permission. Basic principles and techniques of geophysical exploration with emphasis on gravimetric, magnetic, seismic and electrical methods and application to geological problems. Laboratory.

**3370:450/550 ADVANCED STRUCTURAL GEOLOGY** 3 credits

Prerequisite: 350 or permission. Fundamental and advanced concepts of structural geology with emphasis on current and developing concepts. Laboratory.

**3370:463/563 MICROPALAEONTOLOGY** 3 credits

Prerequisite: 360 or permission. Introduction to techniques of micropaleontology evolution and paleoecology of selected microfossil groups. Laboratory.

**3370:470/570 GEOCHEMISTRY** 3 credits

Prerequisites: minimum of 12 credits in chemistry and geology or permission. Chemical systems of the earth, both open and closed, with emphasis on mineral-water relationships. Laboratory.

**3370:474/574 GROUNDWATER HYDROLOGY** 3 credits

Prerequisite: 101. Origin, occurrence, regimen and utilization of groundwater. Qualitative and quantitative presentation of geological and geochemical aspects of groundwater hydrology. Laboratory.

**3370:490/590 WORKSHOP** 1-3 credits

(May be repeated)  
Group studies of special topics in geology. May not be used to meet undergraduate or graduate major requirements in geology. May be used for elective credit only.

**3370:495 FIELD STUDIES IN GEOLOGICAL STRUCTURES AND PROCESSES** 1 credit

(May be repeated for a total of four credits)  
Prerequisite: permission. Field trip course emphasizing phases of geology not readily studied in Ohio. Includes pretrip preparation and post-trip examination. Student will bear trip expenses.

**3370:496/596 GEOLOGY FIELD CAMP** 6 credits

Prerequisites: 350 and permission; recommended: 230, 324, 395. Emphasis on collection, recording and interpretation of field data; detailed structural and stratigraphic field study.

**3370:497 SENIOR HONORS PROJECT IN GEOLOGY** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisites: senior standing in Honors Program, permission of department honors preceptor and major in geology or natural science. Independent research leading to completion of senior honors thesis or other original work under guidance of student's honors project adviser.

**3370:499 RESEARCH PROBLEMS** 1 credit

(May be repeated for a total of four credits)  
Prerequisite: permission. Directed reading and research in an aspect of geology chosen by student in consultation with an instructor.

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## Graduate Courses

**3370:608 REMOTE SENSING IN GEOLOGY** 3 credits

Prerequisite: 3350; 447/547 or equivalent. Techniques for analysis and processing of remotely sensed data from conventional and satellite sensing systems. Applications to local, regional and global geologic and environmental geology problems. Laboratory.

**3370:610 APPLIED QUANTITATIVE GEOMORPHOLOGY** 3 credits

Prerequisite: 210. Quantification of geomorphic processes and associated landforms. Application of statistical methods and evaluation of validity of these methods. Examination of these methods in practical problems. Laboratory.

**3370:623 SEDIMENTARY PETROLOGY** 3 credits

Prerequisites: 324 and 432/532 or permission. Detailed hand specimen and thin section examination of selected sedimentary suites, particularly with respect to mineralogy and texture. Laboratory.

**3370:631 ROCKS AND MINERALS** 4 credits

Prerequisites: 101 and permission. Intensive course integrating crystallography, mineralogy and petrology for the science teacher and graduate student from disciplines other than geology. Laboratory.

**3370:632 IGNEOUS PETROLOGY** 3 credits

Prerequisite: 433/533. Origin and paragenesis of igneous rocks. Theory, petrochemistry and occurrences of major igneous rock types. Selected rock suites studied. Laboratory.

**3370:633 METAMORPHIC PETROLOGY** 3 credits

Prerequisite: 433/533. Textures, chemistry of metamorphic reactions, phase diagrams and occurrences of metamorphic rocks. Selected rock suites studied. Laboratory.

**3370:634 CLAY MINERALOGY** 3 credits

Prerequisite: 432/532. Classification, identification, genesis of clay minerals, clay rocks; use, exploitation. Laboratory stresses methods of identification of clay minerals, analysis, petrogenetic interpretation of clay materials in suites of samples from the rock record. Laboratory.

**3370:638 ORE MICROSCOPY** 3 credits

Prerequisites: 432/532, 437/537. Identification, study of ore minerals, their textures using reflected-light microscope. Discussion of diagnostic physical, optical properties of opaque minerals. Laboratory.

**3370:639 NUCLEAR GEOLOGY** 3 credits

(Two hour lecture, three hour laboratory)  
Prerequisites: minimum of seven credits in chemistry, eight credits in physics, eight credits in calculus and eight credits in geology or permission. Discusses nature of radioactive and stable isotopes, their applications in geology, radioactive minerals, radioactive background and disposal of radioactive wastes. Nuclear analytical techniques will also be discussed; lecture, laboratory and field study.

**3370:643 GEOSTATISTICS** 3 credits

Prerequisites: 101, 3470:461/561 or an equivalent course in statistics. Application of statistical methods to geology and geophysics including tests of hypotheses, trend surface analysis, analysis of variance, nonparametric statistics and time series analysis.

**3370:645 TERRESTRIAL HEAT FLOW** 3 credits

Prerequisite: 101, and 3450: 235 or permission. Techniques of measuring terrestrial heat flow, solutions of heat conduction equation, results of heat flow measurements, geophysical deductions and future of geothermal energy.

**3370:656 GLOBAL TECTONICS** 3 credits

Prerequisites: 3350, 441/541 or permission. Theoretical study of physical forces involved in formation and deformation of earth's crust with emphasis on plate tectonics and associated diastrophic features.

**3370:660 EVOLUTION AND THE FOSSIL RECORD** 2 credits

Prerequisite: 360. Major features of evolution including rates and extinction using selected fossil groups as examples.

**3370:674 ADVANCED GROUNDWATER HYDROLOGY** 3 credits

Prerequisite: 474/574. Study of water table and artesian aquifers under steady and nonsteady state conditions. Collection and evaluation of field data with regard to theory. Water well and well field design. Laboratory and field work.

**3370:675 GEOCHEMICAL METHODS OF PROSPECTING** 2 credits

Prerequisites: nine credits of chemistry, nine credits of mineralogy and/or petrology; recommended: 537 and 570. Application of geochemical methods of analysis and interpretation to search for ore deposits; emphasis on stability, mobility and associations of elements in geologic environments. Laboratory.

**3370:678 URBAN GEOLOGY** 3 credits

Prerequisites: 210, 230 or permission. Problems of urbanization related to our finite resources and creation of wastes. Geologic hazards. Case histories. Application of geologic data to urban development.

**3370:680 SEMINAR IN GEOLOGY** 2 credits

(May be repeated for a total of six credits)  
Selected topics with reference material from original sources.

**3370:684 SELECTED TOPICS IN GEOLOGY** 1-3 credits

(May be repeated for a total of eight credits)  
Prerequisite: permission. Topics not regularly offered as formal courses, generally of classic or current importance. Entails lectures, readings, discussions and/or guided laboratory work.

**3370:695 ADVANCED FIELD STUDIES** 1 credit

(May be repeated for a total of four credits)  
Prerequisite: permission. Field trip course emphasizing phases of geology not readily studied in Ohio. Includes pretrip preparation, field observations and data gathering, posttrip examination and/or written report. Student will bear trip expenses.

**3370:698 GRADUATE RESEARCH PROBLEMS** 1 credit

(May be repeated for a total of six credits)  
Prerequisite: permission. Directed reading and research in an aspect of geology chosen by student in consultation with an instructor.

**3370:699 THESIS RESEARCH** 1-6 credits

Independent and original investigation. Must be successfully completed, report written and defended before a committee.

**3400:202 UNITED STATES HISTORY SINCE THE CIVIL WAR** 4 credits

Survey of United States history from Civil War Era to present.

**3400:207 EUROPE: RENAISSANCE THROUGH THE EIGHTEENTH CENTURY** 4 credits

Survey from Renaissance, Reformation; development of nation states, religious wars, Age of Louis XIV and Enlightenment.

**3400:208 EUROPE: NINETEENTH AND TWENTIETH CENTURIES** 4 credits

Survey of European history from French Revolution and Napoleon; Nineteenth Century "isms," formation of Germany and Italy, the two world wars, totalitarian dictatorship and postwar age.

**3400:220 BLACK PEOPLE OF THE UNITED STATES** 3 credits

Survey of social, economic, political and cultural history of Afro-Americans from Seventeenth Century to present.

**3400:232 EVOLUTION OF AMERICAN BUSINESS** 3 credits

An examination of the development of the American business system from the Colonial era to the present.

**3400:304 THE ANCIENT NEAR EAST** 3 credits

Mesopotamia, Egypt, Israel, her neighbors to Persian Empire.

**3400:305 GREECE** 3 credits

Minoans and Mycenaeans; classical Greece to triumph of Macedon.

**3400:306 ROME** 3 credits

Rome and Hellenistic East to end of classical times.

**3400:307 THE EASTERN ROMAN EMPIRE (324-1453)** 3 credits

Byzantine culture and history from 324 to the fall of 1453.

**3400:336 WOMEN IN MODERN EUROPE** 3 credits

A survey of the history of women in Europe since 1500, with emphasis on their roles and the changes attendant on modernization.

**3400:337 THE WEST IN THE DEVELOPMENT OF THE UNITED STATES** 3 credits

Examination of westward movement from Revolution to closing of frontier; types of frontiers; impact of the West on nation's development.

**3400:338 WOMEN IN THE UNITED STATES** 3 credits

Changing roles, status, self-images and activities of women in context of American social, economic, political and intellectual movements.

**3400:339 AMERICAN IMMIGRATION** 3 credits

Examination of European migrants to American colonies and United States, their reasons for leaving Europe and coming to America, and their experience after arrival.

**3400:340 PEACE, WAR AND MANKIND** 3 credits

Historical examination of theories of war and peace, including study of leaders, groups and ideas for peace.

**3400:341 SOVIET AND UNITED STATES WOMEN IN THE TWENTIETH CENTURY** 3 credits

An historical and comparative study of the status of women in both societies, with special attention to changing conditions, the efforts by women, individually and collectively, to define and shape role.

**3400:350 SELECTED TOPICS IN HISTORY** 3 credits

Includes experimental offerings such as those crossing subject of chronological lines, and subjects not listed in this **Bulletin**. See departmental office for current subject.

**3400:397 INDIVIDUAL STUDY OR RESEARCH IN HISTORY** 1-3 credits

(May be repeated for a total of four credits)  
Prerequisite: permission. For individual study or research in history, including special projects, summer study tours or specialized training.

**3400:401 HONORS SEMINAR** 3 credits

Prerequisite: permission of department head or instructor. Selected readings; writing of research paper. For student seeking to graduate with honors in history and for student in Honors Program.

**3400:403/503 UNITED STATES SOCIAL-CULTURAL HISTORY TO 1877** 3 credits

Concepts and attitudes considered in their social, cultural framework. Emphasis on population growth, rural and urban life, literature, the arts, family life, slavery and impact of Civil War.

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## 3400: History

**3400:201 UNITED STATES HISTORY TO THE CIVIL WAR** 4 credits

Survey of American history from Age of Discovery through colonization, and nation building to Civil War Era.

**3400:404/504 UNITED STATES SOCIAL-CULTURAL HISTORY SINCE 1877** 3 credits

Concepts and attitudes; emphasis on business; agrarianism; self-made man; progressivism; impact of world wars; social-economic planning; trends in literature and art; social structure and change; black Americans; women's movements.

**3400:405/505 HISTORICAL METHODS** 2 credits

Practice in historical research and writing. Required for history major, and for graduate major who has not taken equivalent course elsewhere but does not count for graduate credit requirements.

**3400:407/507 UNITED STATES DIPLOMACY TO 1919** 3 credits

Establishment of basic policies, diplomacy of expansion, and emergence of a world power.

**3400:408/508 UNITED STATES DIPLOMACY SINCE 1914** 3 credits

Responses of government and public to challenges of war, peacemaking and power politics.

**3400:410/510 HISTORICAL AGENCY ADMINISTRATION** 3 credits

Organization and administration of non-academic historical agencies (e.g. societies, museums, libraries, etc.). Some field experience in a local historical agency.

**3400:411/511 FUNCTIONS OF HISTORICAL AGENCIES** 3 credits

Prerequisite: 410/510 or permission. The functions and programs of historical agencies. Student will develop a project that involves participating in an agency function.

**3400:413 BLACK SOCIAL AND INTELLECTUAL HISTORY** 3 credits

Examination of Black thought and activities reflective of Afro-American culture, conditions facing Black people within America and efforts toward coordinated Black activity.

**3400:415/515 LATIN AMERICA: ORIGINS OF NATIONALITY** 3 credits

Pre-Columbian civilizations, discovery and conquests; colonialism, struggle for independence and formation of new societies.

**3400:416/516 LATIN AMERICA: THE TWENTIETH CENTURY** 3 credits

Social revolution, political ideology and contemporary problems.

**3400:417/517 THE UNITED STATES, LATIN AMERICA AND IMPERIALISM** 3 credits

Inter-American relations, militarism, dependency, Marxism and recent international and ideological trends.

**3400:418/518 MEXICO** 3 credits

History of Mexico from Indian civilizations to present with emphasis on relations with United States; social and political ramifications of the Twentieth Century Mexican revolution.

**3400:420/520 COLONIAL AMERICA** 3 credits

Establishment of European colonies in North America with special emphasis on English settlements and evolution of first British Empire to 1713.

**3400:421/521 AMERICAN COLONIES FROM EMPIRE TO INDEPENDENCE** 3 credits

Colonial life between the Glorious Revolution and War of Independence. Anglo-French struggle for control of North America, development of British colonial institutions and of American independence.

**3400:422/522 FOUNDING OF THE UNITED STATES** 3 credits

The revolution and struggle for independence; creating a new nation from the Confederation to the Constitution and Federalist Era.

**3400:424/524 NEW NATION AND THE JACKSONIAN ERA, 1801-1846** 3 credits

Party formation and Jeffersonian politics; War of 1812 and Era of Good Feelings; westward expansion, Jacksonian Democracy, Whigs and Age of Reform.

**3400:425/525 THE CIVIL WAR** 3 credits

Slavery and causes of Civil War; politics and conduct of the war.

**3400:426/526 THE CIVIL WAR AND RECONSTRUCTION** 3 credits

Politics and conduct of the war. Reconstruction and the roots of Jim Crow mentality; emergence of an industrialized society.

**3400:428/528 THE ORIGINS OF MODERN AMERICA** 3 credits

United States from Reconstruction Era to World War I (1877-1920); emphasis

on political responses to rise of an industrialized-urbanized society, the populist and progressive movements.

**3400:429/529 THE UNITED STATES BETWEEN THE WORLD WARS** 3 credits

World War I and Versailles; the 1920s, the Great Depression and the New Deal; World War II.

**3400:430/530 RECENT AMERICA: THE UNITED STATES SINCE WORLD WAR II** 3 credits

Nuclear age, cold war, foreign policy and domestic affairs to present. Social, political, constitutional, diplomatic, cultural and economic changes since 1945.

**3400:432/532 AMERICAN ECONOMY TO 1900** 3 credits

Survey of economic developments from colonial era; including agriculture, commerce, labor. Special emphasis on role of big business and evolution of monetary and fiscal policy.

**3400:433/533 AMERICAN ECONOMY SINCE 1900** 3 credits

Survey of economic developments since 1900; topics include agriculture, business and labor. Special emphasis on role of big business and evolution of monetary and fiscal policy.

**3400:434/534 AMERICAN ENVIRONMENTAL HISTORY** 3 credits

Utilization, conservation of natural resources from beginnings of American society to present; combination of economic, technological history of extensive treatment of public policy, environmental issues.

**3400:435/535 OHIO** 3 credits

Political, social, economic and intellectual history of Ohio, with special emphasis on Ohio's relationship to Old Northwest and to the nation.

**3400:436/536 THE AMERICAN CITY** 3 credits

Development of urbanization and its consequences from colonial period to present.

**3400:437/537 AMERICAN FAMILY HISTORY** 3 credits

Evolution of American family, colonial times to present, including developments in structure and roles of family members, and status of the aged. Exploration of methods for historical study of the family.

**3400:442/542 EUROPE IN THE BAROQUE ERA** 3 credits

Constitutional, diplomatic, cultural, intellectual and social developments of Seventeenth Century Europe.

**3400:444/544 EUROPE IN THE FRENCH REVOLUTIONARY ERA** 3 credits

Development of Revolution; Napoleon's regime and satellites.

**3400:445/545 MEDIEVAL EUROPE, 400-1200** 3 credits

Migration of peoples, Carolingian revival, renewed invasions; social, economic and intellectual stirrings leading to "birth of Europe."

**3400:446/546 MEDIEVAL EUROPE, 1200-1500** 3 credits

Middle Ages and the middle class; economic and political change, international wars, social unrest and religious crosscurrents.

**3400:449/549 THE RENAISSANCE** 3 credits

The European renaissance (1350-1600). Economic and political trends with special emphasis on Protestant, Anglican and Catholic reformations.

**3400:450/550 THE REFORMATION** 3 credits

Europe in Sixteenth Century; its religious, cultural, political and diplomatic development, with special emphasis on Protestant, Anglican and Catholic reformations.

**3400:451/551 NINETEENTH CENTURY EUROPE, 1815-1871** 3 credits

Europe in the century of change, revolution, romanticism, industrialization, democratization, first wars of the industrial age.

**3400:452/552 NINETEENTH CENTURY EUROPE, 1871-1914** 3 credits

Socialism, imperialism, nationalism, and the great war. The *belle epoque* and contemporary artistic and intellectual currents.

**3400:454/554 TWENTIETH CENTURY EUROPE, 1914-1939** 3 credits

Europe between world wars; Russian revolution, fascism and national socialism; plight of democracies.

**3400:455/555 TWENTIETH CENTURY EUROPE SINCE 1939** 3 credits

Europe in World War II, the cold war and attempts at unity.

- 3400:458/558 RUSSIA TO 1801** 3 credits  
Survey of Russian history from Kievan period to death of Paul I, emphasizing development of autocratic government, Russian culture, reigns of Peter and Catherine.
- 3400:459/559 RUSSIA SINCE 1801** 3 credits  
Survey of Nineteenth and Twentieth Centuries. Special emphasis on problems of modernization, the revolution and development of communism.
- 3400:460/560 WAR AND WESTERN CIVILIZATION** 3 credits  
War and society in Europe, America and beyond from ancient world to present with special emphasis on period since 1740.
- 3400:470/570 ANGLO-SAXON AND MEDIEVAL ENGLAND** 3 credits  
Anglo-Saxon life, thought and institutions; the Norman Conquest; medieval life, thought and institutions to 1471.
- 3400:471/571 EARLY MODERN ENGLAND TO 1640** 3 credits  
Yorkists and Tudors, transition from medieval to early modern times; Elizabeth and early Stuarts.
- 3400:472/572 EARLY MODERN ENGLAND, 1640-1783** 3 credits  
Conflict under the Stuarts and civil war; Restoration, Sensible Revolution and early Hanoverians. Politics, religion and society in Age of Aristocracy.
- 3400:473/573 ENGLAND SINCE 1783** 3 credits  
Agricultural and first industrial revolution; politics of reform and transition; the welfare state, society and war.
- 3400:477/577 WESTERN SCIENCE TO 1800** 3 credits  
Science in Greek, Roman, Islamic, European societies with special emphasis on the scientific revolution of the Sixteenth and Seventeenth centuries.
- 3400:478/578 WESTERN SCIENCE SINCE 1800** 3 credits  
Continuing development of physical, medical, biological sciences in European and American societies. Atomic physics and weapons, evolution, genetics, modern medicine.
- 3400:479/579 WESTERN TECHNOLOGY** 3 credits  
Technology in Mesopotamia, Egypt, Greece, Rome, Islam, medieval Europe; first and second industrial revolutions in Europe, America.
- 3400:480/580 TRADITIONAL CHINA** 3 credits  
Selective study of institutional, intellectual, political and artistic developments in Chinese civilization from antiquity to Eighteenth Century. Emphasis on general features of traditional Chinese culture.
- 3400:481/581 MODERN CHINA** 3 credits  
Survey of China since Eighteenth Century with focus on process of modernization. Background of contemporary scene stressed.
- 3400:485/585 JAPAN** 3 credits  
Survey of history of Japan from antiquity to present; emphasis on developments since 1600, impact of the west and modernization process.
- 3400:490/590 WORKSHOP IN HISTORY** 1-3 credits  
(May be repeated)  
Group studies of special subjects pertaining to history. May be used for elective credit only. May not be used to meet undergraduate or graduate major requirements in history.
- 3400:497 HONORS PROJECT** 1-3 credits  
(May be repeated for a total of six credits)  
Prerequisite: senior standing in Honors Program. An individual research project relevant to history, supervised by a member of the Department of History, culminating in an undergraduate thesis.
- 3400:625 READING SEMINAR IN MEDIEVAL HISTORY** 4 credits  
Study of historical literature, sources of materials and major interpretations of medieval European history.
- 3400:626 WRITING SEMINAR IN MEDIEVAL HISTORY** 4 credits  
Prerequisite: 625. Research and writing in selected topics of European medieval history from barbarian invasions through later Middle Ages.
- 3400:631 READING SEMINAR IN MODERN EUROPEAN HISTORY TO 1815** 4 credits  
Study of historical literature, sources of materials, major interpretations of early modern European history to Napoleonic era.
- 3400:632 WRITING SEMINAR IN MODERN EUROPEAN HISTORY TO 1815** 4 credits  
Prerequisite: 631. Research and writing in selected topics of early modern European history, occasionally including social, economic and intellectual subjects.
- 3400:634 READING SEMINAR IN MODERN EUROPEAN HISTORY SINCE 1815** 4 credits  
Study of historical literature, sources of materials and major interpretations of modern European history since early Nineteenth Century.
- 3400:635 WRITING SEMINAR IN MODERN EUROPEAN HISTORY SINCE 1815** 4 credits  
Prerequisite: 634. Research and writing in selected topics of modern European history, occasionally including social, economic and intellectual subjects.
- 3400:640 READING SEMINAR IN HISTORY OF SCIENCE** 4 credits  
Study of historical literature, sources of materials and major interpretations in history of science.
- 3400:641 WRITING SEMINAR IN HISTORY OF SCIENCE** 4 credits  
Research and writing in selected topics in history of science.
- 3400:651 READING SEMINAR IN THE HISTORY OF ENGLAND AND THE EMPIRE** 4 credits  
Prerequisite: 651. Research and writing in selected topics of English and British imperial history.
- 3400:652 WRITING SEMINAR IN THE HISTORY OF ENGLAND AND THE EMPIRE** 4 credits  
Prerequisite: 651. Research and writing in selected topics of English and British imperial history.
- 3400:666 READING SEMINAR IN AMERICAN HISTORY TO 1865** 4 credits  
Study of historical literature, sources of materials and major interpretations of American colonial and United States history to Civil War.
- 3400:667 WRITING SEMINAR IN AMERICAN HISTORY TO 1865** 4 credits  
Prerequisite: 666. Research and writing in selected topics of American history from colonial period to Civil War.
- 3400:669 READING SEMINAR IN AMERICAN HISTORY SINCE 1865** 4 credits  
Study of historical literature, sources of materials and major interpretations of United States history since Civil War.
- 3400:670 WRITING SEMINAR IN AMERICAN HISTORY SINCE 1865** 4 credits  
Prerequisite: 669. Research and writing in selected topics of United States history since Civil War.
- 3400:677 READING SEMINAR IN LATIN AMERICAN HISTORY** 4 credits  
Prerequisite: two courses in Latin American studies or permission of instructor. Study of historical literature, sources of materials and major interpretations of Latin American history.
- 3400:678 WRITING SEMINAR IN LATIN AMERICAN HISTORY** 4 credits  
Prerequisite: 677. Research and writing in selected topics in social, cultural, diplomatic, intellectual and political history of Latin America.
- 3400:689 HISTORIOGRAPHY** 3 credits  
Study of historians, historical writings and interpretations through the ages. Required for master's degree if candidate has not had equivalent undergraduate or graduate course elsewhere.

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## Graduate Courses

- 3400:622 READING SEMINAR IN ANCIENT HISTORY** 4 credits  
Study of historical literature, sources of materials and major interpretations of ancient history, especially Greek and Roman periods.
- 3400:623 WRITING SEMINAR IN ANCIENT HISTORY** 4 credits  
Prerequisite: 622. Research and writing in selected topics of ancient history, particularly Greek and Roman eras.

**3400:690 HISTORY TEACHING PRACTICUM** 3 credits

Prerequisite: graduate assistantship. Required of all graduate assistants each fall semester. Training and experience in college teaching of history under the supervision of an experienced faculty member. Credits may not be used to meet degree requirements.

**3400:694 THESIS RESEARCH** 3 credits

Research for Master of Arts degree thesis.

**3400:697,8 INDIVIDUAL READING FOR M.A. STUDENT** 1-4 credits each

(May be repeated for a total of 12 credits)

Directed reading to fit individual student programs. May be repeated, but no more than six credits may count toward the M.A. degree in history. Written permission of the instructor required.

**3400:699 THESIS WRITING** 3 credits

Prerequisite: 694. Writing of Master of Arts degree thesis.

**3400:797,8 INDIVIDUAL READING FOR Ph.D. STUDENT** 1-6 credits each

(May be repeated, but no more than 12 credits may apply toward the Ph.D. in history).

Directed reading to fit individual student programs. Written permission of the instructor required.

**3400:898 DISSERTATION RESEARCH** 1-12 credits

Research for Doctor of Philosophy degree dissertation.

**3400:899 DISSERTATION WRITING** 1-12 credits

Prerequisite: 898. Writing of Doctor of Philosophy degree dissertation.

**3450:121 ANALYTIC GEOMETRY** 1 credit

Prerequisite: 112. Cartesian coordinate system; rational, logarithmic, exponential functions; sequences, series, limits, definition of series.

**3450:122 DIFFERENTIAL CALCULUS** 1 credit

Prerequisite: 121. Differentiation of algebraic, logarithmic and exponential functions, higher derivatives, partial derivatives, applications.

**3450:123 INTEGRAL CALCULUS** 1 credit

Prerequisite: 122. Indefinite and definite integral differentials, change of variable, numerical integration, improper integrals, double integral.

**3450:124 CALCULUS WITH TRIGONOMETRY** 1 credit

Prerequisites: 118, 123. Differentiation and integration of trigonometric functions, trigonometric substitution, applications.

**3450:127 COMPUTER SCIENCE TOPICS I** 1 credit

Prerequisite: permission. Selected topics or subject areas of interest in computer science.

**3450:128 COMPUTER SCIENCE TOPICS II** 1 credit

Prerequisite: permission. Selected topics or subject areas of interest in computer science.

**3450:131 NUMBER SYSTEMS** 1 credit

Prerequisite: 112. Ancient number systems, number bases, Euclidean algorithm, modular arithmetic.

**3450:132 ELEMENTARY GEOMETRY** 1 credit

Prerequisite: 112. Definitions and measure of line segments, angles and triangles in Euclidean plane geometry; Hilbert's axioms.

**3450:136 SYSTEMS OF MEASUREMENT** 1 credit

English and metric systems of weights and measures. Troy, avoirdupois and apothecaries' systems.

**3450:138 MATHEMATICS OF FINANCE** 1 credit

Prerequisite: 112 or equivalent. Simple and compound interest; bank discount, ordinary annuities (present value, amount and rate), amortization, annuities, perpetuities.

**3450:147 ELEMENTARY FUNCTIONS I** 3 credits

Prerequisites: high school algebra and trigonometry. Real numbers, equations and inequalities, radicals, absolute value, relations and functions, linear and quadratic functions, system of equations, matrices and determinants, complex numbers.

**3450:148 ELEMENTARY FUNCTIONS II** 3 credits

Prerequisites: high school algebra and trigonometry. Exponential and logarithmic functions, exponential and logarithmic equations, trigonometric functions, reduction formulas; trigonometric identities, arithmetic and geometric sequences and series, mathematical induction.

**3450:149 PRE-CALCULUS MATHEMATICS** 4 credits

Prerequisite: three years of high school mathematics. Sets; number systems; absolute value; relations; functions; polynomial functions; determinants; systems of equations, inequalities; trigonometric functions, identities; exponential, logarithmic functions; complex numbers; infinite sequences; binomial theorem; mathematical induction.

**3450:211,2 CALCULUS FOR THE LIFE SCIENCES** 4 credits each

Prerequisite: 149 or equivalent. A calculus course for student majoring in the biological and health sciences. Functions, differentiation, exponential and logarithmic functions, applications of derivatives, trigonometric functions, integration, functions of several variables, differential and difference equations, vectors and matrices, probability.

**3450:215 CONCEPTS OF CALCULUS I** 4 credits

Prerequisite: 149. Analytic geometry; functions; limits and continuity; differentiation; applications of differentiation; integration; applications of integration; logarithmic and exponential functions. An intensive treatment, designed for computer science business-option majors and those students who desire the Computer Science Certificate or a computer science minor.

**3450:216 CONCEPTS OF CALCULUS II** 4 credits

Prerequisite: 215. Trigonometric and inverse trigonometric functions; differentiation and integration; techniques of integration; conic sections; parametric equations; quadric surfaces; cylindrical and spherical coordinates; sequences and series; partial differentiation; multiple integration.

**3450:221 ANALYTIC GEOMETRY-CALCULUS I** 4 credits

Prerequisite: 148 or 149. Real numbers, analytic geometry, limits, continuity,

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## 3450: Mathematics

**3450:101-39 MODERN UNIVERSITY MATHEMATICS** 1 credit each

A series of modules designed primarily for the non-physical science major to be taken after consultation with an adviser.

**3450:101 ELEMENTARY ALGEBRA** 2 credits

(Does not count toward the University General Studies mathematics requirement.)

Prerequisite: placement. An introductory course in algebra to prepare the student for entry-level mathematics courses at the University. Topics include real numbers, arithmetic operations, symbolism, word problems, linear equations and inequalities, quadratic equations, radicals, rational expressions and exponents.

**3450:111 ALGEBRA** 1 credit

Prerequisite: one year of high school algebra or equivalent. Sets, signed numbers, algebraic expressions, factoring, exponents, radicals, binomial theorem.

**3450:112 ALGEBRAIC FUNCTIONS AND GRAPHING** 1 credit

Prerequisite: 111. Linear and quadratic functions and equations, complex numbers, inequalities, absolute value, ratio and proportions, graphing functions and inequalities.

**3450:113 COMBINATORICS AND PROBABILITY** 1 credit

Prerequisite: 112. Permutations, combinations, sample spaces, events; simple, compound and conditional probability; Bernoulli trials, expectations and odds.

**3450:114 MATRICES** 1 credit

Prerequisite: 112. Nomenclature, operations, inverse, solution of  $m$  linear equations in  $n$  variables using elementary row operations.

**3450:115 LINEAR PROGRAMMING** 1 credit

Prerequisite: 114. Minimizing and/or maximizing a linear function subject to a system of linear inequalities (geometrically and simplex method); introduction to game theory.

**3450:117 INTRODUCTION TO TRIGONOMETRY** 1 credit

Prerequisite: 112. Definitions of trigonometric functions, identities, solving right triangles, applications.

**3450:118 TRIGONOMETRIC FUNCTIONS AND GRAPHING** 1 credit

Prerequisite: 117. Graphing, identities, solving triangles, applications.

derivatives of algebraic functions, tangent and normal lines, extrema of functions, Rolle's theorem, mean value theorem, related rates, antiderivatives, definite integrals, areas, volumes, arc length.

**3450:222 ANALYTIC GEOMETRY-CALCULUS II** 4 credits

Prerequisite: 221. Derivatives of exponential, logarithmic, trigonometric, inverse trigonometric, hyperbolic and inverse hyperbolic functions; methods of integration, moments, centroids, indeterminate forms, polar coordinates, vector algebra, cylindrical and spherical coordinates, vector valued functions, curvature.

**3450:223 ANALYTIC GEOMETRY-CALCULUS III** 4 credits

Prerequisite: 222. Sequences, series, power series, Taylor and Maclaurin series, binomial series, functions of several variables, limit, continuity, partial derivatives, differentials, directional derivatives, maxima and minima, double and triple integrals, surface area.

**3450:235 DIFFERENTIAL EQUATIONS** 3 credits

Prerequisite: 223. Methods of forming and solving important types of differential equations. Analysis of models involving differential equations of first order and simple equations of second order.

**3450:289 SELECTED TOPICS IN MATHEMATICS** 1-3 credits

Prerequisite: permission. Selected topics of interest in mathematics.

**3450:301 HISTORY OF MATHEMATICS** 2 credits

Prerequisite: 222. Origin and development of mathematical ideas.

**3450:311 ABSTRACT ALGEBRA** 3 credits

Prerequisite: 222. Introduction to groups, rings, integral domains; axiomatic foundation: natural, integer, rational, real, complex number systems.

**3450:312 LINEAR ALGEBRA** 3 credits

Prerequisite: 222. Study of vector spaces, linear transformations, matrices, determinants, inner products, the eigenvalue problem, quadratic forms and canonical forms.

**3450:327 INTRODUCTION TO NUMERICAL METHODS** 3 credits

Prerequisites: 115, 123 and 3460.201. Introduction to numerical methods with applications to business, behavioral, social sciences. Topics: root finding, interpolation, quadrature and differentiation, numerical linear algebra, optimization. Does not meet major requirements.

**3450:413/513 THEORY OF NUMBERS** 3 credits

Prerequisite: 222 or permission. Euclidean algorithm, unique factorization theorem, congruences, primitive roots, indices, quadratic residues, number-theoretic functions, Gaussian integers and continued fractions.

**3450:414/514 VECTOR AND TENSOR ANALYSIS** 3 credits

Prerequisite: 223. Vector algebra, calculus of scalar-vector, vector-scalar, vector-vector functions; integral theorems; coordinate transformations; cartesian, contravariant, covariant vectors, tensors; fundamental operations with tensors: differentiation of tensors; applications.

**3450:415/515 COMBINATORICS AND GRAPH THEORY** 3 credits

Prerequisite: 222 or permission. Introduction to basic ideas and techniques of mathematical counting; properties of structure of systems.

**3450:417/517 COMPUTATIONAL LINEAR ALGEBRA** 3 credits

Prerequisite: 312 or equivalent. Computational techniques related to linear algebra. Topics include direct and iterative methods for solving eigenvalue problems and consideration of questions concerning stability of solutions.

**3450:421,2/521,2 ADVANCED CALCULUS I AND II** 3 credits each

Sequential. Prerequisite: 235. Real number system, sequences, series, set theory, continuity, differentiation, integration, partial derivatives, multiple integration, maxima and minima, convergence and uniform convergence, power series, improper integrals, transformations, line and surface integrals.

**3450:425/525 COMPLEX VARIABLES** 3 credits

Prerequisite: 235. Complex variables; elementary functions, differentiation and analytic functions; integration and Cauchy's theorem; power series and Laurent series; residue theorem; applications such as conformal mappings, inversion of integral transform.

**3450:427/527 INTRODUCTION TO NUMERICAL ANALYSIS** 3 credits

Prerequisite: 223 and 3460.201 or 4450.206. Mathematical analysis of numerical methods for solving equations, interpolating function values, approximating derivatives and integrals, approximating functions.

**3450:428/528 NUMERICAL LINEAR ALGEBRA** 3 credits

Prerequisite: 223 and 3460.201 or 4450.206. Mathematical analysis of

numerical methods for solving systems of linear equations, eigenvalue problems, nonlinear systems, unconstrained minimization problems.

**3450:429/529 NUMERICAL METHODS IN DIFFERENTIAL EQUATIONS** 3 credits

Prerequisite: 427 and 3460.201 or 4450.206. Mathematical analysis of numerical methods for solving ordinary differential equations, systems of ordinary differential equations, partial differential equations.

**3450:431/531 SPECIAL FUNCTIONS AND OPERATIONAL CALCULUS** 3 credits

Prerequisite: 235. Series solutions to differential equations; Bessel functions; orthogonal polynomials; self-adjoint boundary value problems and Fourier series; Laplace transforms; Fourier transforms.

**3450:432/532 PARTIAL DIFFERENTIAL EQUATIONS** 4 credits

Prerequisite: 235. The classical initial value and boundary value problems of mathematical physics developed and solved using Fourier series and integral transforms.

**3450:435/535 SYSTEMS OF ORDINARY DIFFERENTIAL EQUATIONS** 3 credits

Prerequisite: 235. Analysis, solution of systems of equations, linear, nonlinear. Topics: stability theory, perturbation methods, asymptotic methods, applications from physical, social sciences.

**3450:438/538 MATHEMATICAL MODELS** 3 credits

Prerequisite: 235. Formulation and analysis of mathematical models in social and physical sciences. Analysis of deterministic and stochastic models. Topics may include stochastic processes, linear programming, graph theory, theory of measurement.

**3450:441/541 CONCEPTS IN GEOMETRY** 4 credits

Prerequisite: 222 or permission of instructor. Axiomatic treatment of both Euclidean and non-Euclidean geometries. Other concepts included are finite geometry, transformations, constructions and inversions.

**3450:442/542 PROJECTIVE GEOMETRY** 3 credits

Prerequisite: 222 or permission. Complex projective planes, duality, homogeneous coordinates, 1-1 correspondence, cross ratios, harmonic ranges, conics, quadrilaterals, quadrangles, applications to Euclidean geometry, quadric surfaces.

**3450:445/545 INTRODUCTION TO TOPOLOGY** 3 credits

Prerequisite: 312 or permission. Introduction to topological spaces and topologies, mappings, cardinality, homeomorphisms, connected spaces, metric spaces.

**3450:489/589 TOPICS IN MATHEMATICS** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisite: permission of instructor. Selected topics in mathematics and applied mathematics at an advanced level.

**3450:491/591 WORKSHOP IN MATHEMATICS** 1-3 credits

(May be repeated)  
Group studies of special topics in mathematics and statistics. May not be used to meet undergraduate or graduate major requirements in mathematics and statistics. May be used for elective credit only.

**3450:497 INDIVIDUAL READING** 1-2 credits

Prerequisites: senior standing and permission. Mathematics majors only. Directed studies designed as an introduction to research problems, under guidance of selected faculty member.

**3450:498 SENIOR HONORS PROJECT** 1-3 credits

Prerequisite: 3450.489 (honors). Directed study for senior student in the Honors Program who has completed 3450.489 (honors). An introduction to research problems in mathematical sciences under the guidance of selected faculty.

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## Graduate Courses

**3450:601 INTRODUCTION TO ANALYSIS** 4 credits

Prerequisite: permission. An introduction to analysis to include differentiation and integration, maxima and minima, Lagrangian multipliers, transformations, infinite series, line and surface integrals, improper integrals. May not be used to meet degree requirements for mathematical sciences majors.

**3450:610 MATRIX ALGEBRA** 3 credits

Prerequisite: 235. Study of matrix theory and techniques concerning inverses, linear systems of equations, vector spaces, transformations, quadratic forms, the eigenvalue problem and canonical forms.

**3450:611,2 ALGEBRAIC THEORIES I AND II** 3 credits each

Sequential. Prerequisites: 311, 312 or 610. In-depth analysis of algebraic theory — monoids, groups, rings, modules, vector spaces, lattices and algebras.

**3450:621,2 FUNCTIONS OF A REAL VARIABLE I AND II** 3 credits each

Sequential. Prerequisite: 422/522. Real number system, sets, limit theorems, semi and continuous functions, derivatives of functions, Borel sets and Baire functions, measure; measurable sets, measurable functions. Riemann, Lebesgue integration, multiple integration.

**3450:625 ANALYTIC FUNCTION THEORY** 3 credits

Prerequisite: 422/522. Complex number system, holomorphic functions, continuity, differentiability, power series complex integration, residue theory, singularities, analytic continuation, asymptotic expansion.

**3450:627,8 ADVANCED NUMERICAL ANALYSIS I AND II** 3 credits each

Sequential. Prerequisite: 422/522. Theoretical analysis of numerical methods in linear algebra, polynomial interpolation and approximation, integration and ordinary differential equations.

**3450:631 CALCULUS OF VARIATIONS** 3 credits

Prerequisite: 235. Problems with fixed and movable endpoints, problems with constraints, generalization to several variables, the maximality principle, linear time-optimal problems, the connective between classical theory and the maximality principle.

**3450:632 ADVANCED PARTIAL DIFFERENTIAL EQUATIONS** 3 credits

Prerequisite: 432/532 or permission. Existence, uniqueness and stability of solutions to general classes of partial differential equations. Methods for solving these classes introduced, emphasizing both analytical and numerical techniques.

**3450:633,4 CONTINUOUS SYSTEMS I AND II** 3 credits each

Sequential. Prerequisite: 422/522 or permission of instructor. Boundary value problems formulated as ordinary differential equations, partial differential equations and integral equations analyzed as linear operator equations on function spaces using tools of generalized functions, Green's functions and spectral theory. Particular attention paid to evolution and potential equations as well as variational methods.

**3450:635 OPTIMIZATION** 3 credits

Prerequisite: 422/522 or permission. Unconstrained and constrained optimization theory and methods in applied problems.

**3450:636 ADVANCED COMBINATORICS AND GRAPH THEORY** 3 credits

Prerequisite: 235. Theory and techniques of combinatorics as applied to network problems and graph theoretic problems.

**3450:642 DIFFERENTIAL GEOMETRY** 3 credits

Prerequisite: 422/522. Analytic representation of space curves, surfaces; intrinsic geometry of surface; geometry of surfaces in large.

**3450:645 TOPOLOGY** 3 credits

Prerequisite: 422/522. Set theory, ordinal and cardinal numbers, topological spaces, filters and nets, separation, coverings, metric spaces, homotopy, related topics.

**3450:669 ADVANCED TOPICS IN MATHEMATICS** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisite: permission of instructor. Topics within research interests of faculty members in mathematics and applied mathematics.

**3450:692 MATHEMATICS AND STATISTICS SEMINAR** 2 credits

(May be repeated for a total of four credits)  
For properly qualified candidate for Master's degree in mathematics and statistics. Seminar-type discussions involving special problems dealing with mathematics and statistics. Includes a supervised research project.

**3450:695 PRACTICUM IN MATHEMATICS AND STATISTICS** 1-3 credits

Prerequisite: graduate teaching assistant or permission. Training and experience in college teaching of mathematics and statistics. May not be used to meet degree requirements.

**3450:697 INDIVIDUAL READING** 1-2 credits

(May be repeated for a total of four credits)  
Prerequisites: graduate standing and permission. Directed studies in mathematics at graduate level under guidance of selected faculty member.

**3450:699 THESIS RESEARCH** 2 credits

(May be repeated for a total of four credits)  
Prerequisite: permission. Properly qualified candidate for master's degree may obtain four credits for research experience which culminates in presentation of faculty-supervised thesis.

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**3460: Computer Science****3460:125 DESCRIPTIVE COMPUTER SCIENCE** 1 credit

Computer literacy: terminology; methods, media for data representation, storage, elements of a computing system; data organization.

**3460:126 INTRODUCTION TO BASIC PROGRAMMING** 1 credit

Prerequisite: 3450: 112. Introduction to syntax and semantics of Basic language: assignment statement and arithmetic, control statements and loops, input/output.

**3460:127 COMPUTERS IN TODAY'S WORLD** 3 credits

Introduction to nature of computers and their capabilities. Special attention given to topics such as effects of computer on privacy, employment and education; ethics in computer community; potential for computer crime. Designed for nonmajors.

**3460:201-5 INTRODUCTION TO PROGRAMMING LANGUAGES** 2 credits each

Introduction to syntax and semantics of programming languages: assignment statement and arithmetic, control statements and loops, input/output, subprograms.

**3460:201 INTRODUCTION TO FORTRAN PROGRAMMING** 2 credits

Prerequisite: 3450: 111, or 147 or equivalent.

**3460:202 INTRODUCTION TO COBOL PROGRAMMING** 2 credits

Prerequisite: 201 or equivalent.

**3460:203 INTRODUCTION TO APL PROGRAMMING** 2 credits

Prerequisite: 201 or equivalent.

**3460:204 INTRODUCTION TO PL/1 PROGRAMMING** 2 credits

Prerequisite: 201 or equivalent.

**3460:205 INTRODUCTION TO PASCAL PROGRAMMING** 2 credits

Prerequisite: 201 or equivalent.

**3460:210 INTRODUCTION TO COMPUTER CONCEPTS** 3 credits

Prerequisites: 201 and 3450:221 or 215. Method of representation of information on a digital computer: character representation, fixed point-floating point numbers; introduction to computer organization, algorithms and machine language programming. Boolean algebra, computer circuits.

**3460:307 APPLIED SYSTEMS PROGRAMMING** 3 credits

Prerequisite: 4450:306 and 3460:210. Introduction to systems programming using OS/370, Job Control Language, loaders and compilers, utilities. Stresses actual systems programming.

**3460:316 INTRODUCTION TO DATA STRUCTURES** 3 credits

Prerequisites: 210 and 3450:222 or 216 or permission. Standard data structures: stacks, queues, deques, trees, graphs, vectors, arrays, files; searching, sorting.

**3460:418/518 INTRODUCTION TO DISCRETE STRUCTURES** 3 credits

Prerequisite: 210 or permission. Introduction to a number of structures in algebra of particular use to student in computer science. Topics include algorithms and flow chart language, graphs and digraphs, trees, lattices codes.

<b>3460:420/520 STRUCTURED PROGRAMMING</b>	3 credits	<b>3470:251 DESCRIPTIVE STATISTICS AND PROBABILITY</b>	1 credit
Prerequisite: 316. Techniques of block programming using a structured programming language, program readability, program verification and program design.		Prerequisite: one semester of college algebra or equivalent.	
<b>3460:425/525 INTRODUCTION TO SOFTWARE SYSTEMS</b>	3 credits	<b>3470:252 DISTRIBUTIONS</b>	1 credit
Prerequisite: 201. Introduction to software systems: operating systems, input/output systems, languages and their processors; memory management; software engineering principles.		Prerequisite: 251.	
<b>3460:426/526 OPERATING SYSTEMS</b>	3 credits	<b>3470:253 HYPOTHESIS TESTING (PARAMETRIC)</b>	1 credit
Prerequisites: 316 and 4450: 306. Introduction to various types of operating systems: batch processing systems, multiprogramming systems and interacting processes; storage management; process and resource control; dead-lock problem. Course is independent of any particular operating system.		Prerequisite: 252.	
<b>3460:430/530 THEORY OF PROGRAMMING LANGUAGES</b>	3 credits	<b>3470:254 HYPOTHESIS TESTING (NONPARAMETRIC)</b>	1 credit
Prerequisite: 316. More advanced concepts underlying programming languages and their applications, formal definitions of programming languages, Backus Normal Form, semantics, compiler design.		Prerequisite: 253.	
<b>3460:435/535 ANALYSIS OF ALGORITHMS</b>	3 credits	<b>3470:255 REGRESSION AND CORRELATION</b>	1 credit
Prerequisites: 316 and 3450:121 or equivalent. Design and analysis of efficient algorithms for random access machines; derivation of pattern classification algorithms.		Prerequisite: 253	
<b>3460:455/555 DATA COMMUNICATIONS</b>	3 credits	<b>3470:256 EXPERIMENTAL DESIGN</b>	1 credit
Prerequisite: 210. Introduction to data communications, teleprocessing networks: codes, modes of transmission, errors, protocol.		Prerequisite: 253	
<b>3460:457/557 COMPUTER GRAPHICS</b>	3 credits	<b>3470:257 TIME SERIES AND INDEX NUMBERS</b>	1 credit
Prerequisite: 210. Topics in vector graphics, scan line graphics, representations and languages for graphics.		Prerequisite: 255.	
<b>3460:460/560 ARTIFICIAL INTELLIGENCE AND HEURISTIC PROGRAMMING</b>	3 credits	<b>3470:258 STATISTICAL COMPUTATIONS ON THE MICROCOMPUTER</b>	1 credit
Prerequisite: 316. Study of various programs which have displayed some intelligent behavior. Exploration of level at which computers can display intelligence.		Prerequisites: 254,5,6 and 3450:126. The utilization and generation of computer programs in the BASIC language to implement algorithms for the solution of a variety of statistical problems.	
<b>3460:470/570 AUTOMATA, COMPUTABILITY AND FORMAL LANGUAGES</b>	3 credits	<b>3470:450/550 PROBABILITY</b>	3 credits
Prerequisite: 418. Presentation of theory of formal languages and their relation to automata. Topics include description of languages, regular context-free and context-sensitive grammars; finite, pushdown and linear-bounded automata; turing machines; closure properties; computational complexity, stack automata and decidability.		Prerequisite: 3450:221. Introduction to probability, random variables and probability distributions, expected value, sums of random variables, Markov processes.	
<b>3460:475/575 DATA BASE MANAGEMENT</b>	3 credits	<b>3470:451,2/551,2 THEORETICAL STATISTICS I AND II</b>	3 credits each
Prerequisite: 316. Fundamentals of data base organization, data manipulations and representation, data integrity, privacy.		Sequential. Prerequisite: 3450:223. Elementary combinatorial probability theory, probability distributions, mathematical expectation, functions of random variables, sampling distributions, point and interval estimation, tests of hypotheses, regression and correlation, introduction to experimental designs.	
<b>3460:469/569 TOPICS IN COMPUTER SCIENCE</b>	1-3 credits	<b>3470:461/561 APPLIED STATISTICS</b>	4 credits
(May be repeated for a total of six credits) Prerequisite: permission of instructor. Selected topics in computer science at an advanced level.		Prerequisite: 3450:223. Applications of statistical theory to natural and physical sciences and engineering, including hypotheses tests, regression, correlation, analysis of variance, nonparametric statistics, sampling, quality control and other selected topics.	
<b>3460:491/591 WORKSHOP IN COMPUTER SCIENCE</b>	1-3 credits	<b>3470:463/563 EXPERIMENTAL DESIGN I</b>	3 credits
Group studies of special topics in computer science. May not be used to meet graduate or undergraduate requirements in mathematics, statistics or computer science.		Prerequisite: 451 or 461. Fundamental principles: analysis of variance; crossed, nested designs; multiple comparisons; power considerations; randomized blocks; repeated measure designs; applications.	
<b>3460:497/597 INDIVIDUAL READING IN COMPUTER SCIENCE</b>	1-3 credits	<b>3470:464/564 EXPERIMENTAL DESIGN II</b>	2 credits
(May be repeated) Prerequisite: permission. Computer science major only. Directed studies designed as introduction to research problems, under guidance of designated faculty member.		Prerequisite: 463/563. Principles of confounding, Latin squares, fractional designs, analysis of covariance, split plot designs, applications to problems in applied fields.	
<b>3460:498 SENIOR HONORS PROJECT</b>	1-3 credits	<b>3470:480/580 STATISTICAL COMPUTER APPLICATIONS</b>	3 credits
Prerequisite: 3450:489 (honors). Directed study for senior student in the Honors Program who has completed 3450:489 (honors). An introduction to research problems in the mathematical sciences under the guidance of selected faculty.		Prerequisites: 3450:223 and one semester course in statistics or permission. Translation of statistical operations into computer languages, iterative procedures, generating data, Monte Carlo techniques, use of statistical packages.	

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## 3470: Statistics

<b>3470:251-7 INTRODUCTION TO STATISTICS</b>		<b>3470:496 SENIOR HONORS PROJECT</b>	1-3 credits
Introduction to fundamental ideas of statistics at precalculus level including topics from the following:		Prerequisite: 3450: 489 (honors). Directed study for senior student in the University Honors Program who has completed 3450:489 (honors). An	

introduction to research problems in the mathematical sciences under the guidance of selected faculty.

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## Graduate Courses

### 3470:650 ADVANCED PROBABILITY AND STOCHASTIC PROCESSES

3 credits

Prerequisite: 651. Random walk, distributions, unlimited sequence of trials, laws of large numbers, convolutions, branching processes, renewal theory, Markov chains, time-dependent stochastic processes.

### 3470:651,2 MATHEMATICAL STATISTICS I AND II

3 credits each

Prerequisite: permission. Probability theory, random variables, probability distributions, expectation, limit theorems, large and small sample theory, theory of tests of hypotheses, point and interval estimation, nonparametric statistics theory, regression and correlation.

### 3470:655 LINEAR MODELS

3 credits

Corequisite: 652. General linear model in matrix notation, general linear hypothesis, regression models, experimental design models, analysis of variance and covariance, variance components.

### 3470:661,2 ADVANCED BEHAVIORAL STATISTICS I AND II

3 credits each

Sequential. Prerequisite: college-level algebra or equivalent. Descriptive statistics, probability distributions, hypothesis testing, estimation, nonparametric statistics, correlation, simple and multiple regression, experimental designs, factorial experiments, comparisons, nested designs, repeat-measure designs, randomized blocks, analysis of covariance, applications.

### 3470:664 STATISTICS FOR THE HEALTH SCIENCES

4 credits

(May not be used to meet degree requirements for mathematical sciences majors.) Prerequisite: college-level algebra or equivalent. Descriptive statistics, probability and probability distribution, tests of hypotheses and confidence intervals, nonparametric statistics, regression and correlation.

### 3470:665 REGRESSION AND CORRELATION

3 credits

Prerequisite: four credits of sequential statistics courses or equivalent. Analytical theory: least squares — matrix notation, methodology: multiple regression; orthogonal polynomials; correlation: partial correlation, stepwise regression; model building; response surfaces.

### 3470:668 NONPARAMETRIC STATISTICS-METHODS

2 credits

Prerequisites: 256, 662 or permission. Theoretical bases and relationships among various nonparametric techniques compared with parametric ones.

### 3470:667 FACTOR ANALYSIS

2 credits

Prerequisite: 661 or permission. Theory and techniques in identifying variables through use of factor analysis.

### 3470:668 MULTIVARIATE STATISTICAL METHODS

3 credits

Prerequisites: 463/563, 662. Multivariate techniques including distance concept, Hotelling  $T^2$ , multivariate ANOVA, regression and correlation, linear contrasts, factorial experiments, nested and repeat measure designs, Bonferroni  $X^2$  tests, linear discrimination analysis, canonical correlation, application.

### 3470:689 ADVANCED TOPICS IN STATISTICS

1-3 credits

(May be repeated for a total of six credits) Prerequisite: 652. Selected topics in statistics including concepts in order, statistics, advanced inference, sequential analysis, stochastic processes, reliability theory, Bayesian statistics and regression.

### 3470:697 INDIVIDUAL READING

1-2 credits

(May be repeated for a total of four credits) Prerequisites: graduate standing and permission. Directed studies in statistics under guidance of selected faculty member.

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## 3480: Mathematical Sciences

### 3480:300-2,403 COOPERATIVE EDUCATION WORK PERIOD

0 credits

For cooperative education student only. Work experience in industry and business. Comprehensive written reports of the work experience will be required.

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## 3500: Modern Languages

### PLACEMENT PROCEDURES FOR NEW STUDENT

Student who has taken one year or less of a foreign language in high school should enroll in 101. Those who have taken more than one year of a foreign language in high school should take the placement test (Counseling and Testing, Simmons Hall 161). For placement in third-year courses or higher, department permission is required.

### 3500:101,2 BEGINNING MODERN LANGUAGE I AND II

4 credits each

(May be repeated for a different language)

Sequential. Reading, speaking, writing and listening comprehension; intensive drill in pronunciation; short stories, outside reading and supplementary work in language laboratory.

### 3500:201,2 INTERMEDIATE MODERN LANGUAGE I AND II

3 credits each

(May be repeated for a different language)

Sequential. Prerequisite: 102 or equivalent. Grammar review, practice in reading, writing, speaking and listening comprehension; short stories, plays, novels on intermediate level.

### 3500:490/590 WORKSHOP

2 credits

(May be repeated)

Group studies of special topics in modern languages.

### 3500:498 SENIOR HONORS PROJECT IN MODERN LANGUAGES

1-3 credits

(May be repeated for a total of six credits)

Prerequisites: senior standing in Honors Program and approval of honors preceptor. Open only to language major enrolled in Honors Program. Independent study leading to completion of senior honors thesis or other original work.

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## 3520: French

### 3520:101,2 BEGINNING FRENCH I AND II

4 credits each

Sequential. Thorough study of sound system and basic structural patterns of French language, including oral practice and reading of simple prose. A placement test is required.

### 3520:201,2 INTERMEDIATE FRENCH I AND II

3 credits each

Sequential. Prerequisite: 102 or equivalent. Audio-oral sections. Practice in reading, writing, speaking and listening comprehension. Grammar review, short stories, plays and novels on intermediate level. A placement test is required.

### 3520:207,8 INTERMEDIATE FRENCH I AND II READING OPTION

3 credits each

Sequential. Prerequisite: 102 or equivalent. Reading and translation of texts dealing with contrasting French and American customs, values and attitudes.

### 3520:301,2 FRENCH COMPOSITION AND CONVERSATION

3 credits each

Prerequisite: 202 or equivalent. Free composition, special attention to vocabulary and idioms, development of oral expression and conversational ability.

### 3520:305,6 INTRODUCTION TO FRENCH LITERATURE

3 credits each

Prerequisite: 202 or equivalent. Survey of French literature from its origins to present, with lectures, reading and class discussion of representative works.

### 3520:309,10 FRENCH CULTURE AND CIVILIZATION

3 credits each

Prerequisite: 302 or 306 or permission. Audio-visual presentation with class discussions of French cultural heritage from its origins to present. Conducted in French.

### 3520:312 INDIVIDUAL SUMMER STUDY ABROAD

2 credits

Prerequisites: 202 or equivalent and permission of instructor.

### 3520:313 FRENCH CIVILIZATION AS SEEN IN THE MOVIES

3 credits

Study and discussion of various aspects of French culture and civilization as characterized in movies.

**3520:351,2 TRANSLATION: FRENCH** 3 credits each

**3520:401 FRENCH PHONETICS** 3 credits

Prerequisite: 202 or equivalent. Intensive drill in pronunciation with correction and improvement of student's accent, emphasis on articulation, intonation and rhythm.

**3520:403,4 ADVANCED FRENCH COMPOSITION AND CONVERSATION** 3 credits each

Prerequisite: 302 or equivalent. Thorough analysis of syntax, morphology, phonetic principles and grammatical structure.

**3520:407/507 FRENCH LITERATURE OF THE MIDDLE AGES AND THE RENAISSANCE** 4 credits

Prerequisite: 302 or 306 or permission. Reading and discussion of selected Medieval and Renaissance literary works. Conducted in French.

**3520:411/511 SEVENTEENTH CENTURY FRENCH LITERATURE** 4 credits

Prerequisite: 302 or 306 or permission. Reading and discussion of selected works in poetry, drama and novels. Conducted in French.

**3520:415/515 EIGHTEENTH CENTURY FRENCH LITERATURE** 4 credits

Prerequisite: 302 or 306 or permission. Reading and discussion of selected authors: emphasis on the *Philosophes*. Conducted in French.

**3520:419/519 NINETEENTH CENTURY FRENCH LITERATURE** 4 credits

Prerequisite: 302 or 306 or permission. Reading and discussion of selected works pertaining to romantic, realistic and naturalistic movements. Conducted in French.

**3520:427/527 TWENTIETH CENTURY FRENCH LITERATURE** 4 credits

Prerequisite: 302 or 306 or permission. Reading and discussion of the most representative works of period. Conducted in French.

**3520:450 EXPLICATION DE TEXTES** 2 credits

Prerequisite: 302 or 306 or permission. Study of traditional French method of literary analysis based on passages of representative authors from selected periods of French literary history.

**3520:471/571 FRENCH LANGUAGE READING PROFICIENCY** 4 credits

Designed to develop proficiency in reading comprehension.

**3520:497,8 INDIVIDUAL READING IN FRENCH** 1-3 credits each

**3520:661 FRENCH TEACHING PRACTICUM** 2 credits

Prerequisite: teaching assistantship or permission. Orientation and practice of particular aspects of teaching language and culture. Periodical review and evaluation. Credits may not be applied toward degree requirement.

**3520:697,8 INDIVIDUAL READING AND RESEARCH SEMINAR** 1-4 credits each

Prerequisite: permission. Independent study and research in specific areas. Considerable reading and writing required.

**3520:699 THESIS WRITING** 4 credits

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## 3530: German

**3530:101,2 BEGINNING GERMAN I AND II** 4 credits each

Sequential. Reading, speaking, writing and listening comprehension; intensive drill in pronunciation; short stories, outside reading and supplementary work in language laboratory.

**3530:201,2 INTERMEDIATE GERMAN I AND II** 3 credits each

Sequential. Prerequisite: 102 or equivalent. Grammar review, reading, writing, speaking, listening comprehension; short stories, plays, novels on intermediate level; outside reading and supplementary work in language laboratory.

**3530:207,8 INTERMEDIATE GERMAN I AND II READING OPTIONS** 3 credits each

Sequential. Prerequisites: 102 or equivalent and permission. Reading of German texts in culture and civilization, discussion in English, translation and grammatical analysis. Not open to majors.

**3530:250 TWENTIETH CENTURY GERMAN LITERATURE IN TRANSLATION** 2 credits

Reading and discussion of works of Mann, Rilke, Hesse, Kafka, Benn, Brecht, Frisch, Durrenmatt, Borchert and Grass. May not be taken for credit toward the major in German.

**3530:251 NINETEENTH CENTURY GERMAN LITERATURE IN TRANSLATION** 2 credits

Reading and discussion of works in Kleist, Heine, Hebbel, Keller, Storm, Meyer and Hauptmann. May not be taken for credit toward the German major.

**3530:252 AGE OF GOETHE IN TRANSLATION** 2 credits

Reading and discussion of representative drama, prose and poetry of Lessing, Goethe and Schiller. May not be taken for credit toward the German major.

**3530:301,2 GERMAN CONVERSATION AND COMPOSITION** 3 credits each

Prerequisite: 202 or equivalent. Advanced composition using German models, special attention to words and idioms, development of oral expression and conversational ability.

**3530:305,6 INTRODUCTION TO GERMAN LITERATURE** 3 credits each

Prerequisite: 202 or equivalent. Introduction to study of German literature. Reading and class discussion of representative works. Conducted in German.

**3530:351,2 TRANSLATION: GERMAN** 3 credits each

**3530:403,4 ADVANCED GERMAN CONVERSATION AND COMPOSITION** 3 credits each

Prerequisite: 302 or equivalent. Thorough analysis of syntax, morphology, phonetic principles and grammatical structure.

**3530:406,7 GERMAN CULTURE AND CIVILIZATION** 3 credits each

Prerequisite: 302 or 306 or equivalent. Particular emphasis on customs, traditions, literary trends and artistic tendencies that constitute German's contribution to Western Civilization.

**3530:419/519 THE AGE OF GOETHE I** 3 credits

Prerequisite: 302 or 306 or permission. Enlightenment and generation of Sturm und Drang, including works of Wieland, Lessing, Kloppock, Herder, the young Goethe and others. Conducted in German.

**3530:420/520 THE AGE OF GOETHE II** 3 credits

Prerequisite: 302, 306 or permission. Faust, selections from parts I and II. Ballads of Goethe and Schiller. Conducted in German.

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## Graduate Courses

**3520:601 ADVANCED FRENCH GRAMMAR** 4 credits

Advanced study of normative French grammar with emphasis on syntax, morphology, grammatical structure and phonetic principles.

**3520:603,4 ROMANCE AND APPLIED LINGUISTICS** 4 credits each

History of French language from 842 to present. Second semester deals with application of linguistic research to teaching of French.

**3520:607,8 SELECTED TOPICS IN THE MOVEMENT OF IDEAS IN FRENCH LITERATURE** 4 credits each

Study of ideas instrumental in shaping French thought and culture.

**3520:619,20 FRENCH CULTURE EXPRESSED IN LITERATURE** 4 credits each

Anthropological approach emphasizing social and civic institutions, education, music and arts, value systems and national characteristics.

**3520:641 SEMINAR: FRANCOPHONE LITERATURE, CULTURE AND CIVILIZATION** 2 credits

Study of various aspects of culture, civilization and literature of French expression outside of France.

**3520:642 SEMINAR: THE IMAGE OF THE WOMAN IN FRENCH LITERATURE** 2 credits

Study of the woman as characterized in French literature from Middle Ages to present.

**3530:431/531 200 YEARS OF GERMAN DRAMA** 3 credits

Prerequisite: 302 or 306 or permission. Representative works of major classical dramatics including Lessing, Goethe, Schiller, Kleist, Grillparzer. Conducted in German.

**3530:432/532 200 YEARS OF GERMAN DRAMA** 3 credits

Prerequisite: 302 or 306 or permission. Representative works of the major dramatists, Buchner, Hebbel, Hauptmann and Wedekind. Conducted in German.

**3530:435/535 GERMAN SHORT STORY** 3 credits

Prerequisite: 302 or 306 or permission. Reading and discussion of representative works of German romanticism, including those of Tieck, Kleist, E. T. A. Hoffman, Brentano, Eichendorff. Conducted in German.

**3530:436/536 GERMAN SHORT STORY** 3 credits

Prerequisite: 302 or 306 or permission. Reading and discussion of works representative of the period, including those of Droste-Hulshoff, Stifter, Keller, Meyer, Storm. Conducted in German.

**3530:439/539 TWENTIETH CENTURY LITERATURE I** 3 credits

Prerequisite: 302 or 306 or permission. Clash of the old and the new at the turn of the century. Works of T. Mann, Hauptmann, Kaiser, Hofmannsthal, Rilke, Wedekind and others. Conducted in German.

**3530:440/540 TWENTIETH CENTURY GERMAN LITERATURE II** 3 credits

Prerequisite: 302 or 306 or permission. Impact of modernity. Reading and discussion of writings of Hesse, Kafka, Doblin, Werfel and others. Conducted in German.

**3530:471/571 GERMAN LANGUAGE READING PROFICIENCY** 4 credits

Designed to develop proficiency in reading comprehension.

**3530:497,8 INDIVIDUAL READING IN GERMAN** 1-3 credits each

Prerequisite: permission.

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**3550: Italian****3550:101,2 BEGINNING ITALIAN I AND II** 4 credits each

Sequential. Reading, speaking, writing and listening comprehension; intensive drill in pronunciation; short stories, outside reading and supplementary work in language laboratory.

**3550:201,2 INTERMEDIATE ITALIAN I AND II** 3 credits each

Sequential. Prerequisite: 102 or equivalent. Grammar review, practice in reading, writing, speaking and listening comprehension; short stories, plays, novels on intermediate level, outside reading and supplementary work in language laboratory.

**3550:207,8 INTERMEDIATE ITALIAN I AND II READING OPTION** 3 credits each

Sequential. Prerequisite: 102 or equivalent. Readings cover various aspects of Italian culture through the centuries, with particular emphasis on history, literature, art and contemporary Italian way of life as compared with American one.

**3550:250 GENIUS OF ITALIAN LITERATURE IN TRANSLATION** 2 credits

Reading and discussion of works of Dante, Petrarca, Boccaccio, Ariosto, Machiavelli, Cellini, Tasso, Bruno, Pirandello De Filippo.

**3550:301,2 ITALIAN COMPOSITION AND CONVERSATION** 3 credits each

Prerequisite: 202 or equivalent. Italian composition using Italian models, special attention to words and idioms and development of oral expression and conversational ability.

**3550:305,6 INTRODUCTION TO LITERATURE** 3 credits each

Prerequisite: 202 or equivalent. Introduction to study of Italian literature. Reading and class discussion in Italian of representative works.

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**3570: Russian****3570:101,2 BEGINNING RUSSIAN I AND II** 4 credits each

Reading, speaking, writing, and understanding; intensive drill in pronunciation and supplementary work in language laboratory.

**3570:201,2 INTERMEDIATE RUSSIAN I AND II** 3 credits each

Prerequisite: 102 or equivalent. Grammar review, practice in reading, writing, speaking; short stories, novels on intermediate level; outside reading and supplementary work in language laboratory.

**3570:207,8 INTERMEDIATE RUSSIAN I AND II READING OPTION** 3 credits each

Sequential. Prerequisite: 102 or equivalent. Reading of texts in Russian dealing with culture of Russian-speaking people. Discussion of content of these texts in English along with review of grammar to extent necessary for accurate understanding of texts. Not open to majors.

**3570:301,2 RUSSIAN COMPOSITION AND CONVERSATION** 3 credits each

Prerequisite: 202 or equivalent. Advanced composition using Russian models, special attention to words and idioms; development of oral expression and conversational ability.

**3570:305,6 INTRODUCTION TO RUSSIAN LITERATURE** 3 credits each

Prerequisite: 202 or equivalent. Reading and class discussion in Russian of representative works.

**3570:309,10 RUSSIAN CIVILIZATION AND CULTURE** 3 credits each

Prerequisite: 202 or equivalent. Reading and discussion of Russian texts relating to developments in Russian civilization and culture.

**3570:351,2 TRANSLATION: RUSSIAN** 3 credits each**3570:403,4 ADVANCED RUSSIAN COMPOSITION AND CONVERSATION** 3 credits each

Prerequisite: 302 or equivalent. Thorough analysis of syntax, morphology, phonetic principles and grammatical structure.

**3570:411,2 SCIENTIFIC RUSSIAN** 3 credits each

Prerequisite: 202 or equivalent. Intensive reading of scientific articles in chemistry, physics, mathematics, biology and medicine.

**3470:420,1 RUSSIAN LITERATURE OF THE NINETEENTH CENTURY: ROMANTICISM AND REALISM** 3 credits each

Prerequisites: 301 or 302 permission. Readings from representative authors such as Pushkin, Lermontov, Gogol, Turgenev, Dostoyevsky, Tolstoy, Goncharov and others.

**3570:427,8 RUSSIAN LITERATURE OF THE TWENTIETH CENTURY** 3 credits each

Prerequisite: 202 or equivalent. Reading and discussion of selected literary works from Gorky to Solzhenitsyn.

**3570:439 ADVANCED RUSSIAN SYNTAX, GRAMMAR AND CONVERSATION** 3 credits

Prerequisite: 404 or equivalent. Advanced work in composition, translation into Russian and idiomatic use of the spoken language.

**3570:497,8 INDIVIDUAL READING IN RUSSIAN** 1-3 credits each

Prerequisite: permission.

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**3580: Spanish****3580:101,2 BEGINNING SPANISH I AND II** 4 credits each

Sequential. Reading, speaking, writing and listening comprehension; intensive drill in pronunciation; short stories, outside reading and supplementary work in language laboratory.

**3580:201,2 INTERMEDIATE SPANISH I AND II** 3 credits each  
Sequential. Prerequisite: 102 or equivalent. Grammar review, practice in reading, writing, speaking and listening comprehension: short stories, plays novels on intermediate level; outside reading and supplementary work in language laboratory.

**3580:207,8 INTERMEDIATE SPANISH I AND II READING OPTION** 3 credits each  
Sequential. Prerequisite: 102 or equivalent. By permission only. Reading of texts in Spanish dealing with culture of Spanish-speaking people. Not open to majors.

**3580:301,2 SPANISH COMPOSITION AND CONVERSATION** 3 credits each  
Prerequisite: 202 or equivalent. Advanced composition using Spanish models, special attention to words and idioms, development of oral expression and conversational ability.

**3580:305,6 INTRODUCTION TO HISPANIC LITERATURE** 4 credits each  
Prerequisite: 202 or equivalent. Reading and discussion of works written in Spanish with emphasis on the literature of contemporary authors. Conducted in Spanish.

**3580:311 SPANISH/SPANISH-AMERICAN CULTURAL EXPERIENCE** 1-2 credits  
Prerequisite: permission. Student's residence and/or independent study in Spanish-speaking country which results in demonstrable assimilation of country's culture may earn a maximum of two credits.

**3580:350 CONTEMPORARY LATIN AMERICAN FICTION IN TRANSLATION** 3 credits  
(May not be taken for credit toward the Spanish major.)  
Reading, discussion of novels, short stories of major Spanish American and Brazilian writers. Designed as an elective for upper-level students. Texts and discussion in English.

**3580:351,2 TRANSLATION: SPANISH** 3 credits each

**3580:401,2 ADVANCED COMPOSITION AND CONVERSATION** 3 credits each  
Prerequisite: 202 (or equivalent) and permission. Development of proficiency in speaking and writing Spanish at a level beyond that achieved in 301,2. Conducted in Spanish.

**3580:403 ADVANCED GRAMMAR** 3 credits  
Prerequisite: 302 or equivalent. Thorough analysis of syntax, morphology, phonetic principles and grammatical structure.

**3580:407/507 MEDIEVAL AND RENAISSANCE SPANISH LITERATURE** 4 credits  
Prerequisite: 302 or 206 or permission. Reading and discussion of representative works that mark beginnings of Spanish literature in poetry, prose and drama, with emphasis given to the major works: Cantar de Mio Cid, El Libro de Buen Amor, La Celestina and the ballads. Conducted in Spanish.

**3580:409,10 LINGUISTICS** 3 credits each  
Prerequisite: 302 or permission. Introduction to linguistics focusing on Spanish; includes phonetics, comparative and historical linguistics; traditional, structuralist and transformationalist theories of grammar, together with practical applications for Spanish majors.

**3580:411/511 SPANISH LITERATURE OF THE GOLDEN AGE** 4 credits  
Prerequisite: 302 or permission. Reading and discussion of representative novels and short stories with special emphasis on works of Miguel de Cervantes. Drama, poetry and essays of Sixteenth and Seventeenth Centuries studied. Conducted in Spanish.

**3580:415/515 EIGHTEENTH AND NINETEENTH CENTURIES SPANISH LITERATURE** 4 credits  
Prerequisite: 302 or permission. Reading, discussion and lectures. Study of Neoclassicismo, Romanticismo, Realismo, Naturalismo, la generacion of 1898. Conducted in Spanish.

**3580:419/519 TWENTIETH CENTURY SPANISH LITERATURE** 4 credits  
Prerequisite: 302 or 306 or permission. Reading and discussion of the most representative writers of Twentieth Century Spain. Representative poetry, drama, novels and short stories studied. Conducted in Spanish.

**3580:422/522 SPECIAL TOPICS IN HISPANIC CULTURE** 1-4 credits  
(May be repeated)  
Reading and discussion of significant works in literature or culture in Spain and Latin America not studied in other courses.

**3580:423/523 SPANISH-AMERICAN LITERATURE** 4 credits  
Prerequisite: 302 or 306 or permission. Reading and discussion of representative Spanish-American literature from discovery to present time. Oral and written reports. Conducted in Spanish.

**3580:427,8/527,8 SPANISH AND SPANISH-AMERICAN CULTURE AND CIVILIZATION** 4 credits each  
Prerequisite: 302 or 306 or permission. Emphasis on customs, traditions, literary trends and artistic tendencies that constitute Spain's specific contribution to Western Civilization. Study of Spanish-speaking world. Conducted in Spanish.

**3580:471/571 SPANISH LANGUAGE READING PROFICIENCY** 4 credits  
Designed to develop proficiency in reading comprehension.

**3580:497 INDIVIDUAL READING IN SPANISH** 1-3 credits  
Prerequisite: permission.

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## Graduate Courses

**3580:601 SEMINAR ON MEDIEVAL SPANISH LITERATURE** 4 credits  
Reading and discussion of monumental medieval literary works of Spain such as Poema de Mio Cid, El Conde Lucanor, El Libro de Buen Amor. Conducted in Spanish.

**3580:605,6 SEMINAR IN HISPANIC LINGUISTICS** 4 credits each  
Advanced topics in comparative, historical and descriptive Hispanic linguistics studied from contemporary theoretical perspectives; includes practical applications.

**3580:609,10 SEMINAR ON SPANISH LITERATURE OF THE GOLDEN AGE: SEMINAR ON EIGHTEENTH AND NINETEENTH CENTURIES SPANISH LITERATURE** 4 credits each  
Reading and discussion of representative writers from Renaissance to late baroque period. Studies in essay, novel, theatre, poetry and philosophic writings. Conducted in Spanish.

**3580:613 SEMINAR ON SPANISH-AMERICAN LITERATURE** 4 credits  
Studies in representative writers preceding the "Boom." Reading and discussion of various genres and authors representing significant literary developments. Conducted in Spanish.

**3580:617 SEMINAR ON TWENTIETH CENTURY SPANISH-AMERICAN LITERATURE** 4 credits  
Reading and discussion of contemporary writers with emphasis on theatre, novel and short story. Conducted in Spanish.

**3580:621 SEMINAR ON TWENTIETH CENTURY SPANISH LITERATURE** 4 credits  
Studies in representative present-day writers with analyses and discussions of novel, theatre, poetry and short stories. Conducted in Spanish.

**3580:661 SPANISH TEACHING PRACTICUM** 2 credits  
Prerequisite: teaching, assistantship or permission. Orientation and practice of particular aspects of teaching Spanish language and culture. Student teaching experiences are periodically reviewed and evaluated. These credits may not be applied toward degree requirements.

**3580:697,8 INDIVIDUAL READINGS IN SPANISH** 1-4 credits each  
Content of given individual reading program taken from course contents approved for graduate work in Spanish.

**3580:699 THESIS WRITING** 4 credits

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# 3600: Philosophy

**3600:101 INTRODUCTION TO PHILOSOPHY** 3 credits

Introduction to philosophic problems and attitudes through acquaintance with thoughts of some leading thinkers of Western tradition.

**3600:120 INTRODUCTION TO ETHICS** 3 credits

Introduction to problems of moral conduct through readings from the tradition and class discussions; nature of "good," "right," "ought" and "freedom."

**3600:170 INTRODUCTION TO LOGIC** 3 credits

Introduction to logic and critical thinking. Includes such topics as meaning, informal fallacies, propositional logic, predicate and syllogistic logic and nature of induction.

**3600:211 HISTORY OF ANCIENT PHILOSOPHY** 3 credits

History and development of ancient Greek philosophy from pre-Socrates to Aristotle. Readings of primary sources in translation.

**3600:216 AMERICAN PHILOSOPHY** 3 credits

Prerequisite: one course in philosophy or permission of instructor. Movement of ideas in American from Royce to present.

**3600:223 VALUE THEORY** 3 credits

Inquiry into man as an evaluator. Study of some principles and theories of value and their implications.

**3600:232 PHILOSOPHY OF RELIGION** 3 credits

Prerequisite: two philosophy courses. Discussion, analysis of problems of theology, nature of religious experience; God's nature, existence, immortality, sin, faith, reason; holy revelation, redemption.

**3600:280 SOPHOMORE TOPICS IN PHILOSOPHY** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisite: permission of instructor. Selected topics in philosophy at the sophomore level.

**3600:312 HISTORY OF MEDIEVAL PHILOSOPHY** 3 credits

History of Western philosophy from end of Roman Empire to Renaissance. Major philosophers studied include St. Augustine, St. Anselm, Peter Abelard, St. Thomas Aquinas, Duns Scotus and William of Ockham. Readings from primary sources.

**3600:313 HISTORY OF MODERN PHILOSOPHY** 3 credits

Analysis of major philosophical issues of Seventeenth and Eighteenth Centuries from Descartes through Kant. Readings of primary sources in translation.

**3600:314 NINETEENTH CENTURY PHILOSOPHY** 3 credits

Prerequisite: one course in philosophy or permission of instructor. Inquiry into philosophically significant ideas of Hegel, Marx, Schopenhauer, Mill, Kierkegaard and Nietzsche.

**3600:324 SOCIAL AND POLITICAL PHILOSOPHY** 3 credits

Prerequisite: one course in philosophy or permission of instructor. An examination of the normative justification of social, political institutions and practices. Analyses concepts such as rights, justice, equality, political obligation from historical as well as contemporary points of view. Application to particular social issues covered.

**3600:332 DIALECTICAL MATERIALISM** 3 credits

Prerequisite: 224 or permission of instructor. Includes Hegelian and other origins as well as its development in writings of Marx, Engels, Lenin and contemporary writers. Focus on metaphysics, social philosophy, philosophy of history, nature of man, ethics, aesthetics.

**3600:350 PHILOSOPHY OF ART** 3 credits

Prerequisite: One course in philosophy or permission of instructor. An examination of theories of the nature of art and the grounds of aesthetic evaluation. Analysis of such concepts as representation, form, content, expression, institution, convention, meaning, truth as they apply in the context of the arts.

**3600:374 SYMBOLIC LOGIC** 3 credits

Prerequisite: 170 or permission of instructor. Detailed consideration of propositional and first-order predicate logic. Introduction to class logic, modal logics and axiomatics.

**3600:380 JUNIOR TOPICS IN PHILOSOPHY** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisite: permission of instructor. Selected topics in philosophy at the junior level.

**3600:390 JUNIOR HONORS COLLOQUIUM** 3 credits

Prerequisite: junior standing in Honors Program or junior honors standing as philosophy major or permission of instructor or nomination by department faculty member. Selected readings, research, writing and defense of one or more philosophical projects. Preparation and foundation for Senior Honors Project in philosophy.

**3600:411/511 LATER DIALOGUES OF PLATO** 3 credits

Prerequisites: one introductory course and 211 or permission of instructor. Readings of dialogues in translation, commencing with Theatetus including: Parmenides, Sophist, Statesman, Philebus.

**3600:416/516 ANALYTIC PHILOSOPHY** 3 credits

Prerequisites: 211.2 and 313 or permission of instructor. Study of ideal and ordinary language movements in Twentieth Century British and American philosophy. Deals with such figures as Russell, Carnap, Ayer, Moore, Wittgenstein, Ryle and Austen.

**3600:419/519 BRITISH EMPIRICISM** 3 credits

Prerequisites: one introductory course and 313 or permission of instructor. Intensive analysis of selected major writings of Locke, Berkeley and Hume.

**3600:421/521 PHILOSOPHY OF LAW** 3 credits

Prerequisite: one course in philosophy or permission of instructor. Philosophical inquiry into the nature of law and legal institutions.

**3600:422/522 CONTINENTAL RATIONALISM** 3 credits

Prerequisites: one introductory course and 313 or permission of instructor. Intensive analysis of selected major writings of Descartes, Spinoza and Leibniz.

**3600:424/524 EXISTENTIALISM** 3 credits

Prerequisite: one introductory course in philosophy, 314 or permission of instructor. In-depth inquiry into the thought of Kierkegaard, Jaspers, Heidegger, Sartre, Tillich and other existentialists with their concern for man and his human condition.

**3600:426/526 PHENOMENOLOGY** 3 credits

Prerequisites: one introductory course, 314 or permission of instructor. Inquiry into methodology of Husserl and Heidegger and their influence upon Western European and American thought.

**3600:432/532 ARISTOTLE** 3 credits

Prerequisites: 211.2 and 313 or permission of instructor. Detailed study of Aristotle's metaphysics, philosophy of nature, philosophy of man and ethics. Taught in alternate years.

**3600:434/534 KANT** 3 credits

Prerequisite: 313 or permission of instructor. Study of Kantian system of thought and its relation to history of philosophy. Includes thorough investigation of one or more of Kant's philosophic works.

**3600:444/544 PROBLEMS IN PHILOSOPHY** 3 credits

Prerequisites: two courses in philosophy or permission of instructor. Thorough, critical examination of one major philosophical problem.

**3600:462/562 THEORY OF KNOWLEDGE** 3 credits

Prerequisite: three courses in philosophy. Examination of nature of knowledge; theories of perception, conception and truth, problem of induction and relation of language to knowledge.

**3600:464/564 PHILOSOPHY OF SCIENCE** 3 credits

Prerequisites: 101, 170 or permission of instructor. Nature of scientific inquiry, types of explanation, laws and causality, theoretical concepts and reality. Also considers critics of hypothetical-deductive view of science, e.g., Hanson and Kuhn.

**3600:471/571 METAPHYSICS** 3 credits

Prerequisites: 211.2 and 313 or permission of instructor. Theories about ultimate nature and ultimate explanation of reality. Uses readings from classical and contemporary sources.

**3600:480/580 SEMINAR** 3 credits

(May be repeated)  
Prerequisite: permission of instructor.

**3600:481/581 PHILOSOPHY OF LANGUAGE** 3 credits

Prerequisites: 101 and 170 or permission of instructor. Contemporary philosophies about nature of language and its relation to reality and human thinking. Includes discussion of views of linguists such as Chomsky.

**3600:490 SENIOR HONORS PROJECT IN PHILOSOPHY** 1-6 credits

(May be repeated for a total of six credits)  
Prerequisite: 390 or senior standing in Honors Program or senior honors standing in philosophy major or permission of instructor or nomination by department faculty member. Research leading to completion of senior honors thesis involving original work under faculty supervision.

**3600:497/597 INDIVIDUAL STUDY** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisite: completion of required courses of philosophy major or permission of instructor and department head. Directed independent study of philosopher, philosophy or philosophical problem under guidance of selected faculty member. Subject matter determined by selected faculty member in consultation with student. Graduate credit requires significant additional work which may include additional research paper.

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## Graduate Courses

**3600:615 SEMINAR: HISTORY OF PHILOSOPHY** 3 credits

(May be repeated for a total of 12 credits)  
Prerequisite: permission of instructor. Study in philosophical works of one major philosopher.

**3600:626 ETHICAL THEORY** 3 credits

Examination of problems related to conduct and decision making in light of the Western tradition as well as contemporary insights of positivism, phenomenology, existentialism, logical analysis, naturalism and pragmatism.

**3600:676 LOGICAL THEORY** 3 credits

Advanced topics in logic such as modal logics and axiomatics. Recommended for law student, as logic of normative systems is treated, it is suggested that a graduate student be familiar with material covered in a course like 374 before taking this course.

**3600:680 SEMINAR** 3 credits

(May be repeated for a total of nine credits)

**3600:699 SEMINAR: THESIS SUPERVISION** 2 credits

(May be repeated)

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## 3650: Physics

**3650:130 DESCRIPTIVE ASTRONOMY** 3 credits

Qualitative and nonmathematical introduction to subjects of astronomy and astrophysics, intended primarily as a first science course for student not majoring in physical science.

**3650:133 MUSIC, SOUND AND PHYSICS** 3 credits

Qualitative introduction to sound production, perception and reproduction, with emphasis on music.

**3650:137 LIGHT: COLORS, CAMERAS AND PERCEPTION** 3 credits

Introductory, qualitative course dealing with nature of light, and interaction of light with material objects to produce common visual effects.

**3650:138 PROPERTIES OF LIGHT LABORATORY** 1 credit

Prerequisite or corequisite: 137 or permission. Introductory laboratory dealing qualitatively and quantitatively with properties of light and interaction of light with material objects.

**3650:141 PHYSICS, ENERGY AND MAN** 3 credits

Introductory, qualitative course dealing with nature of energy including its availability, conservation and utilization by man. Energy resources; conversion efficiencies; environmental effects of energy production; recent developments.

**3650:160 PHYSICS IN SPORTS** 3 credits

An introduction to physics, particularly mechanics. Athletic activities utilized to illustrate principles.

**3650:231 CONCEPTS OF PHYSICS I** 4 credits

Prerequisites: high school algebra and trigonometry or 3450:149 as corequisite. General physics; emphasizing unifying concepts of physics such as conservation laws and symmetry principles. Newtonian mechanics, oscillations, waves.

**3650:232 CONCEPTS OF PHYSICS II** 4 credits

Prerequisite: 231. Electricity and magnetism; interference and diffraction of waves; nature of heat; space and time in theory of relativity; quantum mechanics of atomic phenomena; recent developments in study of elementary particles.

**3650:261 PHYSICS FOR THE LIFE SCIENCES I** 4 credits

Prerequisites: high school algebra, trigonometry or 3450:149 as corequisite or permission. Introductory course for professional work in biology and health professions and services. Emphasizes life science applications. Mechanics: laws of motion, force, torque, work, energy, power; properties of matter: gases, liquids, solids, fluid mechanics.

**3650:262 PHYSICS FOR THE LIFE SCIENCES II** 4 credits

Prerequisite: 261. Laws of thermodynamics, kinetic theory. Wave phenomena: sound, light, optics; electricity and magnetism; atomic and nuclear physics, radioactivity.

**3650:267,8 LIFE SCIENCE PHYSICS COMPUTATIONS I AND II** 1 credit each

Corequisites: 261 (with 267); 262 (with 268). Optional companion courses to 261,2 provides additional computational experience in applications of physics to life sciences, emphasizing use of algebra and trigonometry. Particularly recommended for student with modest mathematical preparation.

**3650:291 ELEMENTARY CLASSICAL PHYSICS I** 4 credits

Corequisite: 3450:221. Introductory physics for student of science and engineering. Classical statics, kinematics and dynamics, as related to contemporary physics. Oscillations, waves; fluid mechanics. Vectors and some calculus introduced as needed.

**3650:292 ELEMENTARY CLASSICAL PHYSICS II** 4 credits

Prerequisite: 291. Thermodynamics from atomic point of view; basic laws of electromagnetism; mechanical and electromagnetic waves. Interference and diffraction; coherence; geometrical and physical optics.

**3650:293,4 PHYSICS COMPUTATIONS I AND II** 1 credit each

Corequisites: 291 (with 293); 292 (with 294). Optional companion courses to 291,2 provides experience in problem solving, and elaborates application of calculus to simple physical phenomena. Particularly recommended for a freshman, and for student with modest preparation in mathematics or physical sciences.

**3650:301 ELEMENTARY MODERN PHYSICS** 3 credits

Prerequisite: 292 or permission of instructor. Special relativity, introduction to quantum physics, hydrogen atom and complex atoms, atomic spectra, topics in nuclear and solid-state physics.

**3650:321 PHYSICS LABORATORY TECHNIQUES** 2 credits

Prerequisite: permission of instructor. Design and fabrication of simple mechanical systems, photography in data collection, electronic chassis construction, printed circuit techniques, optical measuring instruments.

**3650:331,2 ASTROPHYSICS I AND II** 3 credits each

Prerequisite: 232, 262 or 292. One-year comprehensive, qualitative course recommended for student majoring in physics or natural science, and for secondary school teachers and others desiring comprehensive survey of astronomy and astrophysics at intermediate level.

**3650:399 UNDERGRADUATE RESEARCH** 1-6 credits

(May be repeated)  
Prerequisite: permission of instructor. Participation in current research project in department under supervision of faculty member.

**3650:400/500 HISTORY OF PHYSICS** 3 credits

Prerequisite: 232, 262 or 292. Study of origin and evolution of major principles and concepts characterizing contemporary physics.

**3650:404/504 ENERGY AND THE ENVIRONMENT** 3 credits

Prerequisite: 232, 262 or 292. Physics of macroscopic energy sources and techniques of use; emphasizes: thermodynamic efficiencies, storage, transport, side effects, prospective availability.

**3650:406/506 WAVES**

3 credits

Prerequisite: 232, 262 or 292. Analysis of phenomena common to all waves, including free oscillations, forced oscillations, traveling waves, reflection, polarization, interference and diffraction. Water, sound, electromagnetic, seismic and deBroglie waves examined.

**3650:407/507 QUANTUM PHYSICS**

3 credits

Prerequisite: 232, 262 or 292. Quantum physics at intermediate level. Energy levels, photons, material particles. Uncertainty Principle, Schrodinger wave mechanics, theory of stationary states and elementary particles.

**3650:410/510 ELECTRONICS**

3 credits

Prerequisite: 232, 262 or 292. Electron tubes, semiconductors, their utilization in circuits. Introduction to mathematical analysis of same.

**3650:411,2/511,2 INTERMEDIATE LABORATORY I AND II**

2 credits each

Corequisite: 410. Experiments involving measurements of physical properties of various systems most readily made with electronic instruments and circuits. Amplifiers, oscillators, bridges, special circuits. Detection and counting of nuclear radiations. Thermal and electrical properties of metals, semiconductors and other materials. Photoelectric effect. Charge on the electron.

**3650:420/520 OPTICS**

3 credits

Prerequisites: 232, 262 or 292 and 3450:223. Reflection, refraction; prisms, thin lenses, thick lenses, mirrors, waves and their propagation; interference and diffraction; diffraction gratings; polarization, emission of light; velocity of light; photometry; lasers.

**3650:421/521 APPLIED PHYSICS LABORATORY**

2 credits

Prerequisite: 411 or permission of instructor. Laboratory course stressing measurement and evaluation techniques as performed in industry and research. Mechanical, optical, thermal, electric and electronic measurements done, experimental design, calibration and reporting emphasized.

**3650:430/530 STATISTICAL PHYSICS**

3 credits

Prerequisite: 232, 262 or 292. Kinetic theory of gases, temperature; thermodynamic systems; work; ideal gases; real gases; laws of thermodynamics; entropy, reversibility and irreversibility; Carnot cycle; Kelvin temperature scale; change of phase.

**3650:431/531 MECHANICS**

3 credits

Prerequisite: 292. Newtonian mechanics, conservation laws, planar statics and dynamics, motion of a particle or rigid body, universal gravitation, planetary orbits, Kepler's laws, orbit perturbations, vibrational motions, moving frames of reference.

**3650:436/536 ELECTRICITY AND MAGNETISM**

3 credits

Prerequisite: 292 or permission of instructor. Electricity and magnetism at intermediate level. Electric and magnetic fields, electric potential, vector potential. Gauss's law, divergence theorem, Stoke's theorem, introductory vector analysis. Development of Maxwell's equations.

**3650:438/538 METHODS OF APPLIED PHYSICS**

3 credits

Prerequisite or corequisite: 421. Topics: design, performance, interpretation, reporting of physical measurements; the scientific method, measurements, their uncertainties, principles of experimentation, measurement devices, data resolution and analysis, inference.

**3650:445/545 THEORETICAL MECHANICS**

4 credits

Prerequisite: 431. Introductory vector analysis, motion of a system of particles, mechanics of continuous media, Lagrange's equations, Hamilton's equations, inertia and stress tensors, rigid body rotation, Euler's equations, small vibration theory.

**3650:446/546 ELECTROMAGNETIC THEORY**

4 credits

Prerequisite: 436. Electromagnetic theory at advanced level including electrostatic fields, dielectrics, magnetic fields of steady currents, induction, magnetic energy, Maxwell's equations, electromagnetic waves, electromagnetic fields of moving charges, radiation.

**3650:451,2/551,2 ADVANCED LABORATORY I AND II**

2 credits each

Prerequisite: 412 or permission of instructor. Applications of electronic, solid-state devices, techniques to research-type projects in contemporary physics. Introduction to resonance techniques; nuclear magnetic resonance, electron spin resonance, nuclear quadrupole resonance. Scintillation spectroscopy. Alpha- and beta-ray spectroscopy.

**3650:458/558 LABORATORY DATA ANALYSIS**

3 credits

Prerequisites: 411 or 421, and 4450:206. A selection of numerical methods for the processing of data collected in the physics laboratory. Use and develop

calculator and computer methods, programs to obtain correct inferences and maximum usefulness from laboratory data.

**3650:468/568 DIGITAL DATA ACQUISITION**

2 credits

Prerequisites: 410 or 411, and 4450:206. Designed to introduce physics students to the use of digital techniques, microprocessors in making physical measurements.

**3650:470/570 INTRODUCTION TO SOLID-STATE PHYSICS**

3 credits

Prerequisite: 407 or permission of instructor. Account of basic physical processes occurring in solids, with emphasis on fundamental relation between these processes and periodicity of crystalline lattice.

**3650:471,2/571,2 NMR SPECTROSCOPY I AND II**

2 credits each

Prerequisite: 292 or permission of instructor. Theoretical basis and experimental techniques of NMR spectroscopy. Classical concepts and quantum mechanical treatments of NMR. Bloch equations; spin-spin and spin-lattice relaxation times. Steady state and transient phenomena. General features of broadline and high-resolution NMR spectra. NMR instrumentation and operating principles. Theory and analysis of high-resolution NMR spectra. Quantitative applications of broadline and high-resolution NMR spectra and determination of physical and chemical structures.

**3650:481,2/581,2 METHODS OF MATHEMATICAL PHYSICS I AND II**

3 credits each

Prerequisites: 292; 3450:235 and senior or graduate standing in a physical science or engineering. Consideration of mathematical methods useful in science and engineering. Elliptic integrals, perturbation theory, conformal mapping, variational methods, potential equation; diffusion equation, wave equation, Fourier transform, eigenfunctions and eigenvalues, solution of boundary value problems using Green's function, inertia tensor.

**3650:487/587 LABORATORY PROJECTS**

1-3 credits

(May be repeated)

Prerequisite: permission. Design of laboratory apparatus experiments, techniques or demonstrations.

**3650:488/588 SELECTED TOPICS: PHYSICS**

1-4 credits

(May be repeated)

Prerequisite: permission. Consideration of selected topics, procedures, techniques, materials or apparatus of current interest in physics.

**3650:490/590 WORKSHOP**

1-4 credits

(May be repeated)

Group studies of special topics in physics. May not be used to meet undergraduate or graduate major requirements in physics. May be used for elective credit only.

**3650:497/597 INDEPENDENT STUDY**

1-4 credits

(May be repeated)

Prerequisite: permission. Further investigations of various selected topics in physics, under guidance of faculty member.

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## Graduate Courses

**3650:801 ATOMIC AND NUCLEAR PHYSICS I**

3 credits

Prerequisites: 301 or 407 and 3450:235 or permission of instructor. Expository, analytical treatment of fundamental principles which operate to yield observed complex behavior of matter. Introductory quantum mechanics, free particle quantum mechanics, one-electron atom.

**3650:602 ATOMIC AND NUCLEAR PHYSICS II**

3 credits

Prerequisite: 601 or permission. Special theory of relativity, radiation and radiative transitions. Pauli principle and exchange symmetry. Atomic spectroscopy, quantum statistics. Band theory of solids. Basic properties of nuclei. Particle scattering and nuclear forces.

**3650:805 COMPUTER PHYSICS: NUMERICAL SOLUTIONS TO PHYSICS PROBLEMS I**

3 credits

Prerequisite: permission. Review of FORTRAN and basic topics in computer science. Numerical solutions to Physics problems, including Newton's and Schrodinger's equations. Treatment and reduction of experimental data, plotting, simulation.

**3650:606 COMPUTER PHYSICS: NUMERICAL SOLUTIONS TO PHYSICS PROBLEMS II**

3 credits

Prerequisite: 605 or permission. Data reduction, Calcomp plotting, comparison

of theoretical models with data, linear and non-linear least squares curve-fitting. May accommodate scientific problems of individual interest.

**3650:611 PHYSICAL PROPERTIES OF MATTER I** 3 credits

Prerequisite: 293. Experimental stress-strain relations of real materials, simple stress-strain analysis, brittle and ductile fracture, phenomenological theories for fracture, discussion of mechanical properties in terms of atomic and molecular structure.

**3650:612 PHYSICAL PROPERTIES OF MATTER II** 3 credits

Prerequisite: 611 or permission. Measurement and analysis of friction and adhesion of real materials, surface tension of liquids and solids, thermodynamics of spreading and wetting, viscosity.

**3650:821 ATOMIC AND MOLECULAR SPECTRA I** 3 credits

Prerequisites: 301, 3450:235 or permission of instructor. Elements of atomic theory; line spectra; electron spin and multiplet structure; building-up principle and periodic system of elements; special intensities; hyperfine structure; isotope effect, nuclear spin.

**3650:822 ATOMIC AND MOLECULAR SPECTRA II** 3 credits

Prerequisite: 621 or permission of instructor. Molecular bands and development of theory; rotational, vibrational and electronic bands; Raman effect, isotopic effect, intensity of bands; methods of determining molecular constants from wave number measurements.

**3650:631 PHYSICS OF POLYMERS I** 2 credits

Prerequisite: 3450:235 or permission of instructor. Polymeric states of matter, crystallinity, rubber elasticity, viscoelasticity, transport and electrical properties, glassy state, fracture processes. Elasticity at large strains, phenomenological viscoelasticity, dielectric properties, diffusion. Introduction to NMR spectroscopy of polymers.

**3650:632 PHYSICS OF POLYMERS II** 2 credits

Prerequisite: 631 or permission. Phase transitions, temperature dependence of mechanical and electrical properties, crystalline polymers, kinetics of crystallization, fracture, adhesion, wear. Applications of NMR spectroscopy to polymers.

**3650:635,6 PHYSICS OF POLYMERS LABORATORY I AND II** 2 credits each

Prerequisite: 291; corequisites: 631,2. Selected laboratory experiments illustrating principles and methods discussed in 631,2.

**3650:651 THEORETICAL CLASSICAL PHYSICS I** 3 credits

Prerequisite: 445,6 or permission. Inertial reference frames, generalized coordinates, Lagrange's equations, theory of small vibrations, Hamilton-Jacobi methods and theory of relativity.

**3650:652 THEORETICAL CLASSICAL PHYSICS II** 3 credits

Prerequisite: 651. Maxwell's equations; space-time symmetry of field equations; field vectors in moving systems; field energy, momentum; electrodynamics; electromagnetic forces on charges, currents.

**3650:661 THERMODYNAMICS AND STATISTICAL MECHANICS I** 3 credits

Prerequisites: 430 and 3450:235. Introduction to basic statistical concepts. Application of statistical ideas to systems of particles in equilibrium to develop basic notions of statistical mechanics.

**3650:662 THERMODYNAMICS AND STATISTICAL MECHANICS II** 3 credits

Prerequisite: 661. Illustration and discussion of macroscopic and microscopic aspects of the theory. Phase transitions and quantum gases. Nonequilibrium situations and transport theory.

**3650:681 QUANTUM MECHANICS I** 3 credits

Prerequisites: 3450:235 and permission of instructor; recommended: 602. Thorough development of ordinary wave mechanics; matrix formulation and unification in the more abstract Dirac formulation.

**3650:682 QUANTUM MECHANICS II** 3 credits

Prerequisite: 681. Angular momentum, spin, Pauli matrices, Clebsch-Gordon coefficients, spin-orbit interaction, scattering theory. Born approximation, perturbation theory; time independent and time dependent, sudden and adiabatic approximations.

**3650:684 ADVANCED NUCLEAR PHYSICS** 3 credits

Prerequisites: 602, 682. Quantum mechanics applied to nucleus. Interaction of radiation with nucleus, nuclear scattering, nuclear reactions; energy levels of nuclei.

**3650:685 SOLID-STATE PHYSICS I** 3 credits

Prerequisites: 470, 681 or permission of instructor. Theory of physics of crystalline solids. Properties of reciprocal lattice and Bloch's theorem. Lattice dynamics and specific heat. Electron states; cellular method, tight-binding method, Green's function method.

**3650:686 SOLID-STATE PHYSICS II** 3 credits

Prerequisite: 685. Orthogonalized plane and pseudo potentials. Electron-electron interaction; screening by impurities. Friedel sum rule and plasma oscillations. Dynamics of electrons, transport properties and Fermi surface.

**3650:689 SPECIAL PROBLEMS IN THEORETICAL PHYSICS** 1-4 credits

(May be repeated)  
Prerequisite: permission. Intended to facilitate expansion of particular areas of interest in theoretical physics, by consultation with faculty member and independent study beyond available coursework.

**3650:690 SPECIAL PROBLEMS IN EXPERIMENTAL PHYSICS** 1-4 credits

(May be repeated)  
Prerequisite: permission. Intended to encourage development of experimental techniques in selected areas, under faculty supervision.

**3650:691 SEMINAR IN THEORETICAL PHYSICS** 1-3 credits

(May be repeated)  
Prerequisite: permission.

**3650:692 SEMINAR IN NMR SPECTROSCOPY** 1-3 credits

(May be repeated)  
Prerequisite: permission.

**3650:693 SEMINAR IN SOLID-STATE PHYSICS** 1-3 credits

(May be repeated)  
Prerequisite: permission.

**3650:697 GRADUATE RESEARCH** 1-5 credits

Prerequisite: permission. Candidates for M.S. degree may obtain up to five credits for faculty supervised research projects. Grades and credit received at completion of such projects.

**3650:698 SPECIAL TOPICS: PHYSICS** 1-4 credits

Prerequisite: permission. Enables student who needs information in special areas, in which no formal course is offered, to acquire knowledge in these areas.

**3650:699 MASTER'S THESIS RESEARCH** 1 credit

Prerequisite: permission. With approval of department, one credit may be earned by candidate for M.S. degree upon satisfactory completion of a master's thesis.

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## 3700: Political Science

**3700:100 GOVERNMENT AND POLITICS IN THE UNITED STATES** 4 credits

Examination of American political system with emphasis on fundamental principles, ideas, institutions and processes of modern government. Lecture and discussion sections (day classes only).

**3700:110 CIVIL LIBERTIES IN AMERICA** 2 credits

Not open to political science majors and cannot be used for credit toward a major in political science. Study of civil liberties issues in the United States.

**3700:120 CURRENT POLICY ISSUES** 2 credits

Cannot be used for credit toward major in political science. Survey of major political issues and problems confronting nation; environment in which public policies are formed and executed.

**3700:200 COMPARATIVE POLITICS** 4 credits

Introduction to comparative political analysis; description of political systems of Great Britain, France, Germany and Soviet Union; contrast between democracy and totalitarianism.

**3700:201 INTRODUCTION TO POLITICAL SCIENCE** 3 credits

Introduction to use of contemporary approaches and techniques employed in political analysis. Required of a political science major and recommended for others with good social science backgrounds.

**3700:210 STATE AND LOCAL GOVERNMENT AND POLITICS** 3 credits

Examination of institutions, processes and intergovernmental relations at state and local levels.

**3700:220 AMERICAN FOREIGN POLICY** 3 credits

Examination of American foreign policymaking process; public opinion and other limitations on policy; specific contemporary problems in selected areas.

**3700:302 AMERICAN POLITICAL IDEAS** 3 credits

Study of major thinkers and writers of American political thought.

**3700:303 INTRODUCTION TO POLITICAL THOUGHT** 3 credits

Survey of major ideas and concepts of Western political theory from pre-Socrates through period of Enlightenment.

**3700:304 MODERN POLITICAL THOUGHT** 3 credits

Examination of central concepts of political thought from Nineteenth Century to present. Modern liberalism, communism, fascism and totalitarianism emphasized.

**3700:310 INTERNATIONAL POLITICS AND INSTITUTIONS** 4 credits

Relations among nations examined in political context.

**3700:320 BRITAIN AND THE COMMONWEALTH** 3 credits

Description and analysis of government and politics of Great Britain and leading nations of the Commonwealth.

**3700:321 WESTERN EUROPEAN POLITICS** 3 credits

Description and analysis of government and politics of France, Germany, Italy and Switzerland, with appropriate references to Scandinavia and Low Countries.

**3700:322 SOVIET AND EAST EUROPEAN POLITICS** 3 credits

Theory and practice of government and politics in Soviet Union; comparison with selected communist systems of Eastern Europe.

**3700:323 POLITICS OF CHINA AND JAPAN** 3 credits

Examination of governmental structures and political processes of China and Japan.

**3700:325 COMPARATIVE PUBLIC POLICY** 3 credits

Considers the formulation, decisions, implementation, impact of public policies in a comparative perspective. By examining public policies in a variety of countries the relationship of different economic and political systems to policy outcomes is observed.

**3700:326 POLITICS OF DEVELOPING NATIONS** 3 credits

General introduction to concepts and theories of political development and political institutions, elite-recruitment and political processes of selected emerging nations.

**3700:327 AFRICAN POLITICS** 3 credits

Examination of patterns of government and politics of nations south of Sahara.

**3700:330 CANADIAN POLITICS** 3 credits

An examination of the instructions and processes of Canadian government; a survey of some of the pressing issues confronting public decision makers in Canada.

**3700:340 AMERICAN POLITICAL PARTIES AND INTEREST GROUPS** 3 credits

Role of political parties and interest groups in political process. Development, structure and function of parties; patterns of party allegiance and voting behavior; interest groups and their effect on government.

**3700:341 THE AMERICAN CONGRESS** 3 credits

Examination of structure and function of Congress, with comparative materials on legislative process on all levels. Presidential and congressional conflict examined.

**3700:342 MINORITY GROUP POLITICS** 3 credits

Examination of political behavior of racial, religious and ethnic minority groups in the United States.

**3700:350 THE AMERICAN PRESIDENCY** 3 credits

The presidency as focal point of politics, policy and leadership in American political system.

**3700:360 THE JUDICIAL PROCESS** 3 credits

Role of police, lawyers, courts and judges in context of American political

process. Structure and process of judicial policymaking and limitations on judicial power.

**3700:370 THE AMERICAN BUREAUCRACY** 4 credits

Examination of implementation of public policy. Administrative organization and principles stressed.

**3700:380 URBAN POLITICS AND POLICIES** 4 credits

Examination of problems emerging from urban and regional complexes in the United States. Structure and processes of political decision making at this level analyzed.

**3700:381 STATE POLITICS** 3 credits

Analysis of the state political process in terms of its capacity to deal with a wide range of socioeconomic problems. Special emphasis on legislators, administrators, parties and interest groups.

**3700:382 INTERGOVERNMENTAL RELATIONS** 3 credits

An examination of the history, theory, contemporary activities of intergovernmental relations in the United States. Interactions of local, state federal units of government will be considered.

**3700:391 HONORS IN POLITICAL SCIENCE** 3 credits

Prerequisite: at least 17 credits and a 3.25 average in political science and permission of adviser.

**3700:392 SELECTED TOPICS IN POLITICAL SCIENCE** 1-3 credits

(May be repeated, but no more than three credits can be applied to major in political science)

Topics of substantial current importance, specialized topics within political science or experimental courses.

**3700:395 INTERNSHIP IN GOVERNMENT AND POLITICS** 2-3 credits

(May be repeated for a total of six credits. No more than four credits may be applied toward major in political science).

Prerequisite: two courses in political science or permission of instructor. Supervised individual placement with political officeholders, party groups, governmental agencies, interest groups.

**3700:397 INDEPENDENT STUDY** 1-4 credits

(May be repeated for a total of four credits)

Prerequisites: senior standing, 3.00 grade-point average and permission of adviser.

**3700:402 POLITICS AND THE MEDIA** 3 credits

Examination of relationships between the press, the news media and political decision makers.

**3700:405/505 POLITICS IN THE MIDDLE EAST** 3 credits

The rise of the state system in the Middle East after World War I; an analysis of the socio-cultural, ideological forces influencing the political behavior of the people of the Middle East. In-depth study of selected political systems.

**3700:415/515 COMPARATIVE FOREIGN POLICY** 3 credits

Prerequisite: 310 or 220 or permission. Study of foreign policies of selected nations, with special attention to processes and instruments of decision making of the major powers.

**3700:420/520 ISSUES AND APPROACHES IN COMPARATIVE POLITICS** 3 credits

Prerequisite: 200 or permission of instructor. Detailed examination of approaches to the study of comparative politics, political parties, elites and various theories of revolution.

**3700:425/525 LATIN AMERICAN POLITICS** 3 credits

Prerequisite: 200 or permission of instructor. Examination of patterns of government and politics in Latin American area.

**3700:440/540 PUBLIC OPINION AND POLITICAL BEHAVIOR** 4 credits

Prerequisite: 100 or 120 or permission. Nature and role of public opinion in political process; historical development, current methods of measurement. Political behavior of American electorate.

**3700:441/541 THE POLICY PROCESS** 3 credits

Prerequisite: eight credits in political science. Intensive study of policy-making process, emphasizing roles of various participants in executive and legislative branches as well as private individuals and groups.

**3700:442/542 METHODS OF POLICY ANALYSIS** 3 credits

Prerequisite: 201. Examines variety of methods available for analyzing public policies. Techniques of cost benefit analysis, evaluation research quasi-

experimentation are covered as well as consideration of ethical questions in policy analysis, the practical problems facing policy analysts.

**3700:461/561 THE SUPREME COURT AND CONSTITUTIONAL LAW** 4 credits

Prerequisite: 100 or 201 or permission. Interpretation of the United States Constitution by Supreme Court; judicial review in democratic political process. Special emphasis on judicial policy making in areas of civil rights and liberties.

**3700:480/580 POLICY PROBLEMS** 3 credits

Prerequisite: 380 or permission. Intensive study of selected problems in public policy, may be repeated for up to six credits with permission of adviser.

**3700:490/590 WORKSHOP** 1-3 credits

(May be repeated)  
Group studies of special topics in political science. May not be used to meet undergraduate of graduate requirements in political science. Elective credit only.

**3700:497 SENIOR HONORS PROJECT IN POLITICAL SCIENCE** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisite: senior standing in Honors Program and approval of honors preceptor. Open only to a political science major in Honors Program. Independent study leading to completion of senior honors thesis or other original work.

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## Graduate Courses

**3700:600 SEMINAR IN POLITICAL THEORY** 3 credits

Prerequisite: six credits of political science or permission. Selected topics in political theory investigated in depth.

**3700:610 SEMINAR IN INTERNATIONAL POLITICS** 3 credits

Prerequisite: six credits of political science or permission. Analysis of current problems in theory and practice of politics and organization.

**3700:620 SEMINAR IN COMPARATIVE POLITICS** 3 credits

Prerequisite: six credits of political science or permission. Research on selected topics in comparative politics. Comparative method.

**3700:628 SEMINAR IN POLITICS OF DEVELOPING NATIONS** 3 credits

Prerequisite: six credits of political science or permission. Selected topics investigated. Emphasis on theories of political development.

**3700:630 SEMINAR IN NATIONAL POLITICS** 3 credits

Prerequisite: six credits of political science or permission. Reading and research on formulation, development and implementation of national policy in one or more areas of contemporary significance.

**3700:640 SEMINAR IN POLITICAL BEHAVIOR** 3 credits

Prerequisite: six credits of political science, including 440, or permission. Techniques of quantitative research in political science; utility and limitations of quantitative analysis.

**3700:641 SEMINAR IN INTERGOVERNMENTAL RELATIONS** 3 credits

Prerequisite: six credits of political science or permission. Graduate-level examination of problems resulting from changing relations between levels of government in the United States; comparisons with other federal systems.

**3700:660 SEMINAR IN CIVIL LIBERTIES AND THE JUDICIAL PROCESS** 3 credits

Prerequisite: six credits of political science or permission. Civil liberties and judicial process viewed in political context. Readings and research on selected topics.

**3700:670 SEMINAR IN THE ADMINISTRATIVE PROCESS** 3 credits

Prerequisite: six credits of political science or permission. Intensive examination of administrative implementation of public policies. Readings and research on selected topics.

**3700:680 SEMINAR IN URBAN AND REGIONAL POLITICS** 3 credits

Prerequisite: six credits of political science or permission. Focus on processes of policy formulation and execution in modern metropolitan community, with emphasis on structural functional context.

**3700:690 SPECIAL TOPICS IN POLITICAL SCIENCE** 1-3 credits

Prerequisite: six credits or permission. Graduate-level examination of selected topics in American politics, comparative politics, international politics or political theory.

**3700:695 INTERNSHIP IN POLITICAL SCIENCE** 3 credits

Prerequisite: permission of graduate adviser. Field experience: student is placed with officeholders, government agencies or political groups for research or practical experience of relevance to program.

**3700:697 INDEPENDENT RESEARCH AND READINGS** 1-4 credits

(May be repeated, but no more than six credits toward the master's degree in political science)  
Prerequisite: permission.

**3700:699 THESIS** 2-6 credits

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## 3750: Psychology

**3750:100 INTRODUCTION TO PSYCHOLOGY** 3 credits

Introduction to scientific study of behavior; survey of physiological basis of behavior, sensation and perception, development, learning and cognition, personality, social interaction and other selected topics.

**3750:110 QUANTITATIVE METHODS IN PSYCHOLOGY** 3 credits

Prerequisite or corequisite: 100. Presentation of data, descriptive statistics, correlation, hypothesis testing and introduction to quantitative methodologies in psychology.

**3750:120 INTRODUCTION TO EXPERIMENTAL PSYCHOLOGY** 4 credits

Prerequisites: 100 and 110. Lectures plus laboratory experience concerning problems in scientific bases of psychology such as experimental design, methods and apparatus, collection and analysis of data and interpretation of results.

**3750:130 DEVELOPMENTAL PSYCHOLOGY** 4 credits

Prerequisite: 100. Determinants and nature of behavioral changes from conception to death.

**3750:140 INTRODUCTION TO INDUSTRIAL/ ORGANIZATIONAL PSYCHOLOGY** 4 credits

Prerequisite: 100. Survey of applications of psychology in industry, business and government. Emphasis on understanding employees and evaluation of their behavior.

**3750:300 ADVANCED EXPERIMENTAL PSYCHOLOGY** 4 credits

Prerequisite: 120. Scientific methods and design in experimental investigation of human and animal behavior. Emphasis on exposure to and performance on all aspects of a single, in-depth research project in which student applies the lecture information.

**3750:310 SENSORY AND PERCEPTUAL EXPERIENCE** 4 credits

Prerequisite: 100. Survey of basic sensory and perceptual phenomena covering physical and psychological bases of each. Overview of major theoretical treatments and empirical findings included, plus discussion of implications for behavior.

**3750:320 PHYSIOLOGICAL PSYCHOLOGY** 4 credits

Prerequisite: 100. Relationship between behavior of organisms and physiological processes mediating the behavior. Brain structure and function, motivation, etc., 3100:265 desirable as background.

**3750:330 MOTIVATION AND THE DYNAMICS OF BEHAVIOR** 3 credits

Prerequisite: 100. Survey of behavioristic, psychoanalytic, cognitive and consistency theories to explain arousal, direction and persistence of behavior including empirical evidence for achievement, motivation, aggression and other behaviors.

**3750:340 SOCIAL PSYCHOLOGY** 4 credits

Prerequisite: 100. Examination of individual's response to social environment and social interaction process. Social perception, attitude formation and change, affiliation and attraction, altruism, group processes and nonverbal behavior.

**3750:350 THE PSYCHOLOGY OF SMALL-GROUP BEHAVIOR** 3 credits

Prerequisite: 100. Intensive investigation of factors affecting behavior in groups. Covers joint effects of personality, social structures, task and situational variables in affecting group behavior.

**3750:360 CROSS-CULTURAL PSYCHOLOGY** 3 credits

Prerequisite: 100. Influence of culture upon development of individual psychological processes including functioning, social motives, sex roles and values.

**3750:370 RESEARCH DESIGN AND ANALYSIS IN PSYCHOLOGY** 3 credits

Prerequisites: 100 and 110 or 3470:251-7 as alternate prerequisite for 110. Review of research design and methodology for psychology covering basic concepts, empirical research designs, internal and external validity and specific analytical techniques as applied to psychology.

**3750:400/500 PERSONALITY** 3 credits

Prerequisite: 100. Consideration of current conceptualizations of the normal personality with emphasis on methods of measurement, experimental findings and research techniques.

**3750:410/510 PSYCHOLOGICAL TESTS AND MEASUREMENTS** 4 credits

Prerequisites: 100, 110 or permission. Consideration of nature, construction and use of tests and measurements in industry, government and education. Includes aptitude and achievement tests, rating scales, attitudes and opinion analysis.

**3750:420/520 ABNORMAL PSYCHOLOGY** 3 credits

Prerequisites: 100 and three credits in psychology. Survey of syndromes, etiology, diagnosis and treatment of major psychological conditions ranging from transient maladjustments to psychoses.

**3750:430/530 PSYCHOLOGICAL DISORDERS OF CHILDREN** 4 credits

Prerequisites: 100 and 130 or permission. Survey of syndromes, etiologies and treatments of behavioral disorders in children from standpoint of developmental psychologist. Behavioral data and treatment approaches emphasized.

**3750:440/540 INTRODUCTION TO CLINICAL METHOD** 3 credits

Prerequisites: 100 and 420. Review of tests, interviews and personal data in human assessment.

**3750:450/550 LEARNING AND COGNITION** 4 credits

Prerequisite: 120. Topics include basic conditioning and learning processes, verbal learning, memory and transfer of training, as well as review of higher-order mental processes such as human conceptual behavior, problem solving and thinking.

**3750:460/560 HISTORY OF PSYCHOLOGY** 3 credits

Prerequisite: 100. Psychology in prescientific period and details of development of systematic viewpoints in Nineteenth and Twentieth Centuries.

**3750:470 ADVANCED INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY** 4 credits

Prerequisite: 140 or permission. Application of psychology to organizational theory, leadership, management, personnel selection, engineering psychology, man-machine systems and consumer behavior.

**3750:480 SPECIAL TOPICS IN PSYCHOLOGY** 1-4 credits

(May be repeated)  
Prerequisite: 100 or permission. Comprehensive survey of contemporary status of specialized topics and issue in psychology. Emphasis on original source materials, critical analysis and synthesis of empirical and theoretical aspects.

**3750:488,9 HONORS SEMINAR IN PSYCHOLOGY** 4 credits each

Prerequisites: senior standing, psychology major and permission. 488- Selection of research topic, review of relevant literature, research design and data collection. 489- Analysis and write-up of research project in journal or thesis style.

**3750:490/590 WORKSHOP IN PSYCHOLOGY** 1-3 credits

(May be repeated)  
Group studies of special topics in psychology. May not be used to meet undergraduate or graduate major requirements in psychology.

**3750:497 INDEPENDENT READING, RESEARCH AND/OR PRACTICUM IN PSYCHOLOGY** 1-3 credits

(May be repeated)  
Prerequisite: departmental permission. Independent reading, research and/or practicum in an area of psychology under supervision and evaluation of selected faculty member.

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## Graduate Courses

**3750:600 ADVANCED GENERAL PSYCHOLOGY** 4 credits

Selective review of contemporary status in various specialty areas in psychology. Emphasis on current problems, new developments and changing concepts.

**3750:610 INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY** 4 credits

Application of industrial/organizational psychology to industry, business and government including organizational theory, differential psychology, personnel selection and training, consumer behavior and engineering psychology.

**3750:620 METHODS AND THEORIES OF HUMAN DEVELOPMENT** 4 credits

Survey of current research methodology and theoretical approaches to human development with a life-span emphasis. Reviews of theoretical perspectives include S-R behavior theory, cognitive-organismic, information processing and psychoanalytic approaches.

**3750:630 CLINICAL PSYCHOLOGY** 4 credits

Clinical techniques and approaches to study, evaluation and treatment of abnormal behavior.

**3750:695 PRACTICUM IN PSYCHOLOGICAL ASSESSMENT AND INTERPRETATION** 1-4 credits

(May be repeated)  
Prerequisites: 14 credits of graduate psychology and permission. Supervised work experience in application of psychological techniques to human assessments and interpretations.

**3750:699 THESIS RESEARCH** 1-4 credits

(May be repeated)  
Prerequisite: departmental permission. Research analysis of data and preparation of thesis for master's degree.

**3750:700 SURVEY OF PROJECTIVE TECHNIQUES** 2 credits

Prerequisite: 420 or permission; recommended: 400, 410, 630. Introduction to rationale, assumptions and ethics of projective testing. Elementary administration, scoring and interpretation of Rorschach and survey of other important contemporary projective instruments.

**3750:701 ADVANCED PROJECTIVE TECHNIQUES** 2 credits

Prerequisite: 700. Application of projective testing to problems of diagnosis and evaluation. Practical experience in administration, scoring and interpretation. Integration of projective data with other assessment techniques in variety of settings.

**3750:702 PRINCIPLES AND PRACTICE OF INDIVIDUAL INTELLIGENCE TESTING** 4 credits

Prerequisite: permission of instructor. History, principles and methodology of intelligence testing, practice in administration, scoring and interpretation of individual intelligence tests for children and adults.

**3750:703 THEORIES OF PSYCHOTHERAPY** 3 credits

Prerequisite: 630 recommended. Contemporary theories of psychotherapy including Freudian, Jungian, Adlerian, Rogerian and other major systems. Consideration given to research evaluation and ancillary therapeutic techniques.

**3750:704 THEORIES OF PERSONALITY** 3 credits

Prerequisite: 630 recommended. Historical consideration of personality. Psychoanalysis and deviations from it. Contemporary theoretical formulations; personality dynamics, structure and organization.

**3750:705 VOCATIONAL BEHAVIOR** 4 credits

Prerequisite: permission. Theories and research on vocational behavior and vocational counseling. Topics include major theories of vocational behavior, empirical research on these theories, applied work in vocational counseling and applied research.

- 3750:706 COUNSELING PSYCHOLOGY** 4 credits  
Prerequisite: 630 and permission. Study of the background, theoretical foundations, techniques, research and application of counseling psychology as an applied science.
- 3750:725 DEVELOPMENTAL PSYCHOLOGY: PRENATAL, INFANCY AND EARLY EXPERIENCE** 4 credits  
Prerequisite: 620 or permission. Survey of psychological aspects of prenatal period, infancy and early experience. Emphasis on understanding how early experience structures adult behavior.
- 3750:726 EXPERIMENTAL CHILD PSYCHOLOGY** 4 credits  
Prerequisite: 620 or permission. Current research in child psychology covered with some emphasis on cognitive development. Topics include language, memory, intelligence, hyperactivity and selected aspects of social development.
- 3750:727 PSYCHOLOGY OF ADULTHOOD AND AGING** 4 credits  
Prerequisite: 620 or permission. Aspects of development, aging with emphasis on life-span methodology and research design including age-related changes in intelligence, personality, sensation, perception, learning, memory and socialization and intervention approaches.
- 3750:728 SOCIAL DEVELOPMENTAL PSYCHOLOGY** 4 credits  
Prerequisite: 620 or permission. Examination of selected theoretical and methodological issues in study of social psychology from developmental perspective. Topics include attitude formation, sex roles, moral development, altruism, aggression, attraction, attribution processes, nonverbal behavior and cultural effects.
- 3750:729 FUNCTIONAL ANALYSIS OF BEHAVIOR** 4 credits  
Prerequisite: 620 or permission. Behavioral approaches to treatment of maladaptive behavior. Emphasis on application of learning theory to specific topics such as development of self-control, enuresis and self-destructive behavior.
- 3750:730 THEORIES OF LEARNING** 4 credits  
Prerequisite: 600 or permission. Includes a comparative discussion of major traditional theories of learning, as well as analysis of contemporary issues and developments as reflected in review of selected areas of recent research.
- 3750:731 COGNITIVE DEVELOPMENT** 4 credits  
Prerequisite: 730 or permission. Theory and research concerning development of cognitive activities including concept formation, problem solving and thinking. Topics include major theories, research paradigms and methods of investigation and reviews of empirical findings.
- 3750:732 HUMAN MEMORY AND LANGUAGE** 4 credits  
Prerequisite: 600 or permission. Contemporary review of research and theory in language and memory. Process-oriented approach adopted with emphasis on developmental issues.
- 3750:733 DEVELOPMENTAL BIOPSYCHOLOGY** 4 credits  
Prerequisites: 600 and 620 recommended. Survey of behavioral changes over life span with emphasis on physical, biological and physiological correlates of such change. Topics include central nervous system, skeletal and circulatory changes; metabolic and nutritional processes and endocrine mechanisms.
- 3750:734 ENVIRONMENTAL PSYCHOLOGY** 4 credits  
Prerequisites: 600 and 620 recommended. Study of major questions concerned with environmental management and control and relationship of these areas to developmental psychology, motivation, learning and animal behavior.
- 3750:735 PERCEPTUAL DEVELOPMENT** 4 credits  
Prerequisite: 600 or permission. Analysis of developmental characteristics of perceptual and sensory processes. Topics include major theories of perception, methods of investigation used and review of empirical findings.
- 3750:740 INDUSTRIAL GERONTOLOGY** 4 credits  
Prerequisites: 610 and 620. Study of age-related issues in work involving adult and older adult workers. Topics include personnel selection, training, motivating and appraising older employees; health and safety; job design, vocational guidance; and retirement.
- 3750:750 ADVANCED PSYCHOLOGICAL TESTS AND MEASUREMENTS** 4 credits  
Prerequisite: 610. Analysis of test construction techniques and statistical analyses of tests with a review of published tests and measurements used in psychology. Study of psychometric theory and principles.
- 3750:751 ORGANIZATIONAL PSYCHOLOGY** 4 credits  
Prerequisite: 610. Study of relationships between organizational characteristics and human behavior.
- 3750:752 PERSONNEL SELECTION AND PERFORMANCE EVALUATION** 4 credits  
Prerequisite: 610. Review of strategies employed by industrial/organizational psychologists for personnel selection, placement and promotion. Survey of objective and subjective criteria used in performance appraisal including test validation and training effectiveness.
- 3750:753 TRAINING AND ORGANIZATIONAL DEVELOPMENT** 4 credits  
Prerequisite: 610. Review of industrial training methods and techniques in terms of learning theory, with consideration of techniques to evaluate these training and organizational development programs.
- 3750:754 RESEARCH METHODS IN PSYCHOLOGY** 2-4 credits  
Prerequisites: 610, 620. Scientific method and its specific application to psychology. Topics include data collection, validity, reliability, use of general linear model and its alternatives and power analysis.
- 3750:755 COMPUTER APPLICATIONS IN PSYCHOLOGICAL RESEARCH** 4 credits  
Prerequisite: 610. Practicum in application of computers to psychological research including data collection, analysis and interpretation. Also covers computer simulation of decision making including use of different models.
- 3750:756 ROLE OF ATTITUDES AND VALUES IN INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY** 4 credits  
Prerequisite: 610. Consideration of role of attitudes and values on cross-cultural issues of comparative management, selection, training, work motivation and consumer behavior.
- 3750:757 ORGANIZATIONAL MOTIVATION AND LEADERSHIP** 4 credits  
Prerequisite: 610. Identification, description, analysis and techniques for implementation of intrinsic and extrinsic incentives during work activity. Leadership process and its relation to motivation and group performance also analyzed.
- 3750:758 ENGINEERING PSYCHOLOGY AND JOB DESIGN** 4 credits  
Prerequisite: 610. Survey of field of engineering psychology. Covers such topics as job design, task analysis, man-machine systems analysis, working conditions and accidents.
- 3750:780 GRADUATE SEMINAR IN PSYCHOLOGY** 1-4 credits  
(May be repeated)  
Prerequisite: permission. Special topics in psychology.
- 3750:795 ADVANCED COUNSELING PRACTICUM** 4 credits  
(May be repeated for a total of eight credits)  
Prerequisites: 706, two semesters (eight credits) of 695 and permission. This course provides graduate student in counseling with actual client contacts under supervision.
- 3750:797 INDEPENDENT READING AND/OR RESEARCH** 1-3 credits  
(May be repeated)  
Prerequisite: permission. Individual readings and/or research on a topic under supervision of faculty member with whom specific arrangements have been made.
- 3750:899 DISSERTATION RESEARCH** 1-12 credits  
Prerequisite: open to a properly qualified student. Required minimum 12 credits; maximum subject to departmental approval. Supervised research on topic deemed suitable by the dissertation committee.
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- 3850: Sociology**
- 3850:100 INTRODUCTION TO SOCIOLOGY** 4 credits  
Basic terminology, concepts and approaches in sociology, including introduction to analysis of social groups and application of sociological concepts to the understanding of social systems. Required of majors. Lecture/Discussion.
- 3850:104 SOCIAL PROBLEMS** 3 credits  
Prerequisite: 100 or permission. Analysis of selected contemporary problems

in society; application of sociological concepts and research as tools for understanding sources of such problems. Lecture.

**3850:301 METHODS OF SOCIAL RESEARCH I** 3 credits  
Prerequisites: 100 and 3450:111, 112, 113 or permission. Combination lecture and a laboratory course requiring at least five laboratory hours per week. Research design, data gathering techniques and statistical procedures. Required of majors. Lecture/Laboratory.

**3850:302 METHODS OF SOCIAL RESEARCH II** 3 credits  
Prerequisite: 301. Continuation of 301. Required of majors. Lecture/Laboratory.

**3850:315 SOCIOLOGICAL SOCIAL PSYCHOLOGY** 3 credits  
Prerequisite: 100. The reciprocal influence of individuals and groups. How interpersonal processes produce and affect group structure. How groups affect the development and behavior of the social person.

**3850:320 SOCIAL INEQUALITY** 3 credits  
Prerequisite: 100 or permission. Study of the way social rankings occur in societies and how particular rankings affect individual behavior, group relations and social structures. Lecture.

**3850:321 POPULATION** 3 credits  
An introduction to world and national population trends, related demographic and social characteristics. Topics include fertility, mortality, morbidity, migration, abortion, birth control, population policy in relation to societal problems. Lecture.

**3850:323 SOCIAL CHANGE** 3 credits  
Prerequisite: 100 or permission. Introduction to theories and processes of social change, dimensions of change in contemporary, traditional and urban-industrial societies; projection and prediction of selected trends and forms. Lecture.

**3850:324 SOCIAL MOVEMENTS** 3 credits  
Prerequisite: 100 or permission. Social movements as distinguished from other forms of collective behavior; analysis of social situations which produce social movements; focus on development of social movements and their role in social change. Lecture.

**3850:330 CRIMINOLOGY** 3 credits  
Prerequisite: 100. Major focus on interrelationships and analysis of crimes, criminals, criminal justice systems and society. Lecture.

**3850:334 SOCIAL ORGANIZATION** 3 credits  
Prerequisite: 100 or permission. Nature of social organization, social control; organizational typologies; theories of organizational structure, functions; analysis of complex organizations in a social system. Lecture.

**3850:335 SOCIAL BEHAVIOR IN ORGANIZATIONS** 3 credits  
Prerequisite: 100 or permission. Analysis of the structure of such complex organizations as voluntary associations, business organizations and public bureaucracies, in relation to issues including organizational effectiveness, organizational design and change, job satisfaction and quality of work experience. Lecture.

**3850:336 SOCIOLOGY OF WORK AND OCCUPATIONS** 3 credits  
Prerequisite: 100 or permission. Survey of theory and empirical research in areas such as the structure of occupations and professions, occupational attainment, workforce characteristics, work values and orientations, the nature of work. Lecture.

**3850:340 THE FAMILY** 3 credits  
Prerequisite: 100 or permission. Analysis of family as a social system; historical, comparative and contemporary sociological approaches examined in relation to family structure and functions. Lecture.

**3850:341 POLITICAL SOCIOLOGY** 3 credits  
Prerequisite: 100 or permission. Survey of theory and empirical research dealing with relationship between political phenomena and the larger network of social processes in human societies. Lecture.

**3850:342 SOCIOLOGY OF HEALTH AND ILLNESS** 3 credits  
Prerequisite: 100 or permission. General survey of sociological perspectives, concepts and research on health, illness and health care delivery systems. Lecture.

**3850:343 THE SOCIOLOGY OF AGING** 3 credits  
Prerequisite: 100 or permission. Examination of process of aging from perspective of behavioral and sociological aspects. Lecture.

**3850:344 THE SOCIOLOGY OF SEX ROLES** 3 credits  
Prerequisite: 100 or permission. Examination of differentiation in roles, behaviors in women, men including theory, evidence on origins and determinants of differences, on stability and change in sex roles.

**3850:385 SPECIAL TOPICS IN SOCIOLOGY** 1-3 credits  
(May be repeated)  
Prerequisite: permission. Special topics of interest to sociology major and nonmajor not covered in regular course offerings.

**3850:397 SOCIOLOGICAL READINGS AND RESEARCH** 1-3 credits  
Prerequisite: permission. Individual study of problem area of specific interest to individual student under guidance of department member. Preparation of a research paper.

**3850:403/503 HISTORY OF SOCIOLOGICAL THOUGHT** 3 credits  
Prerequisite: 100 or permission. Examination of major scholars in the classical sociological tradition. Lecture.

**3850:404/504 CONTEMPORARY SOCIOLOGICAL THEORIES** 3 credits  
Prerequisite: 403 or permission. Examination and critical evaluation of works of modern sociological theorists, emphasizing current theoretical approaches to issues of social order and social change. Lecture.

**3850:410/510 SOCIAL STRUCTURES AND PERSONALITY** 3 credits  
Prerequisite: 100 or permission. Interrelationships between position in society, personality characteristics. Personality treated as both result and determinant of social structure and process. Lecture.

**3850:411/511 SOCIAL INTERACTION** 3 credits  
Prerequisite: 100 or permission. Intensive study of advanced theory and research in social psychology, particularly how social interaction and self-conception affect one another. Lecture.

**3850:412/512 SOCIALIZATION: CHILD TO ADULT** 3 credits  
Prerequisite: 100 or permission. Theoretical and empirical analyses of process by which infant, child, adolescent and adult learn social and cultural requirements necessary to function in new roles, changing roles and society in general.

**3850:421/521 RACIAL AND ETHNIC RELATIONS** 3 credits  
Prerequisite: 100 or permission. Analysis of structure and dynamics of race and ethnic relations from a variety of perspectives emphasizing both historical and contemporary issues. Lecture.

**3850:425/525 SOCIOLOGY OF URBAN LIFE** 3 credits  
Prerequisite: 100 or permission. Emergence and development of urban society. Examination of urban social structure from neighborhood to metropolis, the problems and prospects. Emphasis on various life-styles of urban subcultures. Lecture/Discussion.

**3850:430/530 JUVENILE DELINQUENCY** 3 credits  
Prerequisite: 100 or permission. Analysis of social structure and process from which delinquency develops. Emphasis on current and past research. Lecture/Discussion.

**3850:431/531 CORRECTIONS** 3 credits  
Prerequisite: 330 or 430. Theories, belief systems, correctional practices and effectiveness as related to offender groups. Lecture.

**3850:432/532 PROBATION AND PAROLE** 3 credits  
Prerequisite: 330 or 430 or permission. Analysis of how probationers and parolees are selected, supervised and then released into private life. Emphasis on current and past social research. Lecture/Discussion.

**3850:433/533 SOCIOLOGY OF DEVIANT BEHAVIOR** 3 credits  
Prerequisites: 100 and at least six additional credits of sociology courses or permission. Survey of theories of deviant behavior and relevant empirical research. Special emphasis given to interaction processes and social control. Lecture.

**3850:440/540 SOCIOLOGY OF RELIGION** 3 credits  
Prerequisite: 100 or permission. Study of forms of religion and their social functions with emphasis on religion in American society. Lecture.

**3850:441/541 SOCIOLOGY OF LAW** 3 credits  
Prerequisites: 100 and at least six additional credits of sociology courses or permission. Social origins and consequences of law and legal processes. Emphasis on uses of law, social change and aspects of legal professions. Lecture.

**3850:442/542 SOCIOLOGY OF EDUCATION** 3 credits

Prerequisite: 100 or permission. Analysis of education from an organizational and social psychological perspective. Topics include: desegregation; busing; neighborhood schools; impact of family, peers and teachers on learning; school organization. Lecture.

**3850:443/543 INDUSTRIAL SOCIOLOGY** 3 credits

Prerequisite: six credits of sociology or industrial management. Comparison of formal and informal structures in industrial organizations; analysis of work roles and status systems; communication processes; relation of work plant to community and society. Lecture.

**3850:444 ISSUES IN SOCIAL GERONTOLOGY** 3 credits

Prerequisite: 343 or permission. A look into the major issues and problems facing older persons. Special attention is given to the unmet needs of the elderly as well as an examination of current societal policy and programs to meet these needs.

**3850:494/594 WORKSHOP IN SOCIOLOGY** 1-3 credits

(May be repeated)

Group studies of special topics in sociology. May not be used to meet departmental undergraduate or graduate major requirements. May be used for elective credit only.

**3850:495 RESEARCH INTERNSHIP** 2-4 credits

(May be repeated for credit)

Prerequisites: 302, 321; 3.00 average in sociology and overall; or permission. Placement in selected community organization for supervised experience in all phases of a social research project. Student must receive permission from instructor during semester prior to enrollment.

**3850:496 SENIOR HONORS PROJECT** 1-3 credits

(May be repeated for a total of six credits)

Prerequisite: enrollment in Honors Program and senior standing, and major in sociology and sociology/anthropology. Thesis or original creative work appropriate to student's area of interest. Requirements and evaluation of project determined by departmental honors preceptor and student's honors project adviser.

**3850:619 ADVANCED CONCEPTUAL ANALYSIS** 3 credits

Critical examination of concepts held fundamental in sociological diagnoses. Evaluation of them from logical, semantical and operational perspectives. Assessment of their utility to development of sociological theories. (Same as KSU 82106) Seminar.

**3850:620 GENERAL SYSTEMS THEORY** 3 credits

Prerequisite: 618. Analysis of general systems theory as basis for a model of society and as heuristic framework for theory and research. (Same as KSU 82107) Seminar.

**3850:631 SOCIAL PSYCHOLOGY** 3 credits

Intensive examination of social psychological theory and research, both classic and contemporary. Provides student with background and working knowledge of social psychological aspects of social phenomena. (Same as KSU 72430) Seminar.

**3850:632 SMALL GROUP THEORY** 3 credits

Prerequisite: permission. Theoretical and applied aspects of small group dynamics. Topics include leadership emergence, effective group development and functioning, power, norms and individual behavior, among others. (Same as KSU 72432) Seminar.

**3850:634 PERSONALITY AND SOCIAL SYSTEMS** 3 credits

Examination of contemporary theory and research on linkages between personality and society. Some applications in studies of modernization, social class and occupations and sex roles. (Same as KSU 72433) Seminar.

**3850:635 SOCIOLOGY OF COMMUNICATION** 3 credits

Examination of communication media, content, audiences and impact within sociological context. (Same as KSU 72434) Seminar.

**3850:636 CRITIQUE OF MASS COMMUNICATIONS RESEARCH** 3 credits

Prerequisite: permission. Systematic evaluation of theoretical, methodological and empirical aspects of significant studies of mass communication. (Same as KSU 72876) Seminar.

**3850:639 SOCIOLOGY OF SEX ROLES** 3 credits

Prerequisite: permission. Advanced review of theories and research on origins, characteristics and changes in sex roles. Emphasis on recent empirical research on sex role patterns and processes in Western industrial societies. Seminar.

**3850:645 SOCIAL ORGANIZATION** 3 credits

General survey of major theories, concepts and problems pertaining to creation, alteration and dissolution of social organization at various levels of size and complexity. (Same as KSU 72546) Seminar.

**3850:646 SOCIAL STRATIFICATION** 3 credits

Prerequisite: permission. Seminar dealing with social class and castes with special reference to American social structure. (Same as KSU 72546) Seminar.

**3850:648 COMPLEX ORGANIZATIONS** 3 credits

Prerequisite: permission. Organizations as social systems; their effect on individuals. Problems of professionals in bureaucracies. (Same as KSU 72545) Seminar.

**3850:649 SOCIOLOGY OF WORK** 3 credits

Examination of work as behavioral phenomenon in human societies; contrasts with nonwork and leisure; significance of occupations, professions and work types in organization of work. (Same as KSU 72542) Seminar.

**3850:651 SEMINAR IN RACE RELATIONS** 3 credits

Prerequisite: permission. Analysis of the structure and dynamics of race and ethnic relations with attention given to both historical and contemporary issues. (Same as KSU 72870) Seminar.

**3850:852 CONFLICT** 3 credits

Prerequisite: permission. Current conceptions of human conflict. Discussion of vital concepts and principles for understanding conflict phenomena. Power, values, ideology, riots, revolution and war. (Same as KSU 72875) Seminar.

**3850:657 URBAN HEALTH CARE** 3 credits

Prerequisite: permission. Relationships between urban social structures and processes and organization and functioning of health care delivery systems in urbanized nations. Seminar.

**3850:858 FIELD RESEARCH IN URBAN LIFESTYLES** 3 credits

Prerequisite: permission. Examination of various lifestyles in contemporary urban society. Explores issues of theory and methodology in urban lifestyles research through evaluation of both classic and contemporary studies. Includes application of concepts and techniques in actual field research. Seminar.

**3850:863 DEVIANCE AND DISORGANIZATION** 3 credits

Prerequisite: permission. Examination of nature and types of deviance. Problems and issues in theory and research. (Same as KSU 72760) Seminar.

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## Graduate Courses

**3850:600 FUNDAMENTALS OF SOCIOLOGY** 3 credits

Accelerated introduction to sociology for the graduate student deficient in sociological background or from other disciplines who intends to take further graduate courses in sociology. Lecture.

**3850:603 SOCIOLOGICAL RESEARCH METHODS** 3 credits

Advanced research methods including advanced statistical techniques. (Same as KSU 72211) Lecture/Laboratory

**3850:604 SOCIAL RESEARCH DESIGN** 3 credits

Intensive analysis of problems in a research design, i.e. those encountered in thesis preparation. (Same as KSU 72212) Seminar or dissertation.

**3850:607 COMPUTER APPLICATIONS IN SOCIAL SCIENCES** 3 credits

Prerequisite: elementary statistics course or permission of instructor. Introduction to computers and their applications in social sciences. (Same as KSU 72214) Seminar.

**3850:613 SOCIOLOGY OF PROGRAM EVALUATION AND PROGRAM IMPROVEMENT** 3 credits

Prerequisite: permission. Program evaluation as it occurs in different social programs. Topics include history of evaluation, value assumptions, political dimensions, ethical issues, social change, use of experimentation and alternatives and the use for program development. (Same as KSU 82119) Seminar.

**3850:615 EPIDEMIOLOGIC METHODS IN HEALTH RESEARCH** 3 credits

Prerequisite: permission. Designed to introduce the student to methods of developing and understanding information concerning the distribution of illness and injury in society and evaluations of interventions to reduce the burden.

**3850:617 SOCIOLOGICAL THEORY** 3 credits

Examination of major theoretical frameworks, concepts that form the foundation of sociological thought. Emphasis on contemporary sociological theory, its debt to classic works. (Same as KSU 72106) Seminar.

- 3850:664 SOCIOLOGY OF CRIMINAL BEHAVIOR** 3 credits  
Analysis of relationship of crime and delinquency to social structure and social processes. Responses by criminal justice agencies. (Same as KSU 72763) Seminar.
- 3850:665 JUVENILE DELINQUENCY: THEORY AND RESEARCH** 3 credits  
Prerequisite: permission. Analysis of theories of delinquency, ecological, class structural, substructural, etc. Review of relevant research also presented. (Same as KSU 72762) Seminar.
- 3850:666 SOCIOLOGY OF CORRECTIONS** 3 credits  
Prerequisite: permission. Analysis of correctional institution as social system; its formal structure and informal dynamics. Analysis of present state of corrections research. (Same as KSU 72764) Seminar.
- 3850:677 FAMILY ANALYSIS** 3 credits  
Analysis and evaluation of sociological theory and research in the family. Concentration on techniques of theory construction and research design in sociological study of the family. (Same as KSU 72543) Seminar.
- 3850:678 SOCIAL GERONTOLOGY** 3 credits  
Prerequisite: permission. Impact of aging upon individuals and society. Reactions of individuals and society to aging. (Same as KSU 72877) Seminar.
- 3850:679 POLITICAL SOCIOLOGY** 3 credits  
Description, analysis and interpretation of political behavior through application of sociological concepts. (Same as KSU 72544) Seminar.
- 3850:680 SOCIOLOGY OF EDUCATION** 3 credits  
Selected problems in sociological analysis of educational systems. Emphasis on such social determinants of learning as class, race, family and peer subcultures. (Same as KSU 72547) Seminar.
- 3850:681 CROSS CULTURAL PERSPECTIVES IN AGING** 3 credits  
Prerequisite: permission. A comparison of aging in various cultures and societies around the world.
- 3850:686 POPULATION** 3 credits  
Analysis of basic population theory and methods. Trends and differentials in fertility, mortality, migration and selected social demographic variables also considered. (Same as KSU 72656) Seminar.
- 3850:687 SOCIAL CHANGE** 3 credits  
Advanced seminar in theories of social change. (Same as KSU 72320) Seminar.
- 3850:688 HUMAN ECOLOGY** 3 credits  
Selected problems in analysis of social behavior in relation to physical environment. Overview of theory, methods and applications of human ecology. (Same as KSU 72650) Seminar.
- 3850:689 URBAN ECOLOGY** 3 credits  
Seminar in theory and measurement of social ecology of urban areas. Emphasis on trends and differentials in distribution of social and organizational behavior in urban America. Seminar.
- 3850:697 READINGS IN CONTEMPORARY SOCIOLOGICAL LITERATURE** 1-3 credits  
Prerequisites: 7 credits of sociology and permission of adviser, instructor and head of department. Intensive reading and interpretation of written material in student's chosen field of interest. Regular conferences with instructor.
- 3850:698 DIRECTED RESEARCH** 1-3 credits  
(May be repeated)  
Prerequisite: Permission. Empirical research to be conducted by the student under graduate faculty supervision.
- 3850:699 THESIS** 2-6 credits  
(May be repeated for a total of six credits)  
Prerequisite: permission. Supervised thesis writing.
- 3850:700 COLLEGE TEACHING OF SOCIOLOGY** 2 credits  
Prerequisite: teaching assistant or permission. Training and experience in college teaching of sociology. Not approved as credit toward a degree. Seminar.
- 3850:705 THEORY AND MEASUREMENT OF SOCIAL ATTITUDES** 3 credits  
Prerequisites: 603 and 604, or permission. Seminar in theories of social attitudes and techniques for their measurement. (Same as KSU 72213) Seminar.
- 3850:706 MULTIVARIATE TECHNIQUES IN SOCIOLOGY** 3 credits  
Prerequisites: 603 and 604, or permission; a sociology graduate student only. Methodological problems using advanced multivariate techniques in analysis of sociological data. Topics include nonexperimental causal analysis such as recursive and nonrecursive path analysis. (Same as KSU 82120)
- 3850:707 MEASUREMENT IN SOCIOLOGY** 3 credits  
Prerequisite: 706 or permission. Theory and methods of measurement reliability and validity in social data. Topics include estimating reliability and validity, scale and item design, alternative measurement strategies, measurement models. Seminar.
- 3850:708 ADVANCED TECHNIQUES IN RESEARCH** 1-3 credits  
Prerequisite: permission. Selected topics in advanced, multivariate statistical analysis and in strategies of sociological research. Emphasis on current trends and innovations in research techniques. (Same as KSU 82219) Seminar.
- 3850:709 ANALYSIS OF SOCIOLOGICAL DATA** 3 credits  
Prerequisite: 706 or permission. Critical examination of data analytic techniques having particular relevance to research problems in sociology. (Same as KSU 82121) Seminar.
- 3850:710 SOCIAL SAMPLING** 3 credits  
Prerequisites: 603,4 or permission. Theory and methods of sampling in sociology. Topics include sample design, sampling efficiency, nonresponse, mortality in longitudinal designs, urban, organizational, and survey sampling, stratified and cluster sampling. Seminar.
- 3850:711 SURVEY RESEARCH METHODS** 3 credits  
Prerequisites: 603 and 604, or permission. In-depth study of design and administration of social surveys. (Same as KSU 82123) Seminar.
- 3850:712 EXPERIMENTAL AND QUASI-EXPERIMENTAL RESEARCH IN SOCIOLOGY** 3 credits  
Prerequisites: 603 and 604, or permission. Application of experimental and quasi-experimental methods in sociological research with special attention given to appropriate designs, statistical analyses and empirical literature. Seminar.
- 3850:714 QUALITATIVE METHODOLOGY** 3 credits  
Prerequisites: 603, 604 or permission. Theory building and theory testing through the application of such techniques as participant-observation, open-ended interviewing, content analysis, historiography (diaries, records from churches, schools, social agencies, and other contemporary sources) and qualitative statistics. (Same as KSU 82122). Seminar.
- 3850:718 THEORY CONSTRUCTION** 3 credits  
Study of rules and methods for constructing scientific theory. Emphasis on writings of scientists and philosophers of science and application of these ideas to development of sociological theories. (Same as KSU 72107) Seminar.
- 3850:721 SPECIAL TOPICS IN SOCIOLOGICAL THEORY** 1-3 credits  
Open course to cover content area not readily subsumable under other headings. Content of course to be determined by instructor. (Same as KSU 82109) Seminar.
- 3850:722 EARLY SOCIOLOGICAL THOUGHT** 3 credits  
Prerequisite: 617 or permission. Two to four major sociological thinkers prior to 1930 examined in depth. Specific persons considered will be chosen by instructor but will be announced well in advance of beginning of class. (Same as KSU 82110) Seminar.
- 3850:723 SCHOOLS OF SOCIOLOGICAL THOUGHT** 3 credits  
(May be repeated once for credit)  
Prerequisite: 617 or permission. Two distinct schools of sociological thought will be selected by the instructor for in-depth reading and comparative analysis. (Same as KSU 82105). Seminar.
- 3850:733 SMALL GROUP RESEARCH TECHNIQUES** 3 credits  
Prerequisite: 632. Application and implications of research in small groups. Focus on both laboratory and field studies. Seminar/Laboratory.
- 3850:737 CONTEMPORARY TRENDS IN SOCIAL PSYCHOLOGY** 1-3 credits  
Selected topics on significant contemporary issues, theories and methodological developments in social psychology. (Same as KSU 82439) Seminar.
- 3850:738 RESEARCH IN SOCIAL PSYCHOLOGY** 1 credit  
Prerequisite: 631. Design and development of a research project oriented to empirically examining selected concepts in social psychology or to testing selected propositions in social psychology. (Same as KSU 72431) Research.
- 3850:747 URBAN SOCIOLOGY** 3 credits  
Analysis of theories of urban process and review of major contributions to empirical analysis of urban life. (Same as KSU 72652) Seminar
- 3850:750 RESEARCH IN COMMUNITY AND AREA PROBLEMS** 3 credits  
Prerequisite: permission. Special investigation of community, area or regional problems; design and execution of small projects. (Same as KSU 72655) Seminar.

**3850:753 SPECIAL TOPICS IN SOCIAL ORGANIZATION** 1-3 credits

Open course to cover content area not readily subsumable under other headings. Content of course to be determined by instructor. (Same as KSU 82549) Seminar.

**3850:754 ISSUES IN URBAN ANALYSIS** 1-3 credits

Special topics seminar dealing with current and special topics in urban process and its analysis. (Same as KSU 82659) Seminar.

**3850:755 RESEARCH IN SOCIAL ORGANIZATION** 1 credit

Prerequisite: 645. Design and development of a research project oriented to empirically examining selected concepts in social organization or to testing selected propositions in social organization. (Same as KSU 72541) Research.

**3850:756 SEMINAR IN URBAN PROCESSES** 3 credits

Prerequisite: Ph.D. standing in sociology or permission. Critical examination of current research and theory related to urban life; special emphasis on social change in urban environment. (Same as KSU 82660) Seminar.

**3850:767 SPECIAL TOPICS IN DEVIANCE AND DISORGANIZATION** 1-3 credits

Designed to meet needs of student with interest in selected topics in deviance and disorganization. (Same as KSU 82769) Seminar.

**3850:768 RESEARCH IN DEVIANCE AND DISORGANIZATION** 1 credit

Prerequisite: 663. Provides for analysis of research problems in deviance and disorganization and for development of research project in above area. (Same as KSU 72761) Research.

**3850:790 CONTEMPORARY ISSUES IN SOCIAL CHANGE** 1-3 credits

Prerequisite: 687 or permission. Varying topics focusing on current research and theory in field of social change. Advanced notice in specific content will be provided by instructor. (Same as KSU 82329) Seminar.

**3850:791 RESEARCH IN SOCIAL CHANGE** 1 credit

Prerequisite: 687. Continuation of 687. Student prepares a major research paper based on theoretical material covered in 690 and presents it for discussion to the seminar. (Same as KSU 72321) Research.

**3850:792 RESEARCH IN HUMAN ECOLOGY** 1 credit

Prerequisite: 688. Intensive research on selected aspect of human ecology by individual student with previous training in this area. Topic to be arranged between student and instructor. (Same as KSU 72651) Research.

**3850:797,8 INDIVIDUAL INVESTIGATION** 1-3 credits each

Prerequisites: one semester of graduate work, permission of instructor, adviser and head of department. Readings and/or research supervised by member of graduate faculty. (Same as KSU 72896).

**3850:899 DISSERTATION** 1-10 credits

(Must be repeated for a minimum of 30 credits)  
Dissertation. (Same as KSU 82899).

**3870:357 MAGIC, MYTH AND RELIGION** 3 credits

Prerequisite: 150 or 3850:100. Evolutionary transformations of magic and ritual into science and technology. Examination of animism, totemism and other forms of preliterate religions. Mana, taboo and other religious and social symbols. Lecture.

**3870:397 ANTHROPOLOGICAL RESEARCH** 1-3 credits

Prerequisite: permission. Individual study of problem areas of specific interest to an individual student under guidance of a faculty member.

**3870:455/555 CULTURE AND PERSONALITY** 3 credits

Prerequisite: 150 or permission. Examination of functional and causal relationships between culture and individual cognition and behavior. Lecture.

**3870:461/561 LANGUAGE AND CULTURE** 3 credits

Prerequisite: 150 or permission. Examination of language structure and interaction of language, cognition and culture. Lecture.

**3870:463/563 TYPES OF KINSHIP AND SOCIAL ORGANIZATION** 3 credits

Prerequisite: 150 or permission. Comparative structural analysis of non-Western systems of kinship and social organization in terms of status, role, reciprocal expectation, nomenclature, nuclear and extended households and other kinship groupings. Lecture.

**3870:472/572 SPECIAL TOPICS: ANTHROPOLOGY** 3 credits

(May be repeated)

Prerequisites: 150 and permission. Designed to meet needs of student with interests in selected topics in anthropology. Offered irregularly when resources and opportunities permit. May include archaeological field school, laboratory research or advanced coursework not presently offered by department on regular basis.

**3870:494/594 WORKSHOP IN ANTHROPOLOGY** 1-3 credits

(May be repeated)

Group studies of special topics in anthropology. May not be used to meet departmental undergraduate or graduate major requirements. May be used for elective credit only

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## Graduate Courses

**3870:651 SEMINAR IN ANTHROPOLOGICAL THEORIES AND METHODS** 3 credits

Major theoretical viewpoints in cultural anthropology. Nature, scope of research problems. Survey of methods in field work. Seminar.

**3870:697 INDIVIDUAL INVESTIGATION** 1-3 credits

Prerequisite: permission of instructor and head of department. Intensive reading and/or research in student's chosen field of interest. Regular conferences with instructor. Preparation of a research paper.

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## 3870: Anthropology

**3870:150 CULTURAL ANTHROPOLOGY** 4 credits

Introduction to study of culture; cross-cultural view of human adaptation through technology, social organization and ideology. Lecture.

**3870:151 PHYSICAL ANTHROPOLOGY** 3 credits

Biological and cultural evolution of *Homo sapiens*; comparative study of Primates; human variation; Old World archaeology. Lecture.

**3870:257 INDIANS OF SOUTH AMERICA** 3 credits

Prerequisite: 150 or 3850:100 or permission. Survey of aboriginal peoples of South America, with emphasis on culture areas and continuity of culture patterns. Lecture.

**3870:258 INDIANS OF NORTH AMERICA** 3 credits

Prerequisite: 150 or permission. Ethnographic survey of native cultures of North America, with emphasis on variations in ecological adaptations, social organization and modern American Indians in anthropological perspective. Lecture.

**3870:356 NEW WORLD PREHISTORY** 3 credits

Prerequisite: 150 or 3850:100, or permission. Survey of prehistoric cultures of North, Middle and South America; beginning with peopling of Western Hemisphere and ending with European contact. Lecture.

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## 3940: Polymer Science

**3940:301 INTRODUCTION TO ELASTOMERS** 3 credits

Prerequisite: one year of organic chemistry or permission. History and preparation of natural rubber. Methods utilized for production of synthetic rubbers outlined. Laboratory experiments include compounding, processing, vulcanization and testing of rubber products.

**3940:302 INTRODUCTION TO PLASTICS** 3 credits

Prerequisite: 301 or permission. Plastics industry and its manufacturing methods discussed. Plastics compounding for both thermoplastic and thermosetting materials discussed with emphasis on processing and testing as illustrated by laboratory experiments.

**3940:303 SPECIAL PROJECTS IN POLYMER SCIENCE** 1-2 credits

Prerequisite: 302. Research projects of a limited scope for student desiring experience with a professor working in a specific field. The course would be designed to give the student the processes involved in outlining projects, setting up equipment, collecting and recording research data in a scientific manner

**3940:407 POLYMER SCIENCE** 4 credits

Prerequisite: 3150:314 or 3650:301 or permission. Principles of polymerization processes and relationships between molecular structures and physical behavior of polymers. Molecular weight distributions of macromolecules discussed and methods of determining molecular weights utilized.

**3940:411/511 MOLECULAR STRUCTURE AND PHYSICAL PROPERTIES OF POLYMERS I** 3 credits

Prerequisite: 301 or 302 or permission. Interdisciplinary course involving the principles of chemistry and physics are brought to bear on relationships between molecular structure and chemical composition of macromolecules and their physical properties.

**3940:412/512 MOLECULAR STRUCTURE AND PHYSICAL PROPERTIES OF POLYMERS II** 2 credits

Prerequisite: 411/511 or permission. Mechanical characterization of polymeric materials, the Boltzmann superposition principle and fracture. Experimental techniques involving stress-strain behavior, stress relaxation, creep, forced and free vibrations discussed.

**3940:413/513 MOLECULAR STRUCTURE AND PHYSICAL PROPERTIES OF POLYMERS III** 2 credits

Prerequisite: 412/512 or permission. Deformation of bounded rubber units, the correspondence principle, time-dependent failure, mechanical properties of polymeric foams and design considerations discussed.

**3940:414 SEMINAR IN POLYMER SCIENCE** 1-2 credits

New and unsolved problems of polymer science discussed from interdisciplinary view of material sciences. A student prepares one or more formal technical presentations related to chemical aspects of field.

**3940:415 MOLECULAR STRUCTURE AND PHYSICAL PROPERTIES OF POLYMERS LABORATORY** 2 credits

Prerequisite: 413 or permission. Laboratory experiments involving the topics covered in the prerequisite courses.

**3940:416 EXTRUSION AND MOLDING** 3 credits

Prerequisite: 302 or permission. Introduction of extrusion and molding processes for plastics. Theory of extrusion and molding processes and their application to the types of materials used, variations in equipment and the processing characteristics involved. Lecture and laboratory.

**3940:417 ADHESIVES AND COATING** 2 credits

Prerequisite: 302 or permission. This course involves the fundamentals of adhesives and coatings technology. The chemical and physical properties of adhesives and coatings will be discussed and will be related to molecular structure. Specific materials, applications and testing procedures will be discussed and practical experience gained by experimentation in the laboratory.

**3940:418 COMPOSITES, CELLULAR STRUCTURES AND TIRE TECHNOLOGY** 4 credits

Prerequisite: 302 or permission. The importance and science of composite structures will be taught and applied to the technology of foam and tire manufacture. Laboratory experiments will be used to illustrate the principles involved.

**3940:490/590 WORKSHOP IN POLYMER SCIENCE** 1-3 credits

(May be repeated with permission)  
Group studies on selected topics involving polymers. May not be used to meet undergraduate or graduate major requirements in polymer science. May be used for elective credit only.

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**Graduate Courses****3940:804 SPECIAL PROJECTS IN POLYMER SCIENCE** 1-3 credits

Prerequisite: permission. Research projects of limited nature assigned to student entering polymer science program. Intended to familiarize student with typical problems and techniques in this field.

**3940:810 INORGANIC POLYMERS** 2 credits

Prerequisite: 3150:472/572 or 601 or permission. Survey course designed to broaden outlook of typical graduate student beyond chemistry and physics of carbon chains.

**3940:613 POLYMER SCIENCE LABORATORY** 2 credits

Prerequisite or corequisite: 701, 3150:601 or permission of instructor. Laboratory experiments in synthesis, characterization, physical properties and processing and testing of polymers.

**3940:699 MASTER'S RESEARCH** 1-6 credits

Prerequisite: permission. For properly qualified candidate for master's degree.

Supervised original research in polymer science, under direction of faculty member, followed by submission of thesis.

**3940:701 POLYMER TECHNOLOGY I** 2 credits

Principles of compounding and testing, processing principles and types of operation, design principles.

**3940:702 POLYMER TECHNOLOGY II** 2 credits

Prerequisite: 701 or permission of instructor. Rubber industry, rubber compounding and processing, vulcanization methods, physical testing, plastics preparation and compounding, manufacturing processes. Lecture/Laboratory.

**3940:703 POLYMER TECHNOLOGY III** 2 credits

Prerequisite: 702 or permission of instructor. Flow properties, extrusion, calendaring and milling, molding, mixing, bond operations, engineering properties, rubber springs, viscoelastic analysis design consideration. Lecture/Laboratory.

**3940:708 MACROMOLECULAR CHAIN STRUCTURE** 3 credits

Prerequisites: either 3150:314, 3650:301, or 4200:305 or permission. Chain-like structure of large molecules, fundamental theories of chemical conformation and statistical mechanics developed to degree that their applications to polymeric problems can be discussed.

**3940:709 MACROMOLECULAR CHAIN STRUCTURE** 3 credits

Prerequisite: 708 or permission. Continuation of topics in 708 including experimental techniques used in elucidation of chain structure.

**3940:711 SPECIAL TOPICS: POLYMER SCIENCE** 2 credits

Prerequisite: permission. Study of topical subjects of current interest in polymer science, encompassing chemistry, physics or engineering aspects of macromolecular substances and including laboratory work where applicable.

**3940:712 SPECIAL TOPICS: POLYMER SCIENCE** 2 credits

Prerequisite: permission. Topics of current interest in polymer science, encompassing chemistry, physics or engineering aspects of macromolecular science.

**3940:713 CHAIN STRUCTURE LABORATORY** 2 credits

Prerequisite or corequisite: 708 or permission of instructor. Designed to apply principles discussed in 708 to laboratory determination of polymer structure.

**3940:899 DOCTORAL RESEARCH IN POLYMER SCIENCE** 2-16 credits

Open to properly qualified student accepted as candidate for degree of Doctor of Philosophy in polymer science, depending on availability of staff and facilities.

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**3980: Urban Studies**

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**Graduate Courses****3980:590 WORKSHOP** 1-3 credits

(May be repeated)  
Group studies of special topics in urban studies. May not be used to meet graduate major requirements in urban studies. May be used for elective credit only.

**3980:600 BASIC ANALYTICAL RESEARCH** 3 credits

Prerequisite: permission. Examines basic framework of social science research methodologies and basic complementary statistical techniques, including probability and sampling most useful in urban studies.

**3980:801 ADVANCED RESEARCH AND STATISTICAL METHODS** 3 credits

Prerequisite: 600. Extends study of social science to include more advanced research designs and multivariate statistical techniques.

**3980:602 AMERICAN URBAN DEVELOPMENT** 3 credits

Examination of major literature on processes of urbanization in United States and selected facets of urban institutional development.

**3980:610 URBAN POLITICS** 3 credits

Prerequisite: permission. Empirical analysis of urban political structure and major political problems.

**3980:811 URBAN ADMINISTRATION** 3 credits

Prerequisite: permission. Organization and management characteristics of various types of governmental units examined within framework of organization and management theory.

- 3980:612 NATIONAL URBAN POLICY** 4 credits  
Prerequisite: permission. Major federal policies that relate to urban problems examined in regard to policymaking processes, implementation and impact.
- 3980:613 INTERGOVERNMENTAL MANAGEMENT** 3 credits  
Prerequisite: permission. Examines the field of intergovernmental relations as it applies to urban administration and management.
- 3980:614 ETHICS AND PUBLIC SERVICE** 3 credits  
Prerequisite: permission. Examination of the ethical problems and implications of decisions and policies made by those whose actions impact on the broad public. Case studies of decision making in both the public (government) and private (business and the professions) spheres are studied in relation to classical literature in ethical theory.
- 3980:620 SOCIAL SERVICES PLANNING** 3 credits  
Prerequisite: permission. In-depth analysis of total social services requirements and various ways in which social services planning function is carried out in urban communities.
- 3980:621 URBAN SOCIETY AND SERVICE SYSTEMS** 4 credits  
Prerequisite: permission. Analysis of social bases of urban society; hierarchies, social problems, relationships to planning, public services.
- 3980:630 PLANNING CONCEPTS AND METHODS** 3 credits  
Prerequisite: permission. Examination of types, forms, approaches and nature of planning at various levels and critical appraisal of development and redevelopment process.
- 3980:631 FACILITIES PLANNING** 3 credits  
Study of need, process and limitation of urban facilities planning.
- 3980:632 LAND USE CONTROL** 3 credits  
Prerequisite: permission. Acquaint student with past and present approaches to land use control in the United States and examine the political, economic, social and legal forces which have shaped existing land use legislation.
- 3980:633 URBAN PLANNING THEORY AND INNOVATION** 3 credits  
Prerequisite: permission. Acquaint the student with the theories, premises and assumptions upon which present urban planning and innovation are based so as to provide the student with a greater understanding of the intellectual bases of the field.
- 3980:634 URBAN DESIGN PLANNING** 3 credits  
Prerequisites: 630 and permission. The purpose of the course is to acquaint student with the history, theory and general practice of urban design activity in a variety of settings including the neighborhood, the community and the region.
- 3980:635 FIELD METHODS IN URBAN AND REGIONAL PLANNING** 3 credits  
Prerequisites: 630, 631, 632, 634, 3350:542 or 3350:544 or equivalent. Provides student with a detailed practical experience in conceptualizing and implementing a solution to an issue or problem in urban or regional planning using the planning process model.
- 3980:636 PARKS AND RECREATION** 3 credits  
Prerequisite: permission. Deals with theory, practice, evaluation of recreational administration, planning parks planning.
- 3980:640 FISCAL ANALYSIS** 3 credits  
Prerequisite: permission. Study of revenue and expenditure patterns of the city's government.
- 3980:641 URBAN ECONOMIC GROWTH AND DEVELOPMENT** 4 credits  
Prerequisite: permission. Examination of urban economic unit and its susceptibility to social, economic, political and physical change.
- 3980:642 MUNICIPAL BUDGETING** 3 credits  
Prerequisite: permission. Theories, premises, assumptions, methodologies upon which municipal budgeting are based.
- 3980:643 URBAN POLICY ANALYSIS** 3 credits  
Prerequisite: permission. Develop and apply conceptual, technical capabilities to the emphasis of public policy in American cities. Identification of major policy issues, measurement techniques and analytical models of public policy, analysis of policy formulation and choice-making process, analysis of policy impact, the problems and processes of public implementation.
- 3980:650 COMPARATIVE URBAN SYSTEMS** 3 credits  
Prerequisite: permission. Conceptual schemes and methodology for comparative urban analysis among a number of major cities selected from each continent.
- 3980:670 PLANNING RESEARCH** 3 credits  
Prerequisites: statistical methods and completion of eight credits of core curriculum or permission. Emphasizes advanced work in problems of definition, conceptual logic or urban research, sampling, questionnaire design, planning report development and writing and advanced quantitative procedure.
- 3980:671 PROGRAM EVALUATION IN URBAN STUDIES** 3 credits  
Prerequisite: 600 or equivalent. Major considerations appropriate for conducting evaluations of a wide variety of human service programs and policies affecting urban and metropolitan areas.
- 3980:660,1 SELECTED TOPICS IN URBAN STUDIES** 1-3 credits each  
Prerequisite: permission. Selected topics in specific areas of urban planning, in various developmental processes of cities, or in various urban policy and administrative issues. (A maximum of 27 credits may be earned in 680 and 681.)
- 3980:690 URBAN STUDIES SEMINAR** 3 credits  
Prerequisite: 16 credits of urban studies core plus quantitative methods. Urban research methods applied to specific urban research area. Comprehensive paper required.
- 3980:695 INTERNSHIP** 1-3 credits  
(May be repeated for a total of three credits)  
Prerequisite: permission. Faculty-supervised work experience in which student participates in policy planning, administrative operations in selected urban, state and federal governments and urban agencies.
- 3980:697 INDIVIDUAL STUDIES** 1-3 credits  
(May be repeated for a total of four credits)  
Directed individual readings or research on specific area or topic.
- 3980:700 ADVANCED RESEARCH METHODS** 3 credits  
Prerequisite: demonstrated use of statistical techniques at master's level or permission. Statistical methodologies used in doctoral and postdoctoral research. Examples drawn from both social and natural scientific methodologies with emphasis on urban problems. Independent and original research leading to better understanding of our complex urban environment. Attempts to develop new theories of urbanization encouraged.
- 3980:701 URBAN THOUGHT** 3 credits  
Prerequisite: permission. Critical examination of major ideas about the city from Aristotle to Twentieth Century and of impact of urbanization on society and public policy.
- 3980:702 BUREAUCRACY AND THE PUBLIC INTEREST** 3 credits  
Prerequisite: permission. Seminar designed to analyze public bureaucracy and public interest as central phenomena of contemporary public administration in urban America.
- 3980:703 PROGRAM EVALUATION** 3 credits  
Prerequisite: permission. Provides concepts for student in evaluation of programs, both external and internal, to work settings.
- 3980:704 IMPLEMENTATION OF PUBLIC POLICY** 3 credits  
Analysis of administrative process within public organizations, federal, state and local, in United States; emphasis on urban community.
- 3980:705 PLANNING STRATEGIES AND EVALUATION OF PLANS** 3 credits  
Prerequisite: permission. Analysis of urban planning policy issues and strategies for implementation in public policy formulation. Emphasis on use of planning process as integrative mechanism.
- 3980:708 URBAN TUTORIAL** 3 credits  
Prerequisite: permission. Intensive study of a particular approved field or topical area of urban studies with a tutor. Student enrolls in a total of 12 hours of tutorial credit and more than 12 only if tutorial field is changed, as approved by Committee on Doctoral Studies. In no case will a student enroll in more than three credits per term.
- 3980:899 DISSERTATION RESEARCH** 3-15 credits  
(May be repeated)  
Open to properly qualified student accepted as candidate for Doctor of Philosophy degree. Student must register for at least three credits each semester until dissertation is accepted. Minimum of 15 credits required.

# College of Engineering

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## 4100: General Engineering

**4100:180 ENGINEERING DESIGN** 1 credit  
Introduction of freshman engineering student in problem-solving techniques in engineering design. Required of all entering engineering freshmen in Evening College.

**4100:201 ENERGY AND ENVIRONMENT** 2 credits  
Interactions between energy production, consumption and environment. Case studies. Not for engineering, chemistry or physics majors.

**4100:202 ATMOSPHERIC POLLUTION** 2 credits  
Causes of atmospheric pollution and technical economic and social problems. Technical solutions. Case studies. Not for engineering, chemistry or physics majors.

**4100:300 COOPERATIVE EDUCATION WORK PERIOD** 0 credit  
Elective for Cooperative Education Program student who has completed sophomore year. Practice in industry and comprehensive written reports of this experience.

**4100:301 COOPERATIVE EDUCATION WORK PERIOD** 0 credit  
Required for Cooperative Education Program student only. Practice in industry and comprehensive written reports of this experience. Offered spring semester of third year.

**4100:302 COOPERATIVE EDUCATION WORK PERIOD** 0 credit  
Required for Cooperative Education Program student only. Practice in industry and comprehensive written reports of this experience. Offered fall semester of fourth year.

**4100:403 COOPERATIVE EDUCATION WORK PERIOD** 0 credit  
Required for Cooperative Education Program student only. Practice in industry and comprehensive written reports of this experience. Offered summer after fourth year.

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## 4200: Chemical Engineering

**4200:120 ENGINEERING FUNDAMENTALS** 1 credit  
Prerequisite: 3150:132. Introduction to problem solving and format, computational exercise, dimensions, units physical measurements.

**4200:200 MATERIAL AND ENERGY BALANCES** 4 credits  
Prerequisites: 3450:221 and 3150:134. Introduction to material, energy balance calculations applied to solution of chemical problems.

**4200:305 MATERIALS SCIENCE** 2 credits  
Prerequisites: 3150:133 and 3650:292 and junior standing. Structure, processing and properties of metals, ceramics and polymers. Special topics, such as composites, corrosion and wear.

**4200:321 FLUID, THERMAL TRANSFER THEORY** 3 credits  
Prerequisite: 200. Constitutive equations for momentum and energy transfer. Development of microscopic and macroscopic momentum and energy equations. Analogy and dimensions correlations. Problems and applications in unit operations of chemical engineering.

**4200:322 THERMAL, MASS TRANSFER THEORY** 3 credits  
Prerequisite: 321. Constitutive equations for mass transfer. Development of microscopic and macroscopic momentum, energy and mass transfer equations for binary systems. Problems and applications in unit operations of chemical engineering.

**4200:325 EQUILIBRIUM THERMODYNAMICS** 4 credits  
Prerequisite: 200. Second law of thermodynamics, entropy, applications, comprehensive treatment of pure and mixed fluids. Phase and chemical equilibria, flow processes, power production and refrigeration processes covered.

**4200:351 FLUID AND THERMAL OPERATIONS** 3 credits  
Prerequisite: 321. Applications of fluid mechanics including piping, pumping, compression, metering, agitation and separations. Applications of heat

transfer by conduction, convection and radiation to design of process equipment.

**4200:352 TRANSPORT LABORATORY** 2 credits  
Prerequisite: 322. Experiments in fluid, heat and mass transfer. Data collection, analysis and reporting in various formats. Relationships to theory emphasized.

**4200:353 MASS TRANSFER OPERATIONS** 3 credits  
Prerequisites: 322, 325. Theory and design of staged operations including distillation, extraction, absorption. Theory and design of continuous mass transfer devices.

**4200:354 OPERATIONS LABORATORY** 1 credit  
Prerequisite: 353. Comprehensive experiments and analysis in combined heat and mass transfer, thermodynamics and reaction kinetics. Comprehensive reports.

**4200:408 POLYMER ENGINEERING** 3 credits  
Prerequisite: permission or senior standing. Commercial polymerization, materials selection and property modification, polymer processing, applied rheology and classification of polymer industry.

**4200:430 CHEMICAL REACTION ENGINEERING** 3 credits  
Prerequisite: 325. Nonequilibrium processes including chemical reaction mechanisms, rate equations and ideal reactor design applied to homogeneous and heterogeneous systems.

**4200:435 PROCESS ANALYSIS AND CONTROL** 3 credits  
Prerequisite: 353 or 430. Response of simple and chemical processes and design of appropriate control systems.

**4200:441 PROCESS ECONOMICS AND DESIGN** 4 credits  
Prerequisite: 353. Economic evaluation of chemical plants including justification, profitability, capital investment and operating costs. Design of chemical process equipment.

**4200:442 PLANT DESIGN** 4 credits  
Prerequisite: 441. Integration of process and equipment design for a total plant including justification, site selection and plant layout. Culminates with a case study or A.I.Ch.E. Student Contest Problem.

**4200:461/561 SOLIDS PROCESSING** 3 credits  
Prerequisites: 321 and 353 or permission. Comprehensive problems in sedimentation, fluidization, drying and other operations involving mechanics of particulate solids in liquid and gas continua.

**4200:463/563 POLLUTION CONTROL** 3 credits  
Prerequisite: 353 or permission. Air and water pollution sources and problems. Engineering aspects and methodology.

**4200:466/566 DIGITIZED DATA AND SIMULATION** 3 credits  
Prerequisite: permission. Data acquisition and analysis by digital devices, digital control applications and design.

**4200:496 TOPICS IN CHEMICAL ENGINEERING** 1-3 credits  
(May be repeated for a total of six credits)  
Prerequisite: permission. Topics selected from new and developing areas of chemical engineering, such as electrochemical engineering, coal and synthetic fuels processing, bioengineering, simultaneous heat and mass transfer phenomena and new separation techniques.

**4200:497 HONORS PROJECT** 1-3 credits  
(May be repeated for a total of six credits)  
Prerequisite: special permission. Individual creative project pertinent to chemical engineering culminating in undergraduate thesis, supervised by faculty member of the department.

**4200:499 RESEARCH PROJECT** 1-3 credits  
(May be repeated for a total of six credits)  
Prerequisite: permission. Individual research project pertinent to chemical engineering under faculty supervision. Report required.

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## Graduate Courses

**4200:600 TRANSPORT PHENOMENA** 3 credits  
Prerequisite: 322 or permission. Systematic presentation of conservation of momentum, energy and mass at microscopic and macroscopic levels in conjunction with illustrative examples and analogies.

**4200:605 CHEMICAL REACTION ENGINEERING** 3 credits

Prerequisite: 430 or permission. Kinetics of homogeneous and heterogeneous systems. Reactor design for ideal and nonideal flow systems.

**4200:610 CLASSICAL THERMODYNAMICS** 3 credits

Prerequisite: 325. Discussion of laws of thermodynamics and their application. Prediction and correlation of thermodynamic data. Phase and reaction equilibria.

**4200:630 CHEMICAL PROCESS DYNAMICS** 3 credits

Prerequisite: 600. Development and solutions of mathematical models for chemical processes including models based on transport phenomena principles, population balance methods and systems analysis.

**4200:635 ADVANCED POLYMER ENGINEERING** 3 credits

Prerequisite: 322 or 600 or permission. Reactors for polymerization, polymer characterization, polymer processing, polymer rheology.

**4200:640 ADVANCED PLANT DESIGN** 3 credits

Prerequisite: permission. Topical treatment of process and equipment design, scale-up, optimization, process syntheses, process economics. Case problems.

**4200:696 TOPICS IN CHEMICAL ENGINEERING** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisite: permission. Topics selected from new and developing areas of chemical engineering, such as electrochemical engineering, coal and synthetic fuels processing, bioengineering, simultaneous heat and mass transfer phenomena and new separation techniques.

**4200:698 SPECIAL PROBLEMS** 1-4 credits

(May be repeated for a total of four credits)  
Prerequisite: permission of department head. For the qualified candidate for M.S.Ch.E. degree. Designed to expand an area of interest by consultation with a faculty member and independent study with a faculty beyond available coursework. Credit dependent upon nature and extent of project as determined by faculty member and department head.

**4200:699 MASTER'S THESIS** 1-6 credits

(May be repeated to a maximum of six credits)  
For properly qualified candidate for master's degree. Supervised original research in specific area of chemical engineering selected on basis of availability of staff and facilities.

**4200:701 ADVANCED TRANSPORT PHENOMENA** 2 credits

Prerequisite: 600. Advanced theory of transport phenomena such as applied tensor analysis, constitutive equations, multicomponent reactive transport and multiphase transport. Illustrative practical examples presented.

**4200:706 ADVANCED REACTION ENGINEERING** 2 credits

Prerequisite: 605. Kinetics of heterogeneous systems, fluidized reactors, immobilized enzymes, etc., with additional topics drawn from current literature.

**4200:711 NONEQUILIBRIUM THERMODYNAMICS** 2 credits

Prerequisite: 610. Thermodynamic-phenomenological theory of irreversible processes and its applications.

**4200:715 MOMENTUM TRANSPORT** 3 credits

Prerequisite: 600. Discussion of potential flow, boundary layer formation and turbulent flow phenomena for Newtonian fluids.

**4200:716 NON-NEWTONIAN FLOW** 2 credits

Prerequisite: 600. Rheological behavior of non-Newtonian fluids. Development of fluid constitutive equations. Viscometric methods.

**4200:720 ENERGY TRANSPORT** 3 credits

Prerequisite: 600. Conduction, natural and forced convection, and radiation heat transfer starting with equations of continuity, motion and energy.

**4200:721 TOPICS IN ENERGY TRANSPORT** 2 credits

Prerequisite: 720. Advanced analytical and graphical methods for solving complex heat transfer problems found in chemical engineering.

**4200:725 MASS TRANSFER** 3 credits

Prerequisite: 600. Theory of mass transfer with applications to absorption, adsorption, distillation and heterogeneous catalysis.

**4200:731 PROCESS CONTROL** 3 credits

Prerequisite: 630. Introduction to modern control theory of chemical processes including cascade control, multivariate control and data sampled control.

**4200:736 POLYMER ENGINEERING TOPICS** 2 credits

Prerequisite: permission. Selected topics of current interest in polymer engineering, such as modeling of reactors or processes, multiphase materials, multiphase flow, artificial fiber engineering, etc.

**4200:750 POLLUTION CONTROL ENGINEERING** 2 credits

Prerequisite: 463 or permission. Advanced waste treatment methods as applied to chemical process industries.

**4200:794 ADVANCED SEMINAR** 1-4 credits

(May be repeated for a total of six credits)  
Prerequisite: permission of department head. Advanced projects, readings and other studies in various areas of chemical engineering. Intended for student seeking Ph.D. in Engineering degree.

**4200:698 PRELIMINARY RESEARCH** 1-15 credits

(May be repeated for a total of 15 credits)  
Prerequisite: approval of Advisory Committee. Preliminary investigation of Ph.D. dissertation subject.

**4200:899 DOCTORAL DISSERTATION** 1-15 credits

(May be taken more than once)  
Prerequisite: completion of preliminary examination and approval of Advisory Committee. Original research by Ph.D. candidate.

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## 4300: Civil Engineering

**4300:130 INTRODUCTION TO ENGINEERING** 1 credit

Introduction to civil engineering for freshman engineering student. Tasks and opportunities of civil engineer. Introduction to engineering problem-solving techniques. Required of all civil engineering freshmen.

**4300:201 STATICS** 3 credits

Corequisites: 3450:222 and 3650:291. Forces, resultants, couples; equilibrium of force systems; distributed forces; centers of gravity, analysis of simple structures; moments of inertia; kinematics.

**4300:202 INTRODUCTION TO MECHANICS OF SOLIDS** 3 credits

Prerequisite: 201. Axial force, bending moment diagrams, axial stress and deformation; stress-strain diagrams; torsion; flexural stress; flexural shearing stress; compound stresses.

**4300:230 SURVEYING** 4 credits

Principles of route, construction and land surveying. Use of tape, level, transit and electronic surveying equipment. Computation of land areas and earth-worth quantities.

**4300:306 THEORY OF STRUCTURES** 3 credits

Prerequisite: 202. Stability and determinacy; statically determinate trusses and frames; approximate frame analysis influence lines; moving loads; virtual work analysis; moment area theorem; theorem of three moments; moment distribution for continuous beams and frames.

**4300:313 SOIL MECHANICS** 3 credits

Prerequisite: 202 or permission. Physical properties of soils. Soil water and groundwater flow. Stresses, displacements, volume changes, consolidation within a soil mass. Soil strength. Compaction.

**4300:314 GEOTECHNICAL ENGINEERING** 3 credits

Prerequisite: 313. Limiting equilibrium within a soil mass. Design of retaining walls, bulkheads, shallow, deep foundation systems. Slope stability. Laboratory study of soil properties, behavior.

**4300:323 WATER SUPPLY AND WASTEWATER DISPOSAL** 3 credits

Prerequisites: 3150:133, 4600:310. Quality of water supplies. Study of water treatment processes and methods. Characteristics of wastewater, wastewater treatment, wastewater filtration, sludge treatment and disposal, construction, finance, maintenance and operation of treatment facilities.

**4300:341 HYDRAULIC ENGINEERING** 2 credits

Prerequisite: 4600:310. Flow in closed conduits and open channels. Design of pipe networks, pumping stations and simple weirs.

**4300:361 TRANSPORTATION ENGINEERING** 3 credits

Prerequisite: junior standing. Introductory survey of transportation topics including transportation planning requirements and techniques, introduction to design of highways, airports and railroads, and introduction to traffic engineering.

**4300:380 ENGINEERING MATERIALS LABORATORY** 1 credit

Prerequisite: 202. Study of laboratory instrumentation and standard techniques in testing of engineering materials. Data analysis.

**4300:401 STEEL DESIGN** 3 credits

Prerequisite: 306. Tension, compression members; openweb joists; beams; bearing plates; beam-columns; bolted, welded connections.

**4300:403 REINFORCED CONCRETE DESIGN** 3 credits

Prerequisite: 306. Ultimate strength analysis and design; compression steel; diagonal tension; stirrups; development length; one-way slab; T-beams; two-way slabs; columns; isolated and combined footings.

**4300:404 ADVANCED STRUCTURAL DESIGN** 3 credits

Prerequisites: 401 and 403. Composite design; plate girders; plastic design; cantilever retaining walls; torsion in R/C members; deflection of R/C members; continuous girder bridge design.

**4300:407 ADVANCED MECHANICS OF SOLIDS** 3 credits

Prerequisite: 202. Inelastic torsion analysis twisting of noncircular bar and hollow members; bending of unsymmetrical sections; inelastic beam bending; beams of two materials; curved beams; shear center; strain transformation; yield criteria, skew bending; Castigliano's theorem; conjugate beam.

**4300:414 DESIGN OF EARTH STRUCTURES** 3 credits

Prerequisite: 314 or permission. Criteria for design of earth structures: dams, highway fills, cofferdams, etc. Embankment construction techniques, quality control. Analysis of embankment, foundation stability. Instrumentation for monitoring soil movement, stability. Stabilization of foundation soils. Seepage analysis, control methods.

**4300:418/518 SOIL AND ROCK EXPLORATION** 3 credits

Prerequisite: 314 or permission. Site exploration criteria and planning. Conventional boring, sampling and in situ testing methods. Theory and application of geophysics and geophysical methods including seismic, electrical resistivity, gravity, magnetic and radioactive measurements. Air photo interpretation.

**4300:423/523 WATER POLLUTION PRINCIPLES** 4 credits

Prerequisite: 323. Principles of aquatic chemistry and microbiology, chemical reaction engineering fundamentals presented with emphasis on applying them to water, wastewater treatment.

**4300:424 WATER-WASTEWATER LABORATORY** 1 credit

Corequisite: 323 or permission. Analysis of water and wastewater.

**4300:426/526 ENVIRONMENTAL ENGINEERING DESIGN** 2 credits

Analysis of various environmental control systems for water and wastewater treatment. Economic analysis with use of computer programming for evaluation of various regional, metropolitan and urban areas to determine most economical system for water supply and pollution control.

**4300:441 HYDRAULIC DESIGN** 3 credits

Prerequisite: 341. Collection and critical evaluation of hydraulic data related to actual design problem selected by instructor. Development and analysis of design alternatives. Preparation of reports.

**4300:443/543 APPLIED HYDRAULICS** 3 credits

Prerequisite: 341. Review of design principles: urban hydraulics, steam channel mechanics, sedimentation, coastal engineering.

**4300:445 HYDROLOGY** 3 credits

Prerequisite: 341. Surface water hydrology, water cycle, precipitation, evaporation, stream flow. Principles of hydrologic systems and their analysis. Hydrologic simulation, reservoir planning and water supply studies. Analysis of rainfall and floods.

**4300:448 HYDRAULICS LABORATORY** 1 credit

Prerequisite: 341. Introduction to laboratory and field devices for hydraulic measurements. Reduction and presentation of hydraulic data. Individual assignments of model studies of hydraulic structures.

**4300:450 URBAN PLANNING** 2 credits

Historical developments in urban planning; urban planning techniques and patterns; comprehensive master planning studies; planning regulations; design problems; class projects; class project presentation.

**4300:451,551 MATRIX ANALYSIS OF STRUCTURES** 3 credits

Prerequisite: 306 or equivalent. Review of matrix algebra, structural analysis concepts. Stiffness formulation of bars, beams, frames. Solution of linear algebraic equations. Computer program implementation, application.

**4300:452 STRUCTURAL VIBRATIONS AND EARTHQUAKES** 3 credits

Prerequisite: 306. Vibration and dynamic analysis of structural systems with one, two, or more degrees of freedom; beams, frames, buildings and bridges. Numerical methods of analysis. Elastic-plastic systems. Earthquake analysis of design. Earthquake codes.

**4300:463 TRANSPORTATION PLANNING** 2 credits

Prerequisite: 361. Theory and techniques for development, analysis and evaluation of transportation system plans. Emphasis on understanding and using tools and professional methods available to solve transportation planning problems, especially in urban areas.

**4300:464 HIGHWAY DESIGN** 3 credits

Prerequisite: 361. Step-by-step study of modern highway design techniques and construction practice.

**4300:471 CONSTRUCTION ADMINISTRATION** 3 credits

Prerequisite: senior standing or permission. Organization for construction, construction contracts, estimating, bidding, bonds and insurance. Construction financial management and supervision of construction, scheduling using critical path method.

**4300:472 CONSTRUCTION ENGINEERING** 3 credits

Prerequisite: senior standing or permission. Construction equipment selection and management. Techniques of various engineering construction operations including blasting, tunnelling, concrete framework and dewatering.

**4300:473 CONSTRUCTION MATERIALS** 2 credits

Prerequisites: 380, 4200:305. Composition, structure and mechanical behavior of structural materials such as concrete, wood, masonry, plastics and composite materials. Discussion of applications and principles of evaluating material properties.

**4300:474/574 UNDERGROUND CONSTRUCTION** 2 credits

Prerequisite: 314. Description of practices and techniques of underground construction. Selection of proper method for individual job. Design of underground openings, support systems and linings.

**4300:461 CIVIL ENGINEERING SYSTEMS** 2 credits

Prerequisite: senior standing. Systems approach to civil engineering problems. Mathematical programming; project planning, scheduling and cost analysis; basic operations research methods; decision analysis. Management of engineering design of complex civil engineering projects.

**4300:482 SPECIAL PROJECTS** 1-2 credits

Prerequisites: senior standing and permission. Directed individual or group research or study in student's field of interest. Topic subject to approval by adviser.

**4300:497 HONORS PROJECT** 1-3 credits

(May be repeated for a total of six credits)

Prerequisite: senior standing in Honors Program. Individual creative project or lecture relevant to civil engineering, supervised by faculty member of the department.

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## Graduate Courses

**4300:601 ADVANCED MECHANICS OF MATERIALS** 3 credits

Prerequisite: 202. Three-dimensional stress states. Strain transformations. Theories of failure. Shear center. Unsymmetrical bending. Curved beams. Beams on elastic foundations. Torsion of noncircular sections. Castigliano's theorems. Analytical and numerical solutions to column buckling and beam-column problems.

**4300:604 DYNAMICS OF STRUCTURES** 3 credits

Prerequisite: 306. Approximate, rigorous dynamic analysis of one, two, multiple and infinite degrees of freedom structural systems. Elastoplastic, plastic analysis. Equivalent systems, dynamic hinge concept. Modal analysis. Transfer matrices. Fourier, Laplace transforms.

**4300:605 STRUCTURAL STABILITY** 3 credits

Prerequisite: 601. Buckling of bars, beam-columns and frames. Lateral buckling of beams. Double and tangent modulus theories. Energy methods. Compressed rings and curved bars. Torsional buckling. Buckling of plates and shells. Inelastic buckling.

**4300:606 ENERGY METHODS AND ELASTICITY** 3 credits

Prerequisite: 202. Work and complementary work. Strain energy and complementary strain energy. Virtual work and Castigliano's theorems. Variational methods. Applications. Formulation of boundary value problems in elasticity. Selected topics in energy methods and elasticity.

**4300:607 PRESTRESSED CONCRETE** 3 credits

Prerequisite: 404. Basic concepts. Design of double-tee roof girder; shear, development length; column; piles; design of highway bridge girder; pre-

tensioned, posttensioned; continuous girders; corbels; volume-change forces; connections.

**4300:608 MULTISTORY BUILDING DESIGN** 3 credits

Prerequisite: 401. Floor systems; staggered truss system; braced frame design; unbraced frame design; drift indices; monocoque (tube and partial tube) systems; earthquake design; fire protection. Analysis by STRUDL.

**4300:609 FINITE ELEMENT ANALYSIS I** 3 credits

Prerequisite: 602. Introductory development of finite element method as applied to various topics from continuum mechanics. Such areas as plane, axisymmetric and 3-D stress analysis; conduction, fluid mechanics; transient problems and geometric and material nonlinearity.

**4300:611 FUNDAMENTALS OF SOIL BEHAVIOR** 2 credits

Prerequisite: 314. In-depth examination of structure and fundamental physico-chemical and mechanical properties of engineering soils viewed as particulate matter.

**4300:612 ADVANCED SOIL MECHANICS** 3 credits

Prerequisite: 518, 612. Study of mechanics of behavior of soil as continuum. Principles of stress, strain, deformation, shear strength and pore water pressure as applied to mechanical behavior of soil masses.

**4300:613 ADVANCED GEOTECHNICAL TESTING.** 3 credits

Prerequisite: 518, 612. Theory and practice of static and dynamic in-situ and laboratory soil testing. Testing procedures, applicability, limitations. General evaluation of geotechnical parameters for routine and special site conditions. One lecture, two laboratories per week.

**4300:614 FOUNDATION ENGINEERING I** 3 credits

Prerequisite: 311 or permission. Foundation bearing capacity and settlement analysis. Design of shallow and deep foundation systems. Pile driving and load test procedures and analysis. Theory and design of earth-retaining structures including retaining walls, tiebacks and bulkheads.

**4300:615 FOUNDATION ENGINEERING II** 3 credits

Prerequisite: 614 or permission. Soil-structure interaction theory and applications to underground structures including conduits, tunnels and shafts. Advanced foundation construction methods and problems including dewatering, soil stabilization, underpinning and cofferdams. Slope stability analysis.

**4300:618 ROCK MECHANICS** 3 credits

Prerequisite: 602 or permission. Mechanical nature of rocks; linear elasticity and application to rock problems; inelastic behavior of rocks, time dependence and effects of pore pressure; experimental characterization of rock properties; failure theory and crack propagation.

**4300:620 SANITARY ENGINEERING PROBLEMS** 2 credits

Prerequisite: 323. Application of both laboratory methods and theory to solution of sanitary engineering problems involving water pollution, stream regeneration, special industrial wastes, detergents and others.

**4300:622 WATER TREATMENT PLANT DESIGN** 3 credits

Prerequisite: permission. Design of water treatment plants for potable, industrial and commercial uses. Development of water sources, treatment methods and financing used to design best practical methods in terms of cost-benefits.

**4300:623 WASTEWATER TREATMENT PLANT DESIGN** 3 credits

Prerequisite: permission. Application of theory and fundamentals to design of wastewater treatment plants. System design methods used for biological and chemical stabilization of wastewater to meet water quality criteria. Economic analyses made to determine best practical designs to be utilized.

**4300:624 ENGINEERING MANAGEMENT OF WATER UTILITIES** 2 credits

Prerequisite: permission. Comprehensive study of various functions of water utility and engineering management operations pertaining to intricate and complex processes. Fundamentals of responsibility and duties offered to a student seeking engineering fundamentals applicable to water utility systems.

**4300:625 WATER AND WASTEWATER PROCESSES I** 3 credits

Prerequisite: 423. Theory, current research associated with physical/chemical processes, the impact on design-coagulation/flocculation, sedimentation, filtration, absorption processes emphasized.

**4300:626 WATER AND WASTEWATER PROCESSES II** 3 credits

Prerequisite: 423. Theory, current research associated with biological processes, related physical/chemical processes, the impact on design-activated sludge, fixed film processes, gas transfer, sludge stabilization, sludge dewatering processes emphasized.

**4300:640 ADVANCED FLUID MECHANICS** 3 credits

Prerequisite: 4600:310 or permission. Basic equations, Navier-Stokes equations. Analysis of potential flow, turbulence, hydraulic transients. Solution of typical fluid mechanics problems. Analysis of water hammer in pipe networks by method of characteristics.

**4300:644 OPEN CHANNEL HYDRAULICS** 3 credits

Application of basic principles of fluid mechanics to flow in open channels. Criteria for analysis of uniform, gradually varied and rapidly varied flows. Study of movement and transportation of sediments. Design problems utilizing numerical techniques.

**4300:645 APPLIED HYDROLOGY** 3 credits

Discussion of water cycle such as precipitation, evaporation, stream flows, floods, infiltration. Methods of analysis and their application to studies of water demand, storage, transportation including mathematical modeling of urban runoff and statistical hydrology.

**4300:646 COASTAL ENGINEERING** 3 credits

Characteristics of linear and nonlinear wave theories. Interaction of structures, waves; design analysis of shore, offshore structures. Movement, transportation of sediments in lake shore areas.

**4300:681 ADVANCED ENGINEERING MATERIALS** 3 credits

Selected topics on principles governing mechanical behavior of materials with respect to elastic, plastic and creep responses, stress rupture, low and high cycle and thermal fatigue. Failure theories and fracture phenomena in brittle and ductile materials. Crack propagation and life prediction of engineering materials.

**4300:682 ELASTICITY** 3 credits

Prerequisite: 202. Plane stress, plane strain. Two-dimensional problems in rectangular, polar coordinates. Strain-energy methods. Stress, strain in three dimensions. Torsion. Bending. Thermal stresses.

**4300:683 PLASTICITY AND VISCOELASTICITY** 3 credits

Prerequisite: 682 or equivalent. Yielding of materials. Plastic flow rules. Strain-hardening effect. Formulation of stress-strain laws, material characterization. Creep, stress relaxation of engineering materials. Theological relationships. Mathematical formulation of constitutive relations.

**4300:684 ADVANCED REINFORCED CONCRETE DESIGN** 3 credits

Prerequisite: 403. Slab systems. Equivalent frame properties. Limit analysis. Yield line theory. Lateral load systems. Shear walls. Footings. Biaxial column action.

**4300:685 ADVANCED STEEL DESIGN** 3 credits

Prerequisite: 401. Properties of steel. Fasteners. Bearing, Friction Joints. Gusset Plates. Bolts in Tension. End Plates. Weld Joints. Cyclic Loads. Fatigue Analysis. Types of Detail. Torsion. Stability Design.

**4300:697 SPECIAL PROBLEMS** 1-2 credits

Prerequisite: permission. Supervised research or directed individual study in student's major field. Topic selected by student, subject to approval by adviser.

**4300:698 SPECIAL PROBLEMS** 1-2 credits

Prerequisites: 697 and permission. Continuation of 697. Individual research should lead to final report of publishable quality.

**4300:699 MASTER'S THESIS** 1-6 credits

Prerequisite: permission. Research and thesis on some suitable topic in civil engineering as approved by department. Defense of thesis is by final examination.

**4300:701 EARTHQUAKE ENGINEERING** 3 credits

Prerequisite: 604. Earthquake fundamentals. Earthquake response of single-story and multistory buildings, as well as structural components. Modal analysis for earthquake response. Inelastic response of multistory structures. Earthquake codes. Stochastic approach.

**4300:702 PLATES AND SHELLS** 3 credits

Prerequisites: 602 and 3450:531. Navier and Levy solutions for rectangular plates. Approximate methods, including finite differences. Forces in middle plane. Large deflections. Differential geometry of a surface. Shells of revolution.

**4300:703 APPLICATION IN PLASTICITY AND VISCOELASTICITY** 3 credits

Prerequisite: 602. Formulation of boundary value. Problems in plasticity and viscoelasticity. Correspondence principle. Solution approaches to practical problems, e.g., problems with cylindrical and spherical symmetry, torsional and two-dimensional problems.

**4300:704 FINITE ELEMENT ANALYSIS II** 3 credits

Prerequisites: 609 and 702 or permission. Curved, plate, shell brick elements. Quasi-analytical elements. Quadrature formulas. Substructuring for static and dynamic analyses. Solution algorithms for linear and nonlinear static and dynamic analysis. Computer program formulation. Review of large-scale production programs.

**4300:717 SOIL DYNAMICS** 3 credits

Prerequisite: 614 or permission. Vibration and wave propagation theory relating to soils, soil-structures and foundations. Dynamic behavior of soils. Design of foundations for dynamic loading impact, pulsating and blast loads.

**4300:745 SEEPAGE** 2 credits

Discussion of parameters determining permeability of various soils. Analytical, numerical and experimental methods to determine two- or three-dimensional movement of groundwater. Unsteady flows.

**4300:794 ADVANCED SEMINAR IN CIVIL ENGINEERING** 1-3 credits

(May be repeated for a total of nine credits)  
Prerequisite: permission of department head. Advanced projects, reading and other studies in various areas of civil engineering. Intended for student seeking Ph.D in engineering degree.

**4300:898 PRELIMINARY RESEARCH** 1-15 credits

(May be repeated for a total of 15 credits)  
Prerequisite: approval of Advisory Committee. Preliminary investigation of Ph.D. dissertation subject.

**4300:899 DOCTORAL DISSERTATION** 1-15 credits

(May be taken more than once)  
Prerequisite: completion of preliminary examination and approval of Advisory Committee. Original research by Ph.D. candidate.

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**4400: Electrical Engineering****4400:101 ENGINEERING DESIGN** 1 credit

Introduction of freshman engineering student to problem-solving techniques. Required of all entering electrical engineering freshmen.

**4400:231 CIRCUITS I** 3 credits

Prerequisite: 3650:291; corequisite: 3450:223. Fundamentals of circuit analysis including loop and nodal methods, phasor techniques, resonance, polyphase circuits and magnetic coupling in circuits.

**4400:232 CIRCUITS II** 3 credits

Prerequisites: 231, corequisite: 3450:235. Network theorems, Fourier methods, transfer functions. Laplace and Fourier transforms and their use in analyzing dynamic operation of circuits.

**4400:320 BASIC ELECTRICAL ENGINEERING** 4 credits

Prerequisite: junior standing in engineering; corequisite: 3450:235. Covers fundamental aspects of electrical circuits, electronics and electrical machinery. Not open to an electrical engineering major.

**4400:333 CIRCUITS III** 3 credits

Prerequisites: 232, 3450:235, 4450:206. Application of Laplace and state variable to frequency and time domain expressions for steady state and transient responses. Network topology and computer-aided circuit design.

**4400:334 CIRCUITS IV** 3 credits

Prerequisite: 333. Network topology; node, mesh, loop cut-set and state variable analysis and solutions; matrix formulations. Transform theory and techniques. Computers in network design and analysis.

**4400:343 ELECTRICAL MEASUREMENTS** 4 credits

Prerequisite: 231; corequisite: 232. Study of DC and AC meters and bridges. Evaluation of errors involved in measurements.

**4400:344 INSTRUMENTATION** 3 credits

Prerequisites: 343, 362. Analysis and characteristics of transducers, indicating instruments and recorders used in electrical measurements.

**4400:353 ELECTROMAGNETIC FIELDS I** 4 credits

Prerequisite: 3450:223. Static and dynamic fields treated on vector basis with Maxwell's equations in point and integral forms. Dynamic electromagnetic fields with applications including particle dynamics and propagation equations.

**4400:359 TRANSMISSION LINES AND NETWORKS** 3 credits

Prerequisites: 333, 362. Steady state and transient analysis of distributed parameter circuits. Low and high frequency applications. Networks for transmissions.

**4400:362 ELECTRONIC CIRCUITS** 4 credits

Prerequisites: 363, 333. Equivalent circuits for electronic devices. Time and frequency domain analysis. Rectification, voltage and power amplification, feedback, oscillators, linear IC's.

**4400:363 SWITCHING AND LOGIC** 4 credits

Prerequisites: 232, 343. Analysis of computer circuits. Introduction to use of Boolean algebra and mapping techniques in analyzing switching circuits. Sequential circuits.

**4400:371 CONTROL SYSTEMS I** 3 credits

Prerequisite: 333. Introduction to servomechanisms and feedback. Modeling and response of feedback control systems. Stability of linear systems. Experiments include analog simulation and basic servomechanism.

**4400:380 ILLUMINATION** 2 credits

Fundamentals of illumination and principles underlying specifications and design for adequate electrical lighting.

**4400:381 ENERGY CONVERSION I** 3 credits

Prerequisites: 231, 353. Sources of energy, principles of energy conversion, thermodynamic limitations. Electric energy from fossil fuel, MHD, nuclear energy. Solar energy, hydro, wind and geothermal energy. Transformers.

**4400:382 ENERGY CONVERSION II** 4 credits

Prerequisite: 381. Transformers. Induction, synchronous machines. Single-phase machines.

**4400:383 APPLICATION OF MOTORS** 3 credits

Prerequisite: 382. Apparatus and circuits for control of electric motors. Calculation of accelerating and decelerating time and duty cycles. Selection of motors for various applications.

**4400:387 ADVANCED MACHINERY** 3 credits

Prerequisite: 382. d-q transformation. Reactance of synchronous machines. Parallel operation of transformers. Synchronous-induction motors. Machine saturation and harmonics.

**4400:391 PROBLEMS** 1-3 credits

(May be taken more than once)  
Prerequisite: permission of department head. Select comprehensive problems, supervised discussions and computation periods.

**4400:421/521 ENGINEERING ECONOMY** 3-2 credits

Prerequisites: 3250:244 and senior standing in engineering. Presents engineering economics as distinguished from classical economic theory.

**4400:445 COMMUNICATION SYSTEMS** 3 credits

Prerequisites: 333, 353, 362. Communications systems, equipment; noise, modulation; antennas, propagation; electronic communication circuits; frequency standards generation; communication satellites.

**4400:446 ELECTRONIC SYSTEMS** 3 credits

Prerequisites: 445. Study of specific state-of-the-art electronic systems: primary and secondary radar, telemetry systems, video systems, data communications, navigational systems.

**4400:447 RANDOM SIGNALS** 3 credits

Prerequisite: 333. Applications of set theory, discrete and continuous sample spaces; probability, random variables, distribution functions, density functions, stochastic processes, random signals, system function, power spectrum and correlation functions.

**4400:448 COMMUNICATION THEORY** 3 credits

Prerequisite: 447. Spectral analysis and Fourier transforms; random variables and processes; amplitude, frequency and pulse modulation; representations of noise in modulation; threshold in frequency modulation, data transmission; communication system and noise calculations.

**4400:452 INTRODUCTION TO LASERS** 3 credits

Prerequisites: 333, 353. Introduction to basic concepts of maser (laser) action; emission processes and their roles in laser action; types of lasers; presentation of generalized operating criteria.

**4400:454 ELECTROMAGNETIC FIELDS II** 3 credits

Prerequisite: 353 or permission. Advanced field theory including boundary value problems and nonlinear fields. Applications of Maxwell's equations. Antennas.

**4400:455/555 MICROWAVES** 4 credits

Prerequisites: 353, 359. Dynamic fields, Maxwell's equation and wave equations. Field analysis of wave guides, microwave components, techniques and systems.

**4400:461 PHYSICS OF ELECTRONIC DEVICES** 3 credits

Prerequisite: 3650:301, 353, 362; corequisite: 353. Physics of semiconductors. Band theory. energy distribution and electron transport. P-n junctions.

BJT and FET devices. Electron emission and ballistics, gaseous discharge, dielectric and magnetic materials. Device modeling.

**4400:464 PULSE ELECTRONICS** 4 credits

Prerequisites: 333, 362. Waveshaping circuits, nonsinusoidal waveform generation and relaxation circuits. Pulse transformers. Application of pulse and switching circuits.

**4400:465/565 COMPUTER CIRCUITS** 4 credits

Prerequisite: 363. Electronic circuitry considerations in logic circuits; methods of sequential, threshold logic analysis, synthesis; development of computer arithmetic elements; memory, storage devices.

**4400:467/567 SOLID-STATE DEVICES** 2 credits

Prerequisite: 362. Static and dynamic behavior of p-n junction and junction transistors. Theory of avalanche and Zener breakdown. FET npn diode and Gunn effect oscillator.

**4400:469 INDUSTRIAL ELECTRONICS** 3 credits

Prerequisites: 362, 382. Application of electronic devices at power levels. Intended for those specializing in power area of electrical engineering rather than electronic areas.

**4400:472/572 CONTROL SYSTEMS II** 4 credits

Prerequisite: 371. State variable analysis, design of control systems. Discrete systems, analysis, digital computer control. Experiments include hybrid, AC control system, digital computer control.

**4400:480/580 SYMMETRICAL COMPONENTS** 3 credits

Prerequisite: 382. Per unit method as applied to power system calculations. Fundamental principles of symmetrical components as applied to analysis of electrical circuits and machines.

**4400:481 ELECTRICAL POWER SYSTEMS I** 3 credits

Prerequisite: 382. Introduction to electricity utility load flow, faulty analysis, stability, surge protection and relaying.

**4400:482 ELECTRICAL POWER SYSTEMS II** 3 credits

Prerequisite: 382. Introduction to industrial power systems. Local generation, power factor correction, conductor selection code requirements, coordination of protective devices.

**4400:497 HONORS PROJECT** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisite: senior standing in Honors Program. Individual creative project or design relevant to electrical engineering, supervised by faculty member of the department.

**4400:498/598 TOPICS IN ELECTRICAL ENGINEERING** 1-2 credits

(May be taken more than once)  
Prerequisite: permission of department head. Special topics in electrical engineering.

**4400:661 DESIGN OF DIGITAL SYSTEMS** 3 credits

Prerequisite: 465. Applications of logic circuits in modern digital electronic computer and in digital communication systems. Computer organization and control, input-output devices and interface standards, advanced topics in computers.

**4400:662 TOPICS IN ELECTRONICS** 3 credits

Prerequisite: permission of department head. Discussions of recent advances in electronics.

**4400:671 DISCRETE CONTROL SYSTEMS** 3 credits

Prerequisite: 472/572 or permission. Theory, techniques for analysis, design of discrete control systems. Z-transform technique, stability analysis, frequency response. Optimization. Digital computer control.

**4400:674 CONTROL SYSTEM THEORY** 3 credits

Prerequisite: 472/572. Advanced modern control theory for linear, nonlinear systems. Controllability, observability, state variable feedback, estimation, control nonlinear system analysis, stability problem.

**4400:676 RANDOM PROCESS ANALYSIS** 3 credits

Prerequisite: 674. Analysis and design of control systems with stochastically defined input. Introduction to estimation filters.

**4400:681 POWER SYSTEM ANALYSIS** 3 credits

Prerequisite: 480. Short circuit and load flow analysis of power systems with emphasis on computer solution. Transient machine analysis.

**4400:682 POWER SYSTEM STABILITY** 3 credits

Prerequisite: 681. Steady state and transient stability of power systems with emphasis on computer solution.

**4400:683 ECONOMICS OF POWER SYSTEMS** 3 credits

Prerequisite: 681. Analysis and operation of power system for economic dispatching using a computer.

**4400:684 PROTECTIVE RELAYING** 3 credits

Prerequisite: 480. Principles and application of relays as applied to protection of power systems.

**4400:685 SURGE PROTECTION** 3 credits

Prerequisite: 480. Phenomena of lightening and switching surges on electrical systems. Protection of systems and apparatus by line design, application of protective devices and insulation coordination.

**4400:693 SPECIAL PROBLEMS** 1-3 credits

(May be taken more than once)  
Prerequisite: permission of department head. For a qualified graduate student. Supervised research or investigation in major field of training or experience. Credit dependent upon nature and extent of project.

**4400:699 MASTER'S THESIS** 1-6 credits

Prerequisite: permission of department head. Research and thesis on some suitable topic in electrical engineering.

**4400:753 TOPICS IN ELECTROMAGNETICS** 3 credits

Prerequisite: 651. Introduction to advanced techniques in fields. Topics include application of Green's functions techniques and related boundary value problems.

**4400:776 OPTIMAL CONTROL I** 3 credits

Prerequisite: 674. Formulation of optimizational problem; application of variational calculus, maximum principle and optimality principle to control problems. Computational techniques in optimization.

**4400:777 OPTIMAL CONTROL II** 3 credits

Prerequisite: 776. Sensitivity problem in optimal control, system identification. Implementation and application of adaptive control.

**4400:779 ADVANCED TOPICS IN CONTROL** 3 credits

Prerequisite: 776. Discussions of recent advances in control systems.

**4400:794 ADVANCED SEMINAR** 1-3 credits

(May be taken more than once)  
Prerequisite: permission of department head. Advanced level coverage of specialized topics. For student seeking Ph.D. in engineering.

**4400:898 PRELIMINARY RESEARCH** 1-15 credits

(May be repeated)  
Prerequisite: completion of Qualifying Examination and approval of Student Advisory Committee. Preliminary investigation of Ph.D. dissertation subject.

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## Graduate Courses

**4400:631 CIRCUIT ANALYSIS** 3 credits

Prerequisite: graduate standing. Operational methods, time domain analysis, state variable methods and matrix techniques applied in circuit analysis. Realizability and synthesis of driving point impedance and transfer functions.

**4400:641 RANDOM SIGNAL ANALYSIS** 3 credits

Prerequisite: 447. Analysis, interpretation and smoothing of engineering data through application of statistical and probability methods.

**4400:642 STATISTICAL COMMUNICATIONS** 3 credits

Prerequisite: 448 or 641. Detection and estimation of signals in communication systems; linear and nonlinear systems with random inputs; narrow-band systems, mean squared-error filter, modulation and information theory.

**4400:651 ELECTROMAGNETIC FIELDS** 3 credits

Prerequisite: graduate standing in electrical engineering. Introduction to advanced electromagnetic concepts at graduate level.

**4400:652 ADVANCED ELECTROMAGNETICS** 3 credits

Prerequisite: 651. Application of Maxwell's equations. Propagation equations and antenna analysis.

**4400:899 DOCTORAL DISSERTATION** 1-15 credits  
(May be repeated)  
Prerequisite: completion of Candidacy Examination and approval of Student Advisory Committee. Original research by a Ph.D. candidate.

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## 4450: Engineering Computer Science

\* **4450:206 FORTRAN (SCI/ENGR)** 2 credits  
Prerequisite: 3450:221 or 2020:334. Introduction to use of digital computers in scientific and engineering applications. For student majoring in engineering or physical sciences. No credit for person having completed 3460:201.

**4450:207 USER LANGUAGES** 2 credits  
Prerequisite: 206 or equivalent. Comparative study of features of high-level computer languages from standpoint of user.

**4450:306 ASSEMBLER PROGRAMMING** 3 credits  
Prerequisite: 206 or equivalent. Introduction to computer organization and programming at machine language level. Assembler syntax, subroutine linkage conventions, macrolanguage.

**4450:407 SYSTEMS PROGRAMMING** 3 credits  
Prerequisite: 306. Introduction to operating systems. Data structures and algorithms in assemblers, microprocessors, loaders and compilers. Process and memory management, procedure and data sharing.

**4450:410 COMPUTER METHODS** 3 credits  
Prerequisites: 206 or equivalent in Fortran, and 3450:235. Numerical methods and techniques in use of central computer facilities to solve problems in science and engineering. Plotting and other Fortran library routines. Job Control Language. Interactive computing.

**4450:432 SYSTEM SIMULATION** 3 credits  
Prerequisite: 410. Principles of modeling and simulation of discrete and continuous time models, using Fortran and S/360 CSMP. Discrete event models and GPSS. SIMSCRIPT.

**4450:497/597 SPECIAL TOPICS: COMPUTER SCIENCE** 1-2 credits  
(May be taken more than once)  
Prerequisite: permission of department head. Special topics in computer engineering.

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## Graduate Courses

**4450:606 COMPUTER ARCHITECTURE** 3 credits  
Prerequisites: 306 and 4400:363 or equivalents. Historical development of computer architecture. Design methodologies. Processor organization and design of instruction sets. Parallel processing. Control section implementations. Memory organization. System configurations.

**4450:610 COMPUTER ALGORITHMS I** 3 credits  
Prerequisites: 206 and 3450:235. Organization of scientific and engineering problems for computer solutions. Analysis of error and convergence properties of algorithms.

**4450:611 COMPUTER ALGORITHMS II** 3 credits  
Prerequisite: 610 or permission. Data structures and algorithm design for minimum execution time and memory requirements.

**4450:693 SPECIAL PROBLEMS** 1-3 credits  
(May be taken more than once)  
Prerequisite: permission of department head. For a qualified graduate student. Supervised research or investigation in student's major field. Credit depends upon nature and extent of project.

**4450:794 ADVANCED SEMINAR** 1-3 credits  
(May be taken more than once)  
Prerequisite: permission of department head. Advanced level coverage of various topics. Intended for student seeking Ph.D. in engineering.

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## 4600: Mechanical Engineering

\* **4600:125 ENGINEERING GRAPHICS** 2 credits  
Freehand sketching techniques. Orthographic projection and pictorial representation of typical machine elements.

**4600:160 ENGINEERING DESIGN: MECHANICAL ENGINEERING** 1 credit  
Introduction to engineering profession. Engineering curriculum and programs of study. Introduction to the use of the digital computer.

**4600:203 DYNAMICS** 3 credits  
Prerequisite: 4300:201. Kinematics and kinetics of particles and rigid bodies. Principles of work, energy, momentum and impulse.

**4600:300 THERMODYNAMICS I** 4 credits  
Prerequisites: 3450:221 and 3650:291. Basic concepts of thermodynamics. The pure substance, the system and first and second laws of thermodynamics. Entropy, availability, power cycles.

**4600:301 THERMODYNAMICS II** 3 credits  
Prerequisites: 300 and 310. Thermodynamics of state, gas mixtures and gas-vapor mixtures. Combustion. Thermodynamics of gas flow.

**4600:305 THERMAL SCIENCE** 2 credits  
Prerequisites: 3450:222 and 3650:291. Credit not allowed for both 300 and 305. Introduction to first and second laws of thermodynamics, perfect gas relationships, equations of state, cycle analysis. Introduction to conduction, convection and radiation heat transfer.

**4600:310 FLUID MECHANICS** 3 credits  
Prerequisite: 203. Properties and behavior of gases and liquids at rest and in motion. Energy equation. Flow in conduits. Forces on body submerged in moving fluid. Dimensional analysis and similitude.

**4600:315 HEAT TRANSFER** 3 credits  
Prerequisites: 300, 310, 160 or 4450:206. Fundamentals of heat transfer by conduction, convection and radiation.

**4600:321 KINEMATICS OF MACHINES** 3 credits  
Prerequisites: 125, 203. Displacements, velocities, accelerations and introduction to forces in plan motion mechanisms. Introduction to design of gears, gear trains and cams.

**4600:336 ANALYSIS OF MECHANICAL COMPONENTS** 3 credits  
Prerequisites: 4300:202, 4450:206 or 4600:160. Analysis of stress and strain at a point. Mohr's circles, shear centers, elastic instability. Stresses in thick and thin cylinders. Fatigue analysis.

**4600:337 DESIGN OF MECHANICAL COMPONENTS** 3 credits  
Prerequisite: 336. Application of stress analysis to design of fasteners, welds, springs, ball bearings and gears. Introduction to journal bearings and lubrication. Component design projects.

**4600:360 ENGINEERING ANALYSIS** 3 credits  
Prerequisites: 3450:235, 4450:206 or 4600:160. Analytical and numerical methods of solution of mechanical engineering problems.

**4600:380 MECHANICAL METALLURGY** 2 credits  
Prerequisite: 336. Structures of common metallic materials and study of their macroscopic mechanical behavior. Phase changes and heat treatment. Theories of failure.

**4600:393 INTERNAL COMBUSTION ENGINES LABORATORY** 1 credit  
Prerequisite: 301. Study of application and performance in reciprocating and rotary engines.

**4600:396 COMPUTER METHODS LABORATORY** 1 credit  
Prerequisites: 3450:235, 4450:206 or 4600:160. Application of digital computers to solution of typical problems in heat transfer, fluid dynamics, machine design, kinematics, strength of materials, elasticity and vibrations and dynamics.

**4600:400 THERMAL SYSTEM COMPONENTS** 3 credits  
Prerequisites: 301, 310, 315. Performance analysis and design of basic components of thermal energy exchange and conversion systems. Components studied include heat exchangers, pumps, compressors, turbines and expansion engines.

**4600:401 DESIGN OF ENERGY SYSTEMS** 2 credits  
Prerequisites: 400, 460. Analysis and design of systems for energy exchange.

Performance of energy system components and their integration into complex practical systems. Design project required.

**4600:410/510 HEATING AND AIR CONDITIONING** 3 credits

Prerequisites: 301, 315. Thermodynamics of gas mixtures. Design and selection of air conditioning equipment. Control of gas mixtures, heating, cooling and humidity.

**4600:411/511 COMPRESSIBLE FLUID MECHANICS** 3 credits

Prerequisites: 301, 310. Subsonic and supersonic flow in nozzles, diffusers and ducts. One-dimensional reactive gas dynamics. Prandtl-Myer theory. Applications to design and analysis of compressors, turbines and propulsion devices.

**4600:415/515 ENERGY CONVERSION** 3 credits

Prerequisites: 301, 315. Topics from fields of internal combustion engines, cycle analysis, modern conversion devices.

**4600:416/516 HEAT TRANSFER PROCESSES** 3 credits

Prerequisite: 315. Analysis, design of extended surfaces. Natural convective, combined modes of heat transfer and heat transfer with a change of phase. Heat transfer in magnetohydrodynamic systems.

**4600:422/522 EXPERIMENTAL STRESS ANALYSIS I** 3 credits

Prerequisites: 336 or 4300:202. Experimental methods of determining stress or strain: brittle lacquer, strain gages, photoelasticity.

**4600:428/528 INDUSTRIAL NOISE CONTROL** 3 credits

Prerequisite: 431 or permission. Theory of propagation, transmission and reflection of plant waves. Psychological acoustics. Noise control regulations and criteria. Techniques of identification, instrumentation and control of noise sources.

**4600:430/530 MACHINE DYNAMICS** 3 credits

Prerequisite: 321. Static and dynamic forces in machines, products of inertia, dynamic equivalence, flywheels. Balancing of rotating, reciprocating, cyclic plane motion. Computer simulation of transient mechanism dynamics, other topics in advanced dynamics.

**4600:431/531 MECHANICAL VIBRATIONS I** 3 credits

Prerequisites: 203 and 3450:235. Undamped and forced vibrations of systems having one or two degrees of freedom.

**4600:440/540 CONTROL SYSTEMS** 3 credits

Prerequisites: 315, 431, or permission. Laplace transforms. Mathematical models of physical systems. Transient response and stability. Error analysis and system accuracy. Root locus methods in design. Frequency analysis and design. Compensation techniques.

**4600:442/542 INDUSTRIAL AUTOMATIC CONTROL** 3 credits

Prerequisite: 440 or equivalent. Operation of basic control mechanisms. Study of mechanical, hydraulic, pneumatic, fluidic control systems, including application areas. Tuning of control devices for optimum performance of system. Case studies on control applications from industry, e.g. boilers, furnaces, process heaters.

**4600:443/543 OPTIMIZATION METHODS IN MECHANICAL ENGINEERING** 3 credits

Prerequisite: 360. Development and method of solution of optimization problems in mechanical engineering. The use of dynamic programming and operational research methods for optimization including computer utilization and applications.

**4600:460 CONCEPTS OF DESIGN** 3 credits

Prerequisite: 337; corequisite: 400. Design process. Creativity and inventiveness. Tools of decision making, engineering economics, reliability, optimization. Case studies.

**4600:461 DESIGN OF MECHANICAL SYSTEMS** 2 credits

Prerequisites: 321, 431, 460. Detailed mechanical design project and cast studies.

**4600:462/562 PRESSURE VESSEL DESIGN** 3 credits

Prerequisite: 336 or 4300:202. Introduction to modern pressure vessel technology. Topics include basic structural considerations, materials and their environment and design-construction features.

**4600:483 MECHANICAL ENGINEERING MEASUREMENTS LABORATORY** 2 credits

Prerequisites: 203, 300, 310. Development of methods to measure temperature, pressure, flow rate, viscosity and motion. Includes both lecture and laboratory experience and emphasizes calibration and accuracy of appropriate instruments.

**4600:484 MECHANICAL ENGINEERING LABORATORY** 2 credits

Prerequisite: 483; corequisites: 315 and 431. Laboratory experiments in area of dynamics, vibrations, thermodynamics, fluids, heat transfer and controls.

**4600:485 MECHANICAL ENGINEERING PROBLEMS** 1-2 credits

Prerequisite: permission. Investigation of a project by individual or small student groups. Detailed formal report required.

**4600:486 SPECIAL TOPICS** 1-3 credits

Prerequisite: permission. Brief description of current content to be announced in schedule of classes.

**4600:497 HONORS PROJECT** 1-2 credits

Prerequisite: senior standing in Honors Program. Individual creative project in thermal science, mechanics or design relevant to mechanical engineering, supervised by faculty member of the department.

**4600:498 EXPERIMENTAL INVESTIGATION IN MECHANICAL ENGINEERING** 1-2 credits

Individual independent laboratory investigations in areas relevant to mechanical engineering. Student suggests a project and makes appropriate arrangements with faculty for supervision.

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## Graduate Courses

**4600:600 GAS DYNAMICS** 3 credits

Prerequisite: 411/511. Derivation of equations for multi-dimensional irrotational flow of a compressible fluid. Method of small perturbations. Method of characteristics. Ideal flow theory. Transonic flow. One dimensional unsteady flow.

**4600:608 THERMODYNAMICS** 3 credits

Prerequisite: 301 or equivalent. Extension and generalization of basic laws of thermodynamics with application to a variety of physical and biological systems. Introduction to irreversible thermodynamics, the third law and statistical thermodynamics.

**4600:609 FINITE ELEMENT ANALYSIS I** 3 credits

Prerequisite: 622. Introductory development of finite element method as applied to various topics from continuum mechanics. Areas covered include plane; axisymmetric and 3-D stress analysis; conduction; fluid mechanics; transient problems and geometric and material nonlinearity.

**4600:610 DYNAMICS OF VISCOUS FLOW I** 3 credits

Prerequisites: 301, 310 or equivalent. Derivation and solution of equations governing laminar viscous flow. Applications include unsteady flows, slow viscous flows, parallel flows, lubrication theory and laminar boundary layers.

**4600:615 CONDUCTION HEAT TRANSFER** 3 credits

Prerequisite: 315 or equivalent. Study of one-, two- and three-dimensional heat conduction. Development of analytical techniques for analysis and design.

**4600:616 CONVECTION HEAT TRANSFER** 3 credits

Prerequisite: 315 or equivalent. Heat transfer from laminar, turbulent external, internal flows. Convective heat transfer at high velocities. Heat transfer to liquid metals; high Prandtl number fluids.

**4600:617 RADIATION HEAT TRANSFER** 3 credits

Prerequisite: 315 or equivalent. Study of governing radiation laws. Black and real systems, geometric factors, gray enclosures, non-gray systems, gaseous radiation, radiation equipment.

**4600:618 BOILING HEAT TRANSFER AND TWO-PHASE FLOW** 3 credits

Prerequisites: 301, 315 or equivalent. Current techniques to determine heat transfer and pressure drop in components such as boilers, heat exchangers, and steam generators, with boiling. Boiling mechanism, slip ratio, critical heat flux and instabilities in boiling flow systems.

**4600:620 EXPERIMENTAL STRESS ANALYSIS II** 2 credits

Prerequisite: 422/522. Dynamic strain gage methods, transducer design, Moire fringe techniques and topics in photoelasticity.

**4600:621 INTRODUCTION TO TIRE MECHANICS** 3 credits

Prerequisite: permission. Topics include tire as vehicle component, tire traction and wear, laminated structures, tire stress and strains and advanced tire models.

**4600:622 CONTINUUM MECHANICS** 3 credits

Prerequisites: 336 or permission. Analysis of stress and deformation at a point. Derivation of fundamental field equations of fluid and solid mechanics by applying basic laws of dynamics, conservation of mass and energy. Development of constitutive laws.

**4600:623 APPLIED STRESS ANALYSIS I** 3 credits

Prerequisite: 622. Continuation of 622 with specific application to solid mechanics. Development of energy theorems due to Reissner, Washizu and generalized Hamilton's principle. Solutions to static and dynamic problems.

**4600:625 ANALYSIS OF MECHANICAL COMPONENTS** 3 credits

Prerequisites: 337 or equivalent. Theories of failure and plastic flow. Fatigue, creep analysis and introduction to fracture mechanics.

**4600:629 NONLINEAR ENGINEERING PROBLEMS** 3 credits

Prerequisite: 622. Study of nonlinear ordinary and partial differential equations governing phenomena of mechanics. Analysis of phase space trajectories, singularities and stability. Development of approximate analytical methods.

**4600:630 MECHANICAL VIBRATIONS II** 3 credits

Prerequisite: 431/531 or equivalent. Study of vibrations of multidegree of freedom systems including free and forced vibrations, damped and transient response, normal mode vibrations and matrix iteration techniques. Application to seismic design and shock design.

**4600:634 ENGINEERING ACOUSTICS: THEORY AND APPLICATION** 3 credits

Prerequisite: 431/531 or 425/525 or permission. The wave equation. Propagation of waves through solid and fluid media. Transmission, reflection, absorption, diffraction, reverberation phenomena. Wave dispersion through turbulent and random media. Green's functions for stratified media. Theory of noise, resonators, filters. Generation of sound by turbulence, other sources. Industrial applications.

**4600:642 SYSTEM ANALYSIS AND CONTROL DESIGN** 3 credits

Prerequisite: 440 or equivalent. Uniform methods of modeling and response analysis, controllability and observability, stability theory and analysis of linear and nonlinear engineering processes. Design of feedback controls for optimum performance for multivariable real-time control application.

**4600:650 TRIBOLOGY** 3 credits

Fundamentals of friction lubrication and wear treated; includes basic theory, advanced topics, applications to bearings, seals, gears, cams. Specific topics include adhesive and abrasive friction/wear, boundary lubrication, fluid film lubrication and bearings, rolling element bearings, bearing dynamics.

**4600:680 POLYMER PROCESSING** 2 credits

Prerequisite: permission. Study of process engineering in polymer conversion industry, emphasizing analytical treatment of heat transfer, mass flow, mixing, shaping and molding of polymeric materials.

**4600:681 DESIGN OF RUBBER COMPONENTS** 2 credits

Prerequisite: 337 or equivalent. Principles of design of elastomeric products, emphasizing analytical treatments of elastic behavior and mechanisms of failure of resilient mountings, springs, seals, bearings and tires.

**4600:697 SPECIAL TOPICS** 1-4 credits

Prerequisite: permission. For qualified candidate for graduate degree. Supervised research in student's major field of training or experience. Credit dependent upon nature and extent of project as determined by adviser and department head.

**4600:699 MASTER'S THESIS** 1-4 credits

Prerequisite: permission of adviser. Supervised research in a specific area of mechanical engineering.

**4600:704 FINITE ELEMENT ANALYSIS II** 3 credits

Prerequisites: 609, 4300:702. Curved, plate, shell, brick elements; quasi-analytical elements. Quadrature formulas. Substructuring for static and dynamic analysis. Solution algorithms for linear and nonlinear static and dynamic analysis. Computer program formulation. Review of large-scale production programs.

**4600:705 FINITE ELEMENT ANALYSIS III** 3 credits

Prerequisites: 704, 4300:602. Static and dynamic contact problems. Tire mechanics. Fracture mechanics. Plasticity problems involving small and large deflections. Shake down analysis. General constitutive models for composite media, thermoviscoelasticity, fluid turbulence. Fluid-solid interaction analysis.

**4600:710 DYNAMICS OF VISCOUS FLOW II** 3 credits

Prerequisite: 610. Introduction to turbulence. Turbulence modeling and turbulent boundary layers. Practical methods of solution of boundary layer problems. Transition process.

**4600:719 ADVANCED HEAT TRANSFER** 3 credits

Prerequisites: 615, 616. Topics include nonhomogeneous or nonlinear boundary value problems of heat conduction, heat transfer with melting,

solidification and ablation, heat transfer in porous systems and hydrodynamically and thermally unsteady convection.

**4600:723 APPLIED STRESS ANALYSIS II** 3 credits

Prerequisite: 623. Continuation of 623. Development of approximate solution techniques including finite elements, method of weighted residuals (Rayleigh-Ritz, Galerkin, Trefftz, collocation, least squares, etc.) and finite differences.

**4600:726 NONLINEAR CONTINUUM MECHANICS** 3 credits

Prerequisite: 622. Finite deformation and strain, stress, constitutive equations, strain energy functions. Solution of finite deformation problems in hypoelasticity, coupled thermoviscoelasticity and plasticity, electroelasticity and micropolar theories.

**4600:730 MECHANICAL VIBRATIONS III** 3 credits

Prerequisite: 630. Continuation of 630. Analysis of continuous vibrating systems, using separation of variables, energy, variational, Rayleigh-Ritz and other approximate techniques. Concepts and solutions of integral equations as applied to continuous systems.

**4600:731 RANDOM VIBRATIONS** 3 credits

Prerequisite: 630 or equivalent. Stationary random processes and their transmission through linear time-invariant discrete and continuous vibrating systems. Analysis of random data and interaction between mechanisms of failure.

**4600:741 OPTIMIZATION THEORY AND APPLICATIONS** 2 credits

Prerequisite: permission. Theory of optimization in engineering systems, development and method of solution optimization problems for physical processes, large systems. Use of dynamic programming, operational research methods for system optimization, control.

**4600:763 ADVANCED METHODS IN ENGINEERING ANALYSIS** 3 credits

Prerequisite: 3450:235 or equivalent. Applications of finite difference and finite element methods, variational methods, integral methods and similarity transforms to engineering problems in heat transfers, fluid mechanics and vibrations.

**4600:790 ADVANCED SEMINAR IN MECHANICAL, ENGINEERING** 1-4 credits

(May be repeated for a total of nine credits)

Prerequisite: permission of department head. Advanced projects and studies in various areas of mechanical engineering. Intended for student seeking Ph.D. in engineering degree.

**4600:898 PRELIMINARY RESEARCH** 1-15 credits

Prerequisite: approval of Advisory Committee. Preliminary investigation of Ph.D. dissertation subject.

**4600:899 DOCTORAL DISSERTATION** 1-15 credits

(May be taken more than once)

Prerequisite: approval of Advisory Committee. Original research by Ph. D. candidate.

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## 4700: Polymer Engineering

**4700:601 POLYMER ENGINEERING SEMINAR** 1 credit

Presentations of recent research on topics in polymer engineering by internal and external speakers.

**4700:611 STRUCTURAL CHARACTERIZATION OF POLYMERS WITH ELECTROMAGNETIC RADIATION** 2 credits

Characterization of orientation, morphology, superstructure in polymers using x-ray, light scattering, birefringence, dichroism. Crystallography, unit cell determination.

**4700:621 RHEOLOGY AND POLYMER PROCESSING** 3 credits

Experimental methods of determination of rheological properties of polymer melts, solutions, elastomers. Structure - flow behavior relationships, viscoelastic fluid theory, application to extrusion, fiber, film processing molding. Structure development in processing.

**4700:622 ANALYSIS AND DESIGN OF POLYMER PROCESSING OPERATIONS** 3 credits

Prerequisite: 621. Mathematical modeling and engineering design analysis of polymer processing operations including extruder screws, injection molds, dies, fibers, film formation.

**4700:631 ENGINEERING PROPERTIES OF SOLID** 2 credits

**POLYMERS**

Transitions as a function of polymer structure, optical characteristics, mechanical including ultimate properties, viscoelastic behavior of elastomers and plastics, large strain behavior - emphasis on experimental methods.

**4700:651 POLYMER ENGINEERING LABORATORY** 2 credits

Laboratory experiments on the rheological characterization of polymer melts fabrication of engineering products, structural investigation of polymeric parts.

**4700:661 POLYMERIZATION REACTOR ENGINEERING** 3 credits

Polymerization kinetics, classical reactor design, comparison of polymerization in batch and continuous stirred tank reactors, flow patterns around agitators, tubular reactors, reactor stability.

**4700:699 MASTER'S THESIS** 1-6 credits

(May be repeated)

Supervised original research in specific area of polymer engineering.

**4700:711 ADVANCED ELECTROMAGNETIC AND OPTICAL PROPERTIES AND INVESTIGATIONS OF POLYMERS** 2 credits

Maxwell's equations with application to anisotropic dielectrics, birefringence and dichroism and representation of orientation, optical instruments, piezoelectricity, scattering and diffraction of x-rays and light, Mie scattering, applications.

**4700:716 NON-NEWTONIAN FLOW** 2 credits

Prerequisite: 4200:600. Rheological behavior of non-Newtonian fluids. Development of fluid constitutive equations. Viscometric methods.

**4700:698 PRELIMINARY RESEARCH** 1-15 credits

(May be repeated)

Prerequisite: completion of qualifying examination, approval of Student Advisory Committee. Preliminary investigation of Ph.D. dissertation subject.

**4700:899 DOCTORAL DISSERTATION** 1-15 credits

(May be repeated)

Prerequisite: completion of Candidacy Examination of Student Advisory Committee. Original research by a Ph.D. candidate.

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## 4980: Construction Technology

**4980:351 CONSTRUCTION QUALITY CONTROL** 2 credits

Prerequisites: 2980:237 and 238 or permission. Designed for owners, contractors or consultant personnel directly concerned with quality control in construction industry.

**4980:352 FIELD MANAGEMENT** 2 credits

Prerequisites: 2980:222, 245, 133 or permission. Planning, scheduling and controlling of field work within time and cost constraints.

**4980:354 FOUNDATION CONSTRUCTION METHODS** 3 credits

Prerequisite: 2980:234. Soil mechanics and soils exploration as related to construction. Foundation construction methods and practice in the interest of safety and suitable economy.

**4980:358 SAFETY IN CONSTRUCTION** 2 credits

The purpose of this course is to explain what creates hazards and why, and to suggest where to anticipate trouble in each phase of the work as it progresses.

**4980:361 CONSTRUCTION FORMWORK** 3 credits

Prerequisite: 2980:234 or permission. Introduction to design and construction of field structures. Emphasis on design and construction of formwork and temporary wood structures.

**4980:453 LEGAL ASPECTS OF CONSTRUCTION** 2 credits

Study of business of contracting and sub-contracting and legal problems therein such as breach, partial performance, payment, insolvency, sub-surface. Review of AIA standard contracts and construction industry rules of arbitration.

**4980:462 MECHANICAL SERVICE SYSTEMS** 3 credits

Introduction to materials and equipment used in mechanical heating, ventilating, air conditioning, water and waste systems.

**4980:463 ELECTRICAL SERVICE SYSTEMS** 3 credits

Introduction to materials and equipment in electrical and acoustical systems of buildings. Includes illumination, electrical sources, materials and distribution, acoustical problems and materials.

**4980:485 HEAVY CONSTRUCTION METHODS** 3 credits

Prerequisite: 2980:232 or 4300:472. Management techniques in planning, estimating and directing heavy construction operations.

# College of Education

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## 5000: Cooperative Education

**5000:301 Cooperative Education** 0 credits  
(May be repeated)  
For Cooperative Education students only. Work experience in business, industry, or governmental agency. Comprehensive performance evaluation and written report required.

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## 5100: Educational Foundations

**5100:150 INTRODUCTION TO PROFESSIONAL EDUCATION** 3 credits (6 clinical hours, 10 field hours)  
Nature and purpose of education in United States. Emphasis on social, historical and philosophical foundations of public education and on roles of professional educator.

**5100:250 HUMAN DEVELOPMENT AND LEARNING** 3 credits (15 clinical hours)  
Prerequisite: sophomore standing. Study of principles underlying intellectual, emotional, social and physical growth and development of human organism; and of learning process with implications for instructional procedures.

**5100:258 SMALL GROUP INSTRUCTION** 1-3 credits  
(May be repeated for a total of three credits)  
Prerequisites: 250 and 3750:100 or equivalent and permission of instructor. Study of student-centered group leadership skills for facilitating classroom cognitive learning. Student exposed to basic literature related to student-centered style, trained in appropriate observational techniques and provided practice in leading small instructional groups.

**5100:320 LEARNING AND INDIVIDUALIZED INSTRUCTION** 2 credits  
Prerequisite: 250. Behavioral approach to learning and the management of students. Emphasizes design of instructional sequences using behavioral analysis of objectives in both cognitive and psychomotor domains.

**5100:350 EDUCATIONAL MEASUREMENT AND EVALUATION** 2 credits (8 clinical hours)  
Prerequisite: junior standing. Methods of measurement and evaluation applied to learning and instruction. Emphasis on development and coordination of instructional objectives and measurement techniques with instructional procedures.

**5100:410 AUDIO-VISUAL EDUCATION** 2 credits  
Acquaints student with audio-visual equipment of materials and their respective utilization techniques. Includes equipment operation, nonprint materials evaluation and media preparation.

**5100:412/512 DESIGN AND PRODUCTION OF INSTRUCTIONAL MATERIALS** 3 credits  
Covers design, adaptation and preparation and media materials. Student produces media materials including overhead projection transparencies, audio recordings, slide sequences and opaque materials. The student is offered project choices.

**5100:414/514 ORGANIZING AND SUPERVISING EDUCATIONAL MEDIA PROGRAMS** 3 credits  
Prerequisite: 410 or permission of the instructor. Procedures for planning, organizing and evaluating educational media programs including media facilities and services.

**5100:420/520 INTRODUCTION TO COMPUTER BASED EDUCATION** 3 credits  
Prerequisite: graduate or senior standing. Techniques for developing, implementing and evaluating computer based education. Participants will work with instructional paradigms and instructional computing languages. Both the hardware and software considerations associated with current applications examined.

**5100:430 SENIOR HONORS PROJECT: FOUNDATIONS** 1-6 credits  
(May be repeated for a total of six credits)  
Prerequisite: senior standing in Honors Program and permission of student's preceptor. Carefully defined individual study demonstrating originality and sustained inquiry.

**5100:450 PROBLEMS IN EDUCATION** 2 credits (12 field hours)  
Prerequisite: senior status. Involves student in analytical and critical approach to problems of education as social undertaking in light of history and philosophy of education.

**5100:480 SPECIAL TOPICS: EDUCATIONAL FOUNDATIONS** 1-4 credits  
(May be repeated with a change in topic)  
Prerequisite: permission of instructor. Group study of special topics of critical, contemporary concern in professional education.

**5100:490,1,2/590,1,2 WORKSHOP** 1-3 credits each  
Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units.

**5100:494/594 EDUCATIONAL INSTITUTES** 1-4 credits  
Special course designed as in-service upgrading programs, frequently provided with the support of national foundations.

**5100:497 INDEPENDENT STUDY** 1-3 credits  
(May be repeated for a total of six credits)  
Prerequisite: permission of department head and instructor. Specific area of study determined in accordance with program and professional goals.

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## Graduate Courses

**5100:600 PHILOSOPHIES OF EDUCATION** 3 credits  
Examination of basic philosophical problems underlying broad educational questions that confront society. Provides foundation for understanding of questions of modern society and education.

**5100:602 COMPARATIVE AND INTERNATIONAL EDUCATION** 3 credits  
Comparative study of selected national school systems with reference to forces that shape their characteristics. Different theoretical approaches used in study of comparative education also investigated.

**5100:604 TOPICAL SEMINAR IN THE CULTURAL FOUNDATIONS OF EDUCATION** 3 credits  
(May be repeated for a total of six credits)  
Issues and subjects related to study of educational institutions, theories and/or ideas. Different topics will be offered from section to section.

**5100:616 ADULT EDUCATION** 2 credits  
Survey course for teachers and administrators. Historical background including influences and their relation to developments in the field. Emphasis on background and social value of current programs.

**5100:620 BEHAVIORAL BASES OF EDUCATION** 3 credits  
Prerequisite: 250 or equivalent. Introduction to scientific study of learning and development. Student required to study current theories, research in areas of learning, development, motivation, instruction.

**5100:624 SEMINAR: EDUCATIONAL PSYCHOLOGY** 3 credits  
(May be repeated for a total of six credits)  
Prerequisite: 250 or equivalent. In-depth study of research in selected areas of learning, development, evaluation and motivation.

**5100:630 TOPICAL SEMINAR IN COMPUTER BASED EDUCATION** 3 credits  
(May be repeated for a total of six credits)  
Prerequisite: 420/520. Advanced topics related to development, implementation, research and evaluation in C.B.E. Student involvement emphasized, required. Knowledge of programming language.

**5100:636 SEMINAR: EDUCATIONAL TECHNOLOGY** 3 credits  
Practices and trends in educational communications and technology including centers, learning stations, programmed learning, educational television and computer-assisted instruction.

**5100:840 TECHNIQUES OF RESEARCH** 3 credits

Research methods and techniques commonly used in education and behavioral sciences; preparation of research reports. Including library, historical, survey and experimental research and data analysis.

**5100:842 TOPICAL SEMINAR IN MEASUREMENT AND EVALUATION** 3 credits

(May be repeated for a total of six credits)

Prerequisite: 350 or 3750:410/510. Topics of current interest and need will be emphasized. The student will develop extended competence with contemporary measurement and evaluation techniques.

**5100:895 FIELD EXPERIENCE: MASTER'S** 1-3 credits

Prerequisite: permission of department head, instructor. Area determined in accordance with student's program and professional goals.

**5100:897 INDEPENDENT STUDY** 1-3 credits

(May be repeated for a total of six credits)

Prerequisite: permission of department head, instructor. Specific area of study determined in accordance with student's program and professional goals.

**5100:898 MASTER'S PROBLEM** 2-4 credits

Prerequisite: permission of adviser. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with problems in educational foundations.

**5100:899 THESIS RESEARCH** 4-6 credits

Prerequisite: permission of department head, instructor. In-depth study of research problem within humanistic and behavior foundation.

**5100:701 HISTORY OF EDUCATION IN AMERICAN SOCIETY** 3 credits

Historical development of education in American social order, with special emphasis on social, political and economic setting.

**5100:703 SEMINAR: HISTORY AND PHILOSOPHY OF HIGHER EDUCATION** 3 credits

Prerequisite: 600. History and philosophy related to genesis and development of higher education in the Western world, with special emphasis given to higher education's development in United States.

**5100:705 SEMINAR: SOCIAL-PHILOSOPHICAL FOUNDATIONS OF EDUCATION** 3 credits

(May be repeated for a total of six credits)

Prerequisite: 600 or equivalent. Inquiry into selected ideological, social, economic and philosophical factors affecting educational development in United States and other countries.

**5100:721 LEARNING PROCESSES** 3 credits

Study of principles underlying classroom learning processes with particular emphasis on teaching as means of modifying pupil behavior; cognitive, motor, social and affective.

**5100:723 TEACHER BEHAVIOR AND INSTRUCTION** 3 credits

Prerequisite: 600. Intensive survey of theoretical and empirical literature involving teacher and conceptions of instruction. A student reports on theory, empirical research and applications in areas of individual interests.

**5100:741 STATISTICS IN EDUCATION** 3 credits

Statistical methods and techniques used in field of measurement and by research workers in education.

**5100:743 ADVANCED EDUCATIONAL STATISTICS** 3 credits

Prerequisite: 741. A second course on quantification in behavioral sciences. Includes testing of statistical hypotheses, experimental design, analysis of variance and nonvariance, factor analysis and introduction to nonparametric statistics.

**5100:798 RESEARCH PROJECT IN SPECIAL AREAS** 1-3 credits

Prerequisite: permission of department head and instructor. Critical and in-depth study of specific problem in educational foundations.

**5100:801 RESEARCH SEMINAR** 3 credits

(May be repeated for a total of six credits)

Prerequisites: 640 and 741; permission of department head and instructor. Intensive study of research methods applicable to education. Emphasis on developing a dissertation proposal.

**5100:897 INDEPENDENT STUDY** 1-4 credits

(May be repeated for a total of eight credits)

Prerequisite: permission of department head and instructor. Specific area of inquiry within humanistic and behavioral foundations of education determined in advance by student and faculty adviser.

## 5200: Elementary Education

**5200:100 STUDENT PARTICIPATION: OBSERVATION** 1 credit (30 field hours) (credit/noncredit)

Planned field experience emphasizing tutorial settings in reading and other curricular areas.

**5200:141 HANDICRAFTS IN THE ELEMENTARY SCHOOL** 2 credits (15 clinical hours)

Prerequisite: 7100:191. Broad range of experiences through manipulation of various craft medium which enriches curriculum.

**5200:200 STUDENT PARTICIPATION** 1 credit (30 field hours) (credit/noncredit)

Prerequisite: 100. Planned field experience emphasizing field settings where student works with small groups in classroom.

**5200:288 CHILDREN'S LITERATURE** 3 credits (15 clinical hours)

Survey of materials for children in prose, poetry and illustrations from early historical periods to modern types; criteria of selection and methods of presentation critically examined.

**5200:300 STUDENT PARTICIPATION** 1 credit (30 field hours) (credit/noncredit)

Prerequisite: 200. Planned field experience where student works in both small and large group settings in elementary school.

**5200:310 INTRODUCTION TO EARLY CHILDHOOD EDUCATION** 2 credits

Prerequisite: 7400:265. Core course for early childhood education. Provides background information, defines roles and goals within field of early childhood education.

**5200:311 CURRICULUM FOR PRESCHOOL LEARNING CENTERS** 2 credits

Prerequisite: 310. Curricular and instructional techniques in mathematics, science, language arts, social studies and music examined with emphasis on early learning as foundation for later growth.

**5200:312 INTRODUCTION TO EARLY CHILDHOOD EDUCATION — LABORATORY** 1 credit

Corequisite: 310. Provides an opportunity for teacher education student to implement techniques described in accompanying methods course with learner in the field, learner on campus, or to develop materials for use by learner.

**5200:313 CURRICULUM FOR PRESCHOOL LEARNING CENTERS — LABORATORY** 1 credit

Corequisite: 311. Provides an opportunity for teacher education student to implement techniques described in accompanying methods course with learner in the field, learner on campus, or to develop materials for use by learner.

**5200:321 ART FOR THE GRADES** 2 credits (15 clinical hours)

Prerequisite: 141. Art requirements in elementary grades; laboratory work to give teachers knowledge of materials and mediums and skills in handling them.

**5200:330 EARLY ELEMENTARY EDUCATION I** 3 credits

Prerequisite: 5100:250. First of two courses designed to introduce student specifically to primary-aged child and his learning style.

**5200:331 EARLY ELEMENTARY EDUCATION II** 3 credits

Prerequisite: 330. Curriculum needs of primary-aged child.

**5200:333 SCIENCE FOR THE ELEMENTARY GRADES** 3 credits

Prerequisite: 5100:250. For a prospective elementary school science teacher. Development of a point-of-view toward science teaching and study of methods of presenting science material.

**5200:334 TEACHING ART IN THE ELEMENTARY SCHOOL** 2 credits

Prerequisites: art education major, junior standing; elementary education majors, 141 and 321. Visual arts in elementary schools. Art education concepts with studio orientation including history of art education, developmental stages, curriculum and organization, methods, evaluation and research and practical participation.

**5200:335 TEACHING THE LANGUAGE ARTS** 5 credits (15 clinical hours)

Prerequisites: 286 and 5100:250. Course for elementary teacher stressing

methods and materials for skills development, and trends in various language arts.

**5200:336 TEACHING OF ELEMENTARY SCHOOL MATHEMATICS** 3 credits (15 clinical hours)

Prerequisite: 5100:250. Trends in instruction in elementary schools. Procedures for development of mathematical concepts and skills.

**5200:337 TEACHING OF READING** 3 credits (15 clinical hours)

Prerequisites: 335 and 5100:250. Elementary reading program, together with modern methods of teaching reading at various levels.

**5200:338 THE TEACHING OF SOCIAL STUDIES** 3 credits (15 clinical hours)

Prerequisite: 5100:250. Social studies in elementary school and varied means of implementing program.

**5200:339 PRINCIPLES OF DIAGNOSTIC TEACHING OF READING** 3 credits (15 clinical hours)

Prerequisite: 337. Nature of reading problems in classroom setting. Methods and materials employed in corrective reading program by classroom teacher.

**5200:340 EARLY ELEMENTARY EDUCATION I — LABORATORY** 1 credit

Corequisite: 330. Provides an opportunity for teacher education student to implement techniques described in accompanying methods course with learner in the field, learner on campus or to develop materials for use by learner.

**5200:341 EARLY ELEMENTARY EDUCATION II — LABORATORY** 1 credit

Corequisite: 339. Provides an opportunity for teacher education student to implement techniques described in accompanying methods course with learner in the field, learner on campus or to develop materials for use by learner.

**5200:343 SCIENCE FOR THE ELEMENTARY GRADES — LABORATORY** 1 credit

Corequisite: 333. Provides an opportunity for teacher education student to implement techniques described in accompanying methods course with learner in the field, learner on campus or to develop materials for use by learner.

**5200:344 TEACHING ART IN THE ELEMENTARY SCHOOL — LABORATORY** 1 credit

Corequisite: 334. Provides an opportunity for art education student to implement techniques described in accompanying methods course with learner in the field, learner on campus or to develop processes for use by learner.

**5200:346 TEACHING ELEMENTARY SCHOOL MATHEMATICS — LABORATORY** 1 credit (2 clinical hours)

Corequisite: 336. Provides an opportunity for teacher education student to implement techniques described in accompanying methods course with learner in field, learner on campus or to develop materials for use by learner.

**5200:347 TEACHING OF READING — LABORATORY** 1 credit (2 clinical hours)

Corequisite: 337. Provides an opportunity for teacher education student to implement techniques described in accompanying methods course with learner in the field, learner on campus or to develop materials for use by learner.

**5200:348 TEACHING OF SOCIAL STUDIES — LABORATORY** 1 credit (2 clinical/field hours)

Corequisite: 338. Provides an opportunity for teacher education student to implement techniques described in accompanying methods course with learner in the field, learner on campus or to develop materials for use by learner.

**5200:349 PRINCIPLES OF DIAGNOSTIC TEACHING OF READING — LABORATORY** 1 credit (2 clinical/field hours)

Prerequisites: 337 and 347; corequisite: 339. Provides an opportunity for teacher education student to implement techniques described in accompanying methods course with learner in the field, learner on campus or to develop materials for use by learner.

**5200:350 MULTICULTURAL EDUCATION: CONCEPTS, PROGRAMS AND PRACTICES** 3 credits

Designed to provide teacher education student with knowledge, skills and attitudes which will enable them to model behavior and implement curricular programs consistent with the concept of cultural pluralism.

**5200:360 NURSERY SCHOOL LABORATORY** 3 credits

Prerequisite: 7400:265. Concentrated study and experience in nursery school programming under direction of supervising teachers.

**5200:365 COMPREHENSIVE MUSICIANSHIP FOR THE ELEMENTARY CLASSROOM TEACHER** 3 credits (25 clinical hours)

Designed to afford a prospective classroom teacher the opportunity to develop individual musical skills in creativity, performance and listening as means of enhancing teaching through use of music.

**5200:395 FIELD EXPERIENCE** 1-3 credits

Prerequisite: permission of adviser, department head. Independent field work in area selected by student's adviser, based on student's needs.

**5200:403 STUDENT TEACHING SEMINAR** 1 credit (15 clinical hours)

Prerequisite: senior standing. In conjunction with Student Teaching. Synthesis of contemporary problems encountered during student teaching experience. Exchange of ideas regarding role of new teacher entering profession.

**5200:411/511 CREATIVE TECHNIQUES FOR EXPLORING CHILDREN'S LITERATURE** 2 credits

Prerequisite: 286. Examination of techniques for interpretation of children's literature including storytelling, creative dramatics, reader's theatre and choral speaking.

**5200:430 SENIORS HONORS PROJECT: ELEMENTARY** 1-6 credits

(May be repeated for a total of six credits)  
Prerequisites: senior standing in Honors Program and permission of student's preceptor. Carefully defined individual study demonstrating originality and sustained inquiry.

**5200:435/535 ACTIVITIES TO INDIVIDUALIZE SOCIAL STUDIES** 2 credits

Prerequisite: 338. Development of materials and activities (learning games, simulation games, simulations, learning stations, programmed field trips and map activities) to provide teacher with variety of techniques in order to develop an individualized, student-involved social studies program.

**5200:436/536 GEOMETRY AND MEASUREMENT IN ELEMENTARY SCHOOL MATHEMATICS** 3 credits

Prerequisite: 336. Trends in geometry and measurement instruction in elementary school. Procedures for development of important geometric concepts and measurement skills.

**5200:437/537 STRUCTURE OF THE NUMBER SYSTEM IN ELEMENTARY SCHOOL MATHEMATICS** 3 credits

Prerequisite: 336. Applied and advanced topics in mathematics education in elementary school. Thorough investigation of number system presently being taught in elementary school.

**5200:438/538 MATERIALS AND LABORATORY TECHNIQUES IN ELEMENTARY SCHOOL MATHEMATICS** 3 credits

Prerequisite: 336. Applied mathematics. Construction and application of mathematical models. Procedures for development of important mathematical concepts through the laboratory approach.

**5200:439/539 PROPERTIES OF NUMBERS IN ELEMENTARY SCHOOL MATHEMATICS** 3 credits

Prerequisite: 336. Investigation of those number properties that help explain how laws of arithmetic work. Procedures for development of important arithmetic concepts and computational skills.

**5200:440/540 CONTEMPORARY ELEMENTARY SCHOOL SCIENCE PROGRAMS** 2 credits

Prerequisite: 333. Contemporary elementary science programs critically analyzed and their procedure developed and implemented in university classroom.

**5200:451 ELEMENTARY EDUCATION** 3 credits

Evaluation of recent trends and practices in elementary education. Required for those converting from other certificates.

**5200:480 SPECIAL TOPICS: ELEMENTARY EDUCATION** 1-4 credits

(May be repeated with a change in topic)  
Prerequisite: permission of instructor. Group study of special topics of critical, contemporary concern in professional education.

**5200:490,1,2,3/590,1,2,3 WORKSHOPS** 1-3 credits each

Elective workshop for elementary education major who would pursue further refinement of teaching skills. Emphasizes demonstrations of teaching techniques and development of suitable teaching devices.

**5200:494/594 EDUCATIONAL INSTITUTES** 1-4 credits

Special courses designed as in-service upgrading programs. Frequently provided with the support of national foundations.

**5200:495 STUDENT TEACHING** 4-8 credits (322 field hours)

Prerequisite: senior standing and 300. Planned teaching experience (in elementary school) selected and supervised by Office of Educational Field Experience.

**5200:496 STUDENT TEACHING** 1-6 credits

The capstone field experience for elementary education majors. Students will have two classroom experiences—one primary level and one intermediate level.

**5200:497 INDEPENDENT STUDY** 1-3 credits

Prerequisite: permission of adviser and department head. Specific area of curriculum investigation pertinent to elementary education as determined by student's academic needs.

**5200:699 THESIS RESEARCH** 4-6 credits

Prerequisites: 5100:640 and permission of adviser and department head. In-depth research investigation. Student must be able to demonstrate necessary competencies to deal with research problems in elementary education.

**5200:732 SUPERVISION OF INSTRUCTION IN THE ELEMENTARY SCHOOL** 2 credits

Supervisory role of elementary principal and other supervisory personnel.

**5200:780 SEMINAR IN ELEMENTARY EDUCATION** 2 credits

(May be repeated)  
Intensive examination of following areas of elementary school instruction: children's literature, curriculum development, language arts, mathematics, reading, science, social studies, early childhood, critical analysis of children's literature.

**5200:781 RESIDENCY SEMINAR** 2 credits

One-hour weekly meeting for elementary doctoral student in residence.

**5200:799 RESEARCH PROJECTS IN ELEMENTARY EDUCATION** 1-2 credits

Prerequisite: permission of adviser and department head. In-depth investigation of specific problem pertinent to elementary education.

**5200:895,6,7 FIELD EXPERIENCE FOR ELEMENTARY DOCTORAL STUDENT** 1-2 credits each

Prerequisite: permission of adviser and department head. Designed to help student preparing to teach methods course at college level.

**5200:898 INDEPENDENT STUDY** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisite: permission of adviser and department head. Selected areas of independent investigation as determined by adviser and related to student's academic needs.

**5200:899 DISSERTATION** 1-20 credits

Prerequisite: permission of adviser, department head. Study and indepth analysis of a research problem in elementary education.

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## Graduate Courses

**5200:620 LITERATURE FOR YOUNG CHILDREN** 2 credits

Literature for children ages two-six examined in depth in terms of value and purpose; methods and techniques for presenting it to children; variety and quality of books available.

**5200:630 ELEMENTARY SCHOOL CURRICULUM AND INSTRUCTION** 2 credits

Application of findings of recent research to curriculum building and procedures in teaching.

**5200:831 TRENDS IN ELEMENTARY EDUCATION** 2 credits

Prerequisites: graduate standing and 630. Investigation of innovative programs, organizational patterns and new curricula currently operational in elementary schools including analysis of use of these innovations in relation to teaching/learning process.

**5200:640 THEORY AND PRACTICE IN ELEMENTARY SCHOOL MATHEMATICS** 2 credits

Comparative analysis and evaluation of purposes and procedures of mathematics programs for elementary schools with application of findings to instructional methods and materials.

**5200:641 DIAGNOSIS AND TREATMENT OF PERFORMANCE DIFFICULTIES IN ELEMENTARY SCHOOL MATHEMATICS** 2 credits

Examination of implications of contemporary mathematics learning theory on diagnostic-remedial process.

**5200:645 PROBLEMS IN ELEMENTARY SCIENCE EDUCATION** 2 credits

Examination of influence of new curricular designs in elementary science. Emphasis on inquiry, investigation and discovery and their impact on total elementary school curriculum.

**5200:650 EDUCATION AND THE YOUNG CHILD** 2 credits

Content centered on educational settings of young children from birth through five years.

**5200:666 INDIVIDUALIZED INSTRUCTION: LEARNING STYLE IDENTIFICATION AND RESOURCE PRESCRIPTION** 3 credits

Prerequisites: permission of instructor and 630. Individual learning style characteristics, practical approaches in individualization of instruction, multi-sensory resource development and prescription.

**5200:695,6 FIELD EXPERIENCE: MASTER'S** 1-2 credits each

Prerequisite: permission of adviser and department head. On-the-job experience related to student's course of study.

**5200:697 INDEPENDENT STUDY** 1-3 credits

Prerequisite: permission of adviser and department head. Selected areas of independent investigation as determined by adviser and related to student's academic needs.

**5200:698 MASTER'S PROBLEM** 2-4 credits

Prerequisite: permission of adviser. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in elementary education.

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## 5250: Reading

**5250:341 LABORATORY PRACTICUM IN READING** 3 credits

Prerequisite: 5200:339. Laboratory experience with classroom, small groups and individual situations. A student diagnoses, implements procedures and follows prescribed reading improvement practices.

**5250:411/511 MATERIALS AND ORGANIZATIONS FOR READING INSTRUCTION** 3 credits

Prerequisite: 5200:339. Professional problems of selection and evaluation of reading materials and classroom organizations explored.

**5250:440/540 DEVELOPMENTAL READING IN THE CONTENT AREAS — ELEMENTARY** 3 credits

Prerequisite: 5200:337 or permission of instructor. Nature of reading skills relating to content subjects. Methods and materials needed to promote reading achievement in content subjects by the elementary classroom teacher.

**5250:441/541 LANGUAGE AND ITS RELATIONSHIP TO READING IN THE ELEMENTARY SCHOOL** 3 credits

Prerequisite: 5200:337 or permission of the instructor. An overview of the linguistic field in the teaching of reading in the elementary school. A discussion of major linguistic principles for classroom application in grades K-8.

**5250:442/542 TEACHING READING TO CULTURALLY DIFFERENT LEARNERS** 3 credits

Prerequisite: 5200:337 or by permission of the instructor. The course is designed to provide a student with knowledge, skills and attitudes which will enable employment of effective methods of teaching reading to culturally different learners, and/or learners whose language patterns are non-standard.

**5250:480 SPECIAL TOPICS: ELEMENTARY READING INSTRUCTION** 1-4 credits

(May be repeated with a change in topic)  
Prerequisite: permission of instructor. Group study of special topics of critical, contemporary concern in professional education.

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## Graduate Courses

**5250:680 TRENDS IN READING INSTRUCTION** 2 credits  
Prerequisite: 5200:335 or 5300:425. Survey course designed to update reading background of student who has not had a recent course in reading.

**5250:681 DIAGNOSIS AND CORRECTION OF READING PROBLEMS** 5 credits  
Prerequisite: 680. Relation of growth to reading development and reasons for retardation. Implementation of diagnostic and corrective techniques by developing case studies in supervised setting.

**5250:682 CLINICAL PRACTICES IN READING** 5 credits  
Prerequisite: 681. Nature and etiology of reading difficulties experienced by selected children. Supervised practices and independent work with children in conjunction with staff from other disciplines.

**5250:683 READING DIAGNOSIS FOR SCHOOL PSYCHOLOGISTS AND SUPPORT PERSONNEL** 3 credits  
Prerequisite: 5200:630 or permission of instructor. This course will survey developmental reading and its relationship to reading difficulties. Formal and informal procedures for diagnosing disabled readers and a discussion of prescriptive strategies will be included.

**5250:682 ADVANCED STUDY AND RESEARCH IN READING INSTRUCTION** 3 credits  
Survey of research comparison and evaluation of programs, design and development of projects in reading through group individual study.

**5250:683 SUPERVISION AND CURRICULUM DEVELOPMENT IN READING INSTRUCTION** 2 credits  
Relative to total curriculum; procedures for developing reading program in all curriculum areas; examination of children's literature and related instructional reading by supervisors and consultants.

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## 5300: Secondary Education

**5300:265 ORIENTATION TO SECONDARY EDUCATION** 1 credit (10 clinical hours)  
Corequisite: 275. An orientation to the goals and objectives of the department's teacher preparation program. Student should gain a clear understanding of the purpose and nature of training in secondary post-secondary education.

**5300:275 EXPLORATORY EXPERIENCES IN SECONDARY EDUCATION (SOPHOMORE)** 1 credit (6 clinical hours, 30 field hours)  
Corequisite: 265. Field work with secondary school pupils, teachers and other professional personnel.

**5300:296 EXPLORATORY EXPERIENCE IN SECONDARY SCHOOLS/ MAINSTREAMING** 1-2 credits  
Field work for the special education major.

**5300:310 PRINCIPLES OF TEACHING IN THE SECONDARY SCHOOL** 3 credits (30 clinical hours)  
Prerequisites: 275 and 5100:250. Designed to familiarize the pre-service teacher with the nature of secondary education and teaching in secondary schools. Microteaching laboratory participation is required.

**5300:316 METHODS IN TEACHING ART** 2 credits  
Prerequisite: completion of required course for art teachers and grade point average of 2.00 in the field. Study of trends and procedures in teaching and supervision; relation of art to home, school and community; observation in selected schools required.

**5300:321 JUNIOR HIGH AND MIDDLE SCHOOL EDUCATION** 2 credits

Designed to provide student with knowledge and understanding of junior high and middle school education with ability to interpret it to other educators, parents and pupils.

**5300:325 CONTENT READING IN SECONDARY SCHOOLS** 3 credits (30 clinical hours)  
Instructional principles and practices for helping secondary school youth and adults learn subject matter through application of reading and study skills.

**5300:330 TEACHING OF ADOLESCENT LITERATURE** 3 credits  
Prerequisite: permission of adviser. Student develops skills for selection of literature that is well suited for secondary student. Student develops, uses and experiences methods for teaching adolescent literature in secondary schools.

**5300:345 HUMAN RELATIONS IN SECONDARY EDUCATION** 1 credit (3 clinical hours, 7 field hours)  
Prerequisite: 310. Develops competencies essential to effective teaching in a culturally pluralistic society. Includes teaching exceptional children, and handling multicultural differences and socioeconomic differences in the classroom.

**5300:355 MANAGING CLASSROOM BEHAVIOR AT THE SECONDARY LEVEL** 1 credit (3 clinical hours, 7 field hours)  
Prerequisite: 310. Helps prospective teacher cope with the variety of student behaviors they may encounter in various educational settings.

**5300:374 PRINCIPLES OF SHORTHAND INSTRUCTION** 2 credits  
Prerequisite: 2540:173 and grade-point average of 2.00 in the field. Methods of presentation in shorthand and transcript. Demonstration and observations required. Theory test in the field must be passed before credit given for course.

**5300:375 EXPLORATORY EXPERIENCE IN SECONDARY EDUCATION** 1 credit (6 clinical hours, 30 field hours)  
Prerequisite: 310. Field work with secondary school pupils, teachers and other school personnel.

**5300:385 FIELD EXPERIENCE** 1-3 credits  
Prerequisite: upper college standing. Supervised work with youngsters, individually and in groups in school and/or community settings.

**5300:403 STUDENT TEACHING SEMINAR** 1 credit (15 clinical hours, 10 field hours)  
Corequisite: 495.

**5300:411 INSTRUCTIONAL TECHNIQUES IN SECONDARY EDUCATION** 4 credits (30 clinical hours, 20 field hours)  
Prerequisites: 310, 325, 345, 355 and 5100:350. Open to student who has completed certification requirements in all content fields. Techniques of planning, instruction and evaluation in various secondary teaching fields.

**5300:425/525 ADVANCED MICROCOMPUTER APPLICATIONS IN THE SECONDARY SCHOOLS** 3 credits (30 clinical hours)  
Prerequisite: knowledge of BASIC programming is required. Advanced programming techniques reviewed, applied in program development appropriate for the secondary schools. Hardware, software, computer potential and limitations, languages, program types will be evaluated according to research findings and criteria applicable to secondary schools.

**5300:430 SENIOR HONORS PROJECT: SECONDARY** 1-6 credits  
(May be repeated for a total of six credits)  
Prerequisites: senior standing in Honors Program and permission of student's preceptor. Carefully defined individual study demonstrating originality and sustained inquiry.

**5300:435/535 CONCEPTS AND CURRICULUM DESIGNS IN ECONOMIC EDUCATION** 3 credits  
Economic education concepts appropriate for grade levels K-12 and adult education courses. Economic education materials developed to teach the concepts utilized.

**5300:445 MINICOMPUTER APPLICATIONS IN SECONDARY CLASSROOMS** 1 credit (10 clinical hours)  
Prerequisites: 310 and senior status. Provides an orientation to applications of minicomputer in secondary classrooms. A knowledge of BASIC programming is recommended.

**5300:455 CAREER OPTIONS IN SECONDARY EDUCATION** 1 credit (8 clinical hours, 2 field hours)  
Prerequisites: 310 and senior status. Helps prospective teacher prepare for searching for employment in education and to find alternative careers for which an education degree would be a suitable background.

**5300:476/576 VOCATIONAL COOPERATIVE OFFICE EDUCATION** 2 credits

Principles of program construction, organization, implementation, evaluation, improvement and development of program guides in cooperative office education.

**5300:477/577 INTENSIVE VOCATIONAL OFFICE EDUCATION** 2 credits

Principles of program construction, organization, implementation, evaluation and development of program guides.

**5300:480 SPECIAL TOPICS: SECONDARY EDUCATION** 1-4 credits

(May be repeated with a change in topic)  
Prerequisite: permission of instructor. Group study of special topics of critical, contemporary concern in professional education.

**5300:490,1,2,3/590,1,2,3 WORKSHOP** 1-3 credits each

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units.

**5300:494/594 EDUCATIONAL INSTITUTES** 1-4 credits

Special courses designed as in-service upgrading programs, frequently provided with the support of national foundations.

**5300:495 STUDENT TEACHING** 4-8 credits (322 clinical hours)

Prerequisites: 311 or equivalent and permission of adviser; corequisite: 403. Directed teaching under supervision of directing teacher and University supervisor.

**5300:497 INDEPENDENT STUDY** 1-3 credits

Prerequisite: permission of adviser and supervisor of independent study. Area of study determined by student's needs.

**5300:699 THESIS RESEARCH** 4-6 credits

Prerequisite: permission of adviser. In-depth study of research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in secondary education.

**5300:721 SUPERVISION OF INSTRUCTION IN THE SECONDARY SCHOOL** 2 credits

Definition of supervisory leadership role in improving instruction at secondary school level and development of practical theory of secondary school supervision.

**5300:780 SEMINAR IN SECONDARY EDUCATION** 2 credits

(May be repeated)  
Intensive examination of a particular area of secondary education.

**5300:781 RESIDENCY SEMINAR** 1 credit

(Must be repeated)  
One-hour weekly meeting for secondary education doctoral student in residence.

**5300:782 RESIDENCY SEMINAR** 1 credit

(Must be repeated)  
One-hour weekly meeting for secondary education doctoral student in residence.

**5300:895 FIELD EXPERIENCE: DOCTORAL** 1-6 credits

(May be repeated for a total of six credits)  
Prerequisite: permission of adviser and director of field experience. Intensive job-related experience pertinent to student's needs. Student must be able to demonstrate skills and leadership abilities in an on-the-job situation.

**5300:897 INDEPENDENT STUDY** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisite: permission of adviser and director of independent study. Area of study determined by student's needs.

**5300:898 RESEARCH PROJECT IN SPECIAL AREAS** 1-2 credits

Prerequisite: permission of adviser. Critical and in-depth study of specific problem in secondary education.

**5300:899 DISSERTATION** 1-20 credits

Prerequisite: permission of adviser. Specific research problem that requires student to apply research skills and techniques pertinent to problem being studied.

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## Graduate Courses

**5300:619 SECONDARY SCHOOL CURRICULUM AND INSTRUCTION** 2 credits

Application of findings of recent research to curriculum building and procedures in teaching.

**5300:625 READING PROGRAMS IN SECONDARY SCHOOLS** 3 credits

For all subject teachers both with and without previous study in the teaching of reading. Materials, class organization and procedures for developing reading improvement programs for all secondary school and college students.

**5300:630 ADVANCED INSTRUCTIONAL TECHNIQUES IN BOOKKEEPING — ACCOUNTING AND BASIC BUSINESS SUBJECTS** 3 credits

Intensive examination of teaching-learning strategies for improvement of instruction. Emphasis on teacher coordination of methods, preplanned objectives, and evaluation to insure maximum student competency in subject knowledge and skill.

**5300:632 ADVANCED INSTRUCTIONAL TECHNIQUES IN TYPEWRITING AND TYPEWRITING-RELATED SUBJECTS** 3 credits

Intensive examination of teaching-learning strategies for improvement of instruction. Emphasis on teacher coordination of methods, preplanned objectives and evaluation to insure maximum student competency in subject knowledge and skill.

**5300:695 FIELD EXPERIENCE: MASTER'S** 1-6 credits

(May be repeated for a total of six credits)  
Prerequisite: permission of adviser and supervisor of field experience. On-the-job experience related to student's program of studies.

**5300:697 INDEPENDENT STUDY** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisite: permission of adviser and supervisor of independent study. Area of study determined by student's needs.

**5300:698 MASTER'S PROBLEM** 2-4 credits

Prerequisite: permission of adviser. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in secondary education.

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## 5400: Technical and Vocational Education

**5400:301 OCCUPATIONAL EMPLOYMENT EXPERIENCE AND SEMINAR** 1-4 credits

Provides student with knowledge of current industrial or business practice at level minimally commensurate with that associated with employment expectations of graduates of technical programs.

**5400:351 CONSUMER HOMEMAKING METHODS** 4 credits

Prerequisite: senior standing, enrolled in student teaching. Organization of home economics in secondary schools. Emphasis on methodology, techniques, development of vocational concepts, utilization of audio-visual materials, evaluation procedures.

**5400:395 FIELD EXPERIENCE** 1-3 credits

Prerequisite: upper college standing. Supervised work with youngsters, individually and in groups in educational institutions, training and/or community settings.

**5400:403 TECHNICAL EDUCATION PRACTICUM SEMINAR** 2 credits

Corequisite: 495.

**5400:405/505 VOCATIONAL EDUCATION FOR YOUTH AND ADULTS** 3 credits

History and operations of current vocational education for youth and adults. Includes study of social, economic and political influences that stimulate growth and expansion of vocational education.

**5400:410/510 THE TWO-YEAR COLLEGE** 3 credits

Designed to introduce student to nature, purpose and philosophy of the two-year college. Includes examination of types of institutions offering two-year programs.

**5400:415/515 VOCATIONAL AND TECHNICAL TRAINING IN BUSINESS AND INDUSTRY** 3 credits

Examines the role and mission of the training function in the modern industrial setting. Provides a foundation for a student planning to become an industrial trainer or training supervisor of technicians and other occupational skill development levels.

**5400:421/521 INSTRUCTIONAL TECHNIQUES IN TECHNICAL EDUCATION** 4 credits

Selected topics in instructional techniques appropriate to post-secondary technical education. Emphasis on instructional methods, techniques in classroom, laboratory including tests, measurements.

**5400:430/530 COURSE CONSTRUCTION IN TECHNICAL EDUCATION** 2 credits

Procedure of breaking down an occupation to determine curriculum for laboratory and classroom, developing this content into an organized sequence of instructional units.

**5400:440 LIFE-SPAN AND COMMUNITY EDUCATION** 2 credits

Designed for a person engaged in providing educational services in the community. Includes examination of community education concepts and roles of various personnel and agencies.

**5400:441/541 EDUCATIONAL GERONTOLOGY SEMINAR** 3 credits

Designed for person practicing in field of gerontology or preparing for a specialization in educational gerontology, including person responsible for development and implementation of courses, seminars, occupational training programs and workshops for older people.

**5400:451/551 HOME ECONOMICS JOB TRAINING** 3 credits

Prerequisite: senior standing or permission of instructor. Concept development in vocational home economics. Job training, program development, operational procedures, skill and knowledge identification, training profiles, job description and analysis. Individualized study guides. In-school and on-the-job observations.

**5400:480 SPECIAL TOPICS: VOCATIONAL EDUCATION** 1-4 credits

(May be repeated with a change in topic)  
Prerequisite: permission of instructor. Group study of special topics of critical, contemporary concern in professional education.

**5400:481 SPECIAL TOPICS: TECHNICAL EDUCATION** 1-4 credits

(May be repeated with a change in topic)  
Prerequisite: permission of instructor. Group study of special topics of critical, contemporary concern in professional education.

**5400:490,1,2/590,1,2 WORKSHOP** 1-3 credits each

Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units.

**5400:494/594 EDUCATIONAL INSTITUTES** 1-4 credits

Special courses designed as in-service upgrading programs, frequently provided with the support of national foundations.

**5400:495 TECHNICAL EDUCATION PRACTICUM** 1-4 credits

Prerequisites: 410, 421, 430 or equivalent and permission of adviser; corequisite: 403. Directed teaching under supervision of directing teacher and University supervisor.

**5400:497 INDEPENDENT STUDY** 1-3 credits

Prerequisite: permission of adviser and supervisor of independent study. Area of study determined by student's need.

Examination of many current problems and issues in institutions of higher education; adult education, technical institutes, community colleges, proprietary schools, undergraduate, graduate and professional education.

**5400:890 INTERNSHIP: TEACHING VOCATIONAL EDUCATION****5400:891 INTERNSHIP: TEACHING TECHNICAL EDUCATION****5400:892 INTERNSHIP: POST-SECONDARY EDUCATION** 2 credits each

Teaching under supervision from the University and the educational institution. Includes a seminar each week.

**5400:895 FIELD EXPERIENCE: MASTER'S** 1-6 credits

Prerequisite: permission of adviser and supervisor of field experience. On-the-job experience related to student's program of studies.

**5400:897 INDEPENDENT STUDY** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisite: permission of adviser and supervisor of field experience. On-the-job experience related to student's program of studies.

**5400:898 MASTER'S PROBLEM** 2-4 credits

Prerequisite: permission of adviser. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in technical and vocational education.

**5400:899 THESIS RESEARCH** 4-6 credits

Prerequisite: permission of adviser. In-depth study of research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in vocational education.

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**5550: Physical Education****5550:101 FUNDAMENTALS OF ARCHERY/BOWLING** 1 credit

Acquisition of performance skills, knowledge of rules and strategy and appreciation of archery and bowling as a means of physical activity in our culture. Two class periods per week.

**5550:102 FUNDAMENTALS OF BADMINTON/ VOLLEYBALL** 1 credit

Acquisition of performance skills, knowledge of rules and strategy and appreciation of badminton and volleyball as a means of physical activity in our culture. Two class periods per week.

**5550:103 FUNDAMENTALS OF SOCCER/FIELD HOCKEY** 1 credit

Acquisition of performance skills, knowledge of rules and strategy and appreciation of soccer and field hockey as a means of physical activity. Two class periods per week.

**5550:104 FUNDAMENTALS OF TRACK AND FIELD** 1 credit

Acquisition of performance skills, knowledge of rules and strategy and appreciation of track and field as a means of physical activity in our culture. Two class periods per week.

**5550:105 RECREATIONAL ACTIVITIES** 1 credit

Acquisition of skills and knowledge of rules for participation in, and organization of, common indoor and outdoor recreational activities. For the physical education and outdoor education student.

**5550:106 RECREATIONAL ACTIVITIES FOR THE HANDICAPPED** 1 credit

Acquisition of skills and knowledge of rules for participation in, and organization of, recreational activities for handicapped. Includes ways of adapting common activities for participation by handicapped.

**5550:115 FUNDAMENTALS OF WRESTLING/RUGBY** 1 credit

Acquisition of performance skills, knowledge of rules and strategy and appreciation of wrestling and rugby as a means of physical activity. Two class periods per week. (For men only.)

**5550:120 FUNDAMENTALS OF BASKETBALL** 1 credit

Acquisition of performance skills, knowledge of rules and strategy and appreciation of basketball as a means of physical activity. Two class periods per week. Suggested for women only.

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**Graduate Courses****5400:610 COMMUNICATION WITH BUSINESS AND INDUSTRY** 2 credits

Techniques of establishing better communications between education and business and industry. Emphasis on the advisory committee, coordination functions and working with local professional associations in the community.

**5400:661 CURRENT ISSUES IN HIGHER EDUCATION** 2 credits

(May be repeated with change in topic)

**5550:130 PHYSICAL EDUCATION ACTIVITIES FOR ELEMENTARY SCHOOL CHILDREN** 2 credits

For a physical education major only. Participation in play activities commonly used in elementary physical education programs. One lecture and two laboratory periods per week.

**5550:140 PHYSICAL EDUCATION ACTIVITIES I** 3 credits

Acquisition of performance skills and knowledge of rules and techniques of gymnastics and tumbling, team sports and conditioning activities. Six class periods per week.

**5550:141 PHYSICAL EDUCATION ACTIVITIES II** 3 credits

Acquisition of performance skills and knowledge of techniques and development of dance activities, swimming and individual lifetime sports. Six class periods per week.

**5550:155 ORGANIZATION AND ADMINISTRATION OF RECREATION** 2 credits

General administrative procedures common. Analysis, discussion and visitations of various types of recreational programs.

**5550:193 METHODS OF TEACHING PHYSICAL EDUCATION** 3 credits

Investigation and application of various methods for teaching elementary and secondary physical education. Preparation of lesson and unit plans, observations made in schools. Two lectures and one laboratory per week.

**5550:194 SPORTS OFFICIATING** 2 credits

Knowledge of rules for interscholastic sports and officiating techniques. Successful completion of course permits taking of state examination for officiating. Two lectures and one laboratory per week.

**5550:201 KINESIOLOGY** 2 credits

Prerequisites: 3100:206,7. Application of principles of anatomy to movement of human body.

**5550:202 PHYSIOLOGY OF EXERCISE** 3 credits

Prerequisites: 3100:206,7. Study of physiological effects of exercise relative to physical education activities and athletics. Two hours lecture, two hours laboratory.

**5550:211 FIRST AID** 2 credits

Standard American Red Cross gives instruction and practice in immediate and temporary care of injuries and sudden illnesses. In addition to standard course, CPR is covered.

**5550:235 CONCEPTS OF MOTOR DEVELOPMENT AND LEARNING** 2 credits

Analysis of concepts fundamental to learning motor activities.

**5550:245 INSTRUCTIONAL TECHNIQUES IN ELEMENTARY PHYSICAL EDUCATION** 2 credits

Prerequisites: 130, 140, 193. Supervised teaching of elementary physical education activities to peers. Four class periods per week.

**5550:246 INSTRUCTIONAL TECHNIQUES IN SECONDARY PHYSICAL EDUCATION** 2 credits

Prerequisites: 140, 193 and at least one credit of 101 through 120. Supervised teaching of secondary physical education activities to peer. Four class periods per week.

**5550:300 PHYSIOLOGY OF EXERCISE FOR THE ADULT AND ELDERLY** 2 credits

Analysis of physiological effects of exercise on elderly. Exercise programs adaptable for use by persons working with elderly.

**5550:310 THEORY AND TECHNIQUES OF SOCCER** 1 credit

Theory, techniques and organizational procedures for coaching of soccer. Two class periods per week.

**5550:311 THEORY AND TECHNIQUES OF TRACK AND FIELD** 1 credit

Theory, techniques and organizational procedures for coaching of track and field. Two class periods per week.

**5550:312 THEORY AND TECHNIQUES OF BASKETBALL** 1 credit

Theory, techniques and organizational procedures for coaching of basketball. Two class periods per week.

**5550:313 THEORY AND TECHNIQUES OF BASEBALL/SOFTBALL** 1 credit

Theory, techniques and organizational procedures for coaching of baseball and softball. Two class periods per week.

**5550:314 THEORY AND TECHNIQUES OF SWIMMING** 2 credits

Theory, techniques and organizational procedures for coaching of swimming. One hour lecture, two hours laboratory.

**5550:315 THEORY AND TECHNIQUES OF TUMBLING AND GYMNASTICS** 1 credit

Theory, techniques and organizational procedures for coaching of tumbling and gymnastics. Two class periods per week.

**5550:320 THEORY AND TECHNIQUES OF VOLLEYBALL** 1 credit

Theory, techniques and organizational procedures for coaching of volleyball. Two class periods per week.

**5550:325 THEORY AND TECHNIQUES OF FOOTBALL** 1 credit

Theory, techniques and organizational procedures for coaching of football. Two class periods per week.

**5550:326 THEORY AND TECHNIQUES OF WRESTLING** 1 credit

Theory, techniques and organizational procedures for coaching of wrestling. Two class periods per week.

**5550:334 GAMES AND RHYTHMS: ELEMENTARY GRADES** 2 credits (20 clinical hours)

Not open to a physical education major. Physical education activities which may be used by classroom teachers. Theory of motor development. One hour lecture, two hours laboratory.

**5550:335 MOVEMENT EXPERIENCES FOR THE ELEMENTARY GRADES** 2 credits

Analysis, theory, practical application of basic movement experiences for children. One hour lecture, two hours laboratory.

**5550:336 PHYSICAL EDUCATION ACTIVITIES FOR PRESCHOOL CHILDREN** 2 credits

Investigation of play activities for positive growth and development of preschool child. Organization of motor activities in nursery school and kindergarten curriculum. One hour lecture, two hours laboratory.

**5550:340 CARE AND PREVENTION OF ATHLETIC INJURIES** 3 credits

Discussion of prevention, immediate care and rehabilitation of common athletic injuries. Practical application of wrapping and taping procedures for injury prevention and post-injury support.

**5550:341 ADVANCED ATHLETIC INJURY MANAGEMENT** 4 credits

Prerequisites: 3100:206,7, 5550:201,2, 340. Advanced athletic training techniques for the student desiring to become a certified trainer according to the regulations of the National Athletic Trainers Association.

**5550:345 ADAPTED PHYSICAL EDUCATION** 2 credits

Prerequisites: 3100:106,7. Current theories and practices relating to needs of physically handicapped children; emphasis given to underlying philosophy, purposes and administration.

**5550:350 ORGANIZATION AND ADMINISTRATION OF HEALTH AND PHYSICAL EDUCATION** 3 credits

Investigation of necessary procedures for conduct of health education and physical education programs in schools. Includes organizational considerations, curricular patterns and equipment and supplies.

**5550:351 ORGANIZATION AND ADMINISTRATION OF INTRAMURALS AND ATHLETICS** 3 credits

Organizational patterns unique to conduct of intramurals, sport clubs and interscholastic athletics. Includes considerations of tournament designs, supplies and equipment and administration. Two hours lecture, two hours laboratory.

**5550:395 FIELD EXPERIENCE** 1-3 credits

Prerequisite: permission of adviser. Practical experience in an area related to physical education under supervision of faculty member. Student works with current physical education programs in schools.

**5550:403 STUDENT TEACHING SEMINAR** 1 credit

Prerequisite: senior status. In conjunction with Student Teaching. Synthesis of contemporary problems encountered during the student teaching experience. Exchange of ideas regarding role of new teacher entering profession.

**5550:430 SENIOR HONORS PROJECT: PHYSICAL EDUCATION** 1-6 credits

(May be repeated for a total of six credits)  
Prerequisites: senior standing in Honors Program and permission of student's preceptor. Carefully defined individual study demonstrating originality and sustained inquiry.

**5550:435/536 ADAPTED PHYSICAL EDUCATION TASKS FOR THE LEARNING DISABLED CHILD** 2 credits

Teaching methods and materials necessary to structure developmental tasks for learning disabled child; designed for a person preparing to teach elementary school physical education and special education.

**5550:460 PRACTICUM IN PHYSICAL EDUCATION** 3-6 credits

Prerequisites: senior standing and permission of adviser. Practical work experience with certified personnel in a discipline or profession related to physical education. The experience will be a cooperative effort of the student's adviser, the student and agency personnel directly involved with the practicum.

**5550:480 SPECIAL TOPICS: PHYSICAL EDUCATION** 1-4 credits

(May be repeated with a change in topic)  
Prerequisite: permission of instructor. Group study of special topics of critical, contemporary concern in professional education.

**5550:490,1,2,3/590,1,2,3 WORKSHOP** 1-3 credits each

Practical, intensive and concentrated involvement with current curricular practices in areas related to physical education.

**5550:494/594 EDUCATIONAL INSTITUTIONS AND FOUNDATIONS** 1-4 credits

Practical experience with current research or curricular practices involving expert resource person in physical education, and usually financed by private or public funding.

**5550:495 STUDENT TEACHING** 4-8 credits

Prerequisites: senior status, all major courses completed, 2.50 grade-point average in major. Supervised teaching experience in a public school for fifteen weeks.

**5550:497 INDEPENDENT STUDY** 1-2 credits

Prerequisite: permission of adviser. Analysis of specific topic related to a current problem in physical education. May include investigative procedures, research or concentrated practical experience.

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## Graduate Courses

**5550:601 ADMINISTRATION OF HEALTH, PHYSICAL EDUCATION, ATHLETICS AND RECREATION** 3 credits

Techniques of organization, administration and evaluation of health, physical education and recreation programs. Administrative policies of athletic programs at elementary, secondary and collegiate levels.

**5550:603 CURRICULUM PLANNING IN HEALTH AND PHYSICAL EDUCATION** 2 credits

Analysis of objectives, procedures and trends in curricula and principles and procedures for developing sound programs.

**5550:605 PHYSIOLOGY OF MUSCULAR ACTIVITY AND EXERCISE** 2 credits

Functions of body systems and physiological effects of exercise. Laboratory experiences, lectures, discussions.

**5550:606 MEASUREMENT AND EVALUATION IN PHYSICAL EDUCATION** 3 credits

Critical analysis of existing testing procedures and discussion and study of measurement and evaluation in terms of program needs.

**5550:608 SUPERVISION OF PHYSICAL EDUCATION** 2 credits

Principles involved in supervision of physical education service programs. Procedures and techniques of supervision of service classes at elementary, junior high and senior high school levels.

**5550:609 MOTIVATIONAL ASPECTS OF PHYSICAL ACTIVITY** 3 credits

Analysis of factors influencing motivation of motor performance with emphasis on competition, audience effects, aggression.

**5550:695 FIELD EXPERIENCE: MASTER'S** 1-6 credits

Prerequisite: permission of adviser. Participation in a work experience related to physical education. The experience may not be part of current position. Documentation of project required.

**5550:697 INDEPENDENT STUDY** 1-3 credits

Prerequisite: permission of adviser. In-depth analysis of current practices or problems related to physical education. Documentation of the study required.

**5550:698 MASTER'S PROBLEM** 2-4 credits

Prerequisite: permission of adviser. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in physical education.

**5550:699 THESIS RESEARCH** 4-6 credits

Prerequisite: permission of adviser. In-depth research investigation. Student must be able to demonstrate necessary competencies to deal with a research problem in physical education.

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## 5560: Outdoor Education

**5560:430 SENIOR HONORS PROJECT: OUTDOOR EDUCATION** 1-6 credits

(May be repeated for a total of six credits)  
Prerequisites: senior standing in Honors Program and permission of student's preceptor. Carefully defined individual study demonstrating originality and sustained inquiry.

**5560:450/550 APPLICATION OF OUTDOOR EDUCATION TO THE SCHOOL CURRICULUM** 4 credits

Provides knowledge, skills and techniques useful in application of outdoor education to school curriculum.

**5560:452/552 METHODS, MATERIALS AND RESOURCES FOR TEACHING OUTDOOR EDUCATION** 3 credits

Methodologies unique to outdoor education which incorporate a multisensory approach to learning. Instructional materials and resources which permit expansion of curriculum beyond the school building.

**5560:454 RESIDENT OUTDOOR EDUCATION** 2 credits

Emphasizes skills, program considerations and organizational techniques unique to an extended, overnight, resident outdoor education program. On location for at least five days and four nights.

**5560:456/556 OUTDOOR PURSUITS** 4 credits

Investigation and participation in practical experiences in outdoor pursuits.

**5560:460 OUTDOOR EDUCATION PRACTICUM** 2 credits

Prerequisites: 452.4. Closely supervised practical experience in conjunction with regularly scheduled classroom meetings. Laboratory experience consists of active participation with an established outdoor education program.

**5560:490/590 WORKSHOP: OUTDOOR EDUCATION** 1-3 credits

Practical application of contemporary ideas, methodologies, knowledge relevant to outdoor education. Emphasis participant involvement in educational practices, utilizing the natural environment.

**5560:494/594 EDUCATIONAL INSTITUTES: OUTDOOR EDUCATION** 1-4 credits

Practical experience with current research or curricular practices involving expert resource persons in outdoor education.

**5560:497 INDEPENDENT STUDY** 1-3 credits

Prerequisite: permission of adviser and supervisor of independent study. Provides varied opportunities for a student to gain first-hand knowledge and experience with existing outdoor education programs.

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## Graduate Courses

**5560:600 OUTDOOR EDUCATION: RURAL INFLUENCES** 3 credits

Prerequisites: 550 or 552. Utilization of resources of rural area as a learning/teaching environment. Content and methodology appropriate for teaching school-age children in rural setting.

**5560:605 OUTDOOR EDUCATION: SPECIAL TOPICS** 2-4 credits

(May be repeated with change in topic)  
Prerequisite: permission of instructor. Group and individual study of special topics of contemporary concern in outdoor education.

**5560:690 PRACTICUM IN OUTDOOR EDUCATION** 2-4 credits

Prerequisites: 550.2 and permission of adviser. Supervised practical ex-

perience with existing outdoor education programs. In conjunction with practical work student meets regularly with adviser.

**5560:695 FIELD EXPERIENCE: MASTER'S** 2-6 credits

Prerequisite: permission of adviser. Participation and documentation of practical professional experience related to outdoor education.

**5560:697 INDEPENDENT STUDY** 1-3 credits

Prerequisite: permission of adviser. In-depth analysis of current practices or problems related to outdoor education. Documentation of study required.

**5560:698 MASTER'S PROBLEM** 2-4 credits

Prerequisite: permission of adviser. Intensive research study related to a problem in outdoor education or related discipline.

**5560:699 MASTER'S THESIS** 4-6 credits

An original composition demonstrating independent scholarship in a discipline related to outdoor education.

quality of human life. Major emphasis will be study of man's health problems paradoxically resulting from his affluence.

**5570:430 SENIOR HONORS PROJECT: HEALTH EDUCATION** 1-6 credits

(May be repeated for a total of six credits)  
Prerequisites: senior standing in Honors Program and permission of student's preceptor. Carefully defined individual study demonstrating originality and sustained inquiry.

**5570:460 PRACTICUM IN HEALTH EDUCATION** 2 credits

Prerequisite: permission of the adviser. On-site participation in community health organizations, agencies or resources.

**5570:497 INDEPENDENT STUDY IN HEALTH EDUCATION** 1-2 credits

Prerequisite: permission of the adviser. Analysis of a specific topic related to a current problem in health education. May include investigative procedure, research or concentrated practical experience.

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## 5570: Health Education

**5570:101 PERSONAL HEALTH** 2 credits (10 clinical hours)

Application of current principles and facts pertaining to healthful, effective living. Personal health problems and needs of a student.

**5570:200 CURRENT TOPICS IN HEALTH EDUCATION** 3 credits

Designed to give the teacher of health education the knowledge base necessary to deal factually and comfortably with selected topics in school and community health.

**5570:201 CONSUMER HEALTH, WEIGHT CONTROL AND EXERCISE** 3 credits

Student will investigate current consumer health problems as they relate to making decisions about the purchase and use of health products and health services available in today's society. And understanding of the maintenance of body weight and how it is affected by a person's knowledge of nutrition and exercise will be included.

**5570:202 STRESS, LIFE-STYLE AND YOUR HEALTH** 3 credits

Overview of the behavior associated with wellness and disease.

**5570:320 COMMUNITY HYGIENE** 2 credits

Study of current major public health problems. Organization and administration of official and voluntary agencies and their role in solution of community health problems.

**5570:321 ORGANIZATION AND ADMINISTRATION OF SCHOOL HEALTH AND SCHOOL HEALTH SERVICES** 4 credits

Methods and techniques utilized in organization and administration of school health program. The role of school and community personnel in detecting and managing health problems of the student explored. Procedures and programs designed to protect and promote the health of school-age youth.

**5570:322 METHODS AND MATERIALS OF ELEMENTARY SCHOOL HEALTH EDUCATION** 2 credits

Prerequisite: 101. Emphasizes the planning and organization of subject matter for implementation in elementary school health curriculum. Emphasis will be on creative activities and teaching methods.

**5570:323 METHODS AND MATERIALS OF SECONDARY SCHOOL HEALTH EDUCATION** 2 credits

Prerequisite: 101. Planning and organization of subject matter for secondary school health instruction will be major emphasis. Attention will be given to development of teaching techniques, utilization of instructional media and evaluation procedures in health education.

**5570:395 FIELD EXPERIENCE IN HEALTH EDUCATION** 1-3 credits

Prerequisite: permission of the adviser. On-site field experience will be conducted in an area related to health education under the supervision of a faculty member. The student will work with current health education programs.

**5570:400 ENVIRONMENTAL ASPECTS OF HEALTH EDUCATION** 3 credits

Prerequisite: major or minor in health education or instructor's permission. Investigates many aspects of the environment and their influence upon the

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## 5600: Educational Guidance and Counseling

**5600:110 CAREER PLANNING** 2 credits

Skills necessary to make effective educational and career decisions. Emphasis upon self-understanding, career exploration, career planning, decision making.

**5600:410 PERSONNEL SERVICES IN SCHOOLS** 2 credits

Prerequisite: senior standing. Introduction to background, role and function, techniques, community agencies and issues in personnel field. For student considering pupil personnel fields, social work.

**5600:426/526 CAREER EDUCATION** 2 credits

Prerequisite: junior, senior or graduate standing. Examination of current career education models and programs with emphasis on infusion of career education activities into elementary and secondary curriculum.

**5600:436 HELPING SKILLS FOR RESIDENT ASSISTANTS** 2 credits

Prerequisite: open to resident assistants in University housing. A course designed to help student personnel workers become more effective in professional role.

**5600:450/550 COUNSELING PROBLEMS RELATED TO LIFE — THREATENING ILLNESS AND DEATH** 3 credits

Prerequisite: permission. Consideration of the global issues, current research, coping behavior, support systems and family and individual needs in regard to life-threatening situations.

**5600:480 SPECIAL TOPICS: EDUCATIONAL GUIDANCE AND COUNSELING** 1-4 credits

(May be repeated with a change in topic)  
Prerequisite: permission of instructor. Group study of special topics of critical, contemporary concern in professional education.

**5600:490,1,2/590,1,2 WORKSHOP** 1-3 credits each

Special instruction designed as in-service and/or upgrading individuals on current issues and practices in counseling.

**5600:493/593 WORKSHOP** 1-4 credits

Special instruction designed as in-service and/or upgrading individuals on current issues and practices in counseling.

**5600:494/594 COUSELING INSTITUTE** 1-4 credits

In-service programs for counselors and other helping professionals.

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## Graduate Courses

**5600:600 SEMINAR IN COUSELING** 1 credit

Prerequisite: Counseling majors must elect 600 prior to electing 651 and/or within the first ten credits of 5600 coursework. Structured group experience designed to help a student assess selection of counseling as a profession.

**5600:802 INTRODUCTION TO COUNSELING** 2 credits  
Understanding guidance and counseling principles including organization, operation and evaluation of guidance programs (designed for noncounseling major).

**5600:631 ELEMENTARY SCHOOL GUIDANCE** 3 credits  
Introductory course: examines guidance and counseling practices.

**5600:633 SECONDARY SCHOOL GUIDANCE** 3 credits  
Introductory course: examines guidance and counseling practices.

**5600:635 COMMUNITY AND COLLEGE COUNSELING** 3 credits  
Overview of community and college counseling services; their evaluation, philosophy, organization and administration.

**5600:643 COUNSELING: THEORY AND PHILOSOPHY** 3 credits  
Examination of major counseling systems including client-centered, behavioral and existential theories. Philosophical and theoretical dimension stressed.

**5600:645 GROUP TESTING IN COUNSELING** 3 credits  
Study of evaluation and measurement procedures in counseling including instrument development, selection and use of aptitude tests, inventories and rating scales.

**5600:647 CAREER COUNSELING: THEORY AND PRACTICE** 3 credits  
Prerequisite: 631 or 633 or 635 or permission. Study of career development, career decision making, career options and career counseling program development.

**5600:649 COUNSELING AND PERSONNEL SERVICES IN HIGHER EDUCATION** 2 credits  
Prerequisite: 635 or permission of instructor. Counseling services as related to psychological needs and problems of the college student.

**5600:651 TECHNIQUES OF COUNSELING** 3 credits  
Prerequisite: 643 or permission. Study and practice of selected counseling techniques and skills with emphasis on structuring, listening, leading and establishing a counseling relationship.

**5600:653 GROUP COUNSELING** 3 credits  
Prerequisite: 651. Provides knowledge, understanding and skills necessary for conducting group counseling sessions.

**5600:655 INTRODUCTION TO MARRIGE AND FAMILY THERAPY** 3 credits  
Overview of the field including exposure to the history, terminology, contributions of significant persons.

**5600:657 CONSULTANT: COUNSELING** 3 credits  
Prerequisite: 631, 651 or permission. Examination of consultation models with focus on process and product.

**5600:659 ORGANIZATION AND ADMINISTRATION OF GUIDANCE SERVICES** 3 credits  
Prerequisite: 631 or 633 or permission. Development of a comprehensive articulated guidance and counseling program.

**5600:661 SEMINAR: ELEMENTARY SCHOOL COUNSELING** 2 credits  
Prerequisites: 645, 647, 653 and 657. Primary models for understanding and modifying children's behavior in classroom including technique development and review of guidance materials and programs.

**5600:663 SEMINAR: SECONDARY SCHOOL COUNSELING** 2 credits  
Prerequisites: 633, 643, 645 and 647. Study of specific guidance techniques and materials useful to counselors working with the secondary school student, teacher and parents.

**5600:665 SEMINAR: COMMUNITY AND COLLEGE COUNSELING** 3 credits  
Prerequisite: 635 or permission. Study of topics of concern to a student specializing in community and college counseling. Topics may differ each semester according to students' needs.

**5600:667 MARITAL THERAPY** 3 credits  
Prerequisite: 655. In-depth study of theories and interventions which focus on the nature and quality of marital relationships.

**5600:669 SYSTEMS THEORY IN FAMILY THERAPY** 3 credits  
Prerequisite: 655. In-depth exploration of systems theory in family therapy.

Major assumptions of systems theory will be examined and the implications for interventions will be explored.

**5600:671 COUNSELING CLINIC** 1-3 credits  
Prerequisite: permission. Closely supervised application and integration of diagnostic, counseling and consultant skills in clinical setting.

**5600:675 PRACTICUM IN COUNSELING** 4 credits  
Prerequisite: 653. Supervised counseling experience with individuals and small groups.

**5600:695 FIELD EXPERIENCE: MASTER'S** 1-10 credits  
Prerequisite: permission of adviser and department head. Placement in selected setting for purpose of acquiring experiences and/or demonstrating skills related to student's counseling program.

**5600:697 INDEPENDENT STUDY** 1-3 credits  
(May be repeated for a total of nine credits)  
Prerequisite: permission of adviser and department head. Specific area of investigation determined in accordance with student needs.

**5600:698 MASTER'S PROBLEM** 2-4 credits  
Prerequisite: permission of adviser. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in educational guidance and counseling.

**5600:699 THESIS RESEARCH** 4-6 credits  
Prerequisite: permission of adviser and department head. In-depth study and analysis of counseling problem.

**5600:702 ADVANCED COUNSELING PRACTICUM** 3 credits  
(May be repeated for a total of nine credits)  
Prerequisite: doctoral residency or permission. Examination of theories of individual age group counseling along with supervised counseling experience in selected settings.

**5600:703 ADVANCED SEMINAR IN COUNSELING** 3 credits  
Prerequisite: doctoral residency or permission. Examination of major issues in the field such as the counselor as a professional and as a person, and issues, problems and trends in counseling.

**5600:704 RESEARCH DESIGN IN COUNSELING I** 3 credits  
Prerequisite: doctoral residency or permission. Study of research designs, evaluation procedures and review of current research.

**5600:705 RESEARCH DESIGN IN COUNSELING II** 3 credits  
Prerequisite: 704. Computer analysis of data related to counseling problem. Development of research proposal.

**5600:706.7 INTERNSHIP IN COUNSELING SUPERVISION I, II** 3 credits each  
Prerequisite: doctoral residency or permission. Instruction and experience in supervising a graduate student in counseling.

**5600:720 TOPICAL SEMINAR: GUIDANCE AND COUNSELING** 1-3 credits  
Prerequisite: permission of instructor. A topical study with a variety of disciplinary input. Staffing will be by department faculty and other professionals in counseling and related fields. A maximum of six credits may be applied to a degree.

**5600:895 FIELD EXPERIENCE: DOCTORAL** 1-6 credits  
(May be repeated)  
Prerequisite: doctoral candidate status. Placement in selected setting for purpose of acquiring experiences and/or developing skills related to student's doctoral program.

**5600:897 INDEPENDENT STUDY** 1-3 credits  
(May be repeated for a total of nine credits)  
Prerequisite: permission of adviser and department head. Specific area of investigation determined in accordance with student needs.

**5600:898 RESEARCH PROJECTS IN SPECIAL AREAS** 1-2 credits  
(May be repeated)  
Prerequisite: permission of adviser and department head. Study, analysis and reporting of counseling problem.

**5600:899 DISSERTATION** 1-20 credits  
Prerequisite: permission of major doctoral adviser and department head. Study, design and analysis of counseling problem.

## 5610: Special Education

**5610:201 STUDENT** 1 credit (credit/noncredit)

**PARTICIPATION: EDUCABLE MENTALLY RETARDED/  
LEARNING DISABILITIES**

Prerequisite: sophomore standing and permission. Systematic observation and participation in classes for educable mentally retarded and learning disabled children for ½ semester each. This experience is prerequisite to student teaching in each area.

**5610:202 STUDENT** 1 credit (credit/noncredit)

**PARTICIPATION: EDUCABLE MENTALLY RETARDED/  
ORTHOPEDEICALLY HANDICAPPED**

Prerequisite: sophomore standing and permission. Systematic observation and participation in classes for educable mentally retarded and orthopedically handicapped children for ½ semester each. This experience is prerequisite to student teaching in each area.

**5610:203 STUDENT** 1 credit (credit/noncredit)

**PARTICIPATION: EDUCABLE MENTALLY RETARDED/  
TRAINABLE MENTALLY RETARDED**

Prerequisite: sophomore standing and permission. Systematic observation and participation in classes for educable mentally retarded and trainable mentally retarded children for ½ semester each. This experience is prerequisite to student teaching in each area.

**5610:395 FIELD EXPERIENCE: SPECIAL EDUCATION** 1-3 credits

Prerequisite: upper college standing. Supervised work with youngsters, individually and in groups in school and/or community settings.

**5610:403 STUDENT TEACHING SEMINAR:  
SPECIAL EDUCATION** 1 credit

Corequisite: 495. Support seminar for student teaching experience.

**5610:430 SENIOR HONORS PROJECT:  
SPECIAL EDUCATION** 1-6 credits

(May be repeated for a total of six credits)

Prerequisites: senior standing in Honors Program and permission of student's preceptor. Carefully defined individual study demonstrating originality and sustained inquiry.

**5610:440/540 DEVELOPMENTAL CHARACTERISTICS  
OF EXCEPTIONAL INDIVIDUALS** 3 credits

Prerequisites: 3750:100 and 5100:250. Etiology, diagnosis, classification, development characteristics of the atypical individual.

**5610:441/541 DEVELOPMENTAL CHARACTERISTICS OF  
MENTALLY RETARDED INDIVIDUALS** 4 credits

Prerequisite: 440/540. Study of etiology, diagnosis, classification and developmental characteristics of educable mentally retarded, trainable mentally retarded and profoundly retarded individuals.

**5610:443/543 DEVELOPMENTAL CHARACTERISTICS OF  
LEARNING DISABLED INDIVIDUALS** 3 credits

Prerequisite: 440/540. Survey of etiology, diagnosis, classification and developmental characteristics of learning disabled individuals.

**5610:444/544 DEVELOPMENTAL CHARACTERISTICS OF  
INTELLECTUALLY GIFTED INDIVIDUALS** 3 credits

Prerequisite: 440/540. Survey of etiology, diagnosis, classification and developmental characteristics of intellectually gifted individuals.

**5610:445/545 DEVELOPMENTAL CHARACTERISTICS OF  
ORTHOPEDEICALLY HANDICAPPED INDIVIDUALS** 3 credits

Prerequisite: 441/541. Etiology, diagnosis, classification, developmental characteristics of the orthopedically handicapped.

**5610:446/546 DEVELOPMENTAL CHARACTERISTICS OF  
BEHAVIORALLY DISORDERED INDIVIDUALS** 3 credits

Prerequisite: 443/543. Etiology, diagnosis, classification, developmental characteristics of the socially and emotionally maladjusted.

**5610:450/550 EDUCATIONAL ADJUSTMENT FOR  
PRESCHOOL AND PRIMARY LEVEL EXCEPTIONAL INDIVIDUALS** 3 credits

Prerequisites: Plans A and B: 441/541 and 443/543; Plan C: 443/543 and 445/545; certification minors: 443/543 and characteristic course in certification focus area. Study of diagnostic prescriptive service delivery systems designed to accommodate developmental patterns of preschool and primary level exceptional children.

**5610:451/551 EDUCATIONAL ADJUSTMENT FOR  
INTERMEDIATE LEVEL EXCEPTIONAL CHILDREN** 3 credits

Prerequisite: 450/550 except for secondary certification minors. Diagnostic prescriptive service delivery systems designed to accommodate developmental patterns of intermediate level exceptional children.

**5610:452/552 EDUCATIONAL ADJUSTMENT FOR  
SECONDARY LEVEL EXCEPTIONAL CHILDREN** 3 credits

Prerequisite: 451/551. Study of diagnostic prescriptive service delivery systems designed to accommodate developmental patterns of secondary level exceptional children.

**5610:453/553 RECREATIONAL PROGRAMS FOR  
EXCEPTIONAL INDIVIDUALS** 1 credit

Study experience which examines crafts and outdoor recreational programming for exceptional individuals in a field setting.

**5610:454/554 EDUCATIONAL ADJUSTMENT FOR  
MODERATE, SEVERE AND PROFOUND MENTALLY  
RETARDED INDIVIDUALS** 3 credits

Prerequisite: 441/541. Study of programs, services and training techniques designed to accommodate developmental patterns of moderate, severe and profound mentally retarded individuals.

**5610:455/555 EDUCATIONAL ADJUSTMENT FOR  
INTELLECTUALLY GIFTED INDIVIDUALS** 3 credits

Prerequisite: 444/544. Study of programs, services and educational experiences designed to accommodate developmental patterns of intellectually gifted individuals.

**5610:456/556 CLASSROOM BEHAVIOR MANAGEMENT  
FOR EXCEPTIONAL INDIVIDUALS** 2 credits

Prerequisite: 451/551 or equivalent. Review, development of behavior management principles, application models for the exceptional.

**5610:457/557 CLINICAL TEACHING PRACTICUM:  
CHILDREN WITH LEARNING PROBLEMS** 3 credits

(May be repeated for a total of six credits)

Prerequisite: 450/550 or 451/551 or 452/552. Supervised clinical teaching experience with individuals or small groups of problem learners. Designed to familiarize and give practice in diagnostic and remedial teaching techniques and pupil personnel resources.

**5610: 458/558 INTERDISCIPLINARY  
PROGRAMMING FOR MSPR INDIVIDUALS** 3 credits

Prerequisite: permission of instructor. A study of the programs, interdisciplinary services, educational techniques designed to accommodate the needs of MSPR multiply handicapped individuals.

**5610:459/559 SEMINAR: INVITATIONAL STUDIES IN  
SPECIAL EDUCATION** 1-2 credits

(May be repeated for a total of four credits)

Topical study with a varied array of disciplinary input. Staffing will be invited members of allied and contributing professions active in management of exceptional children.

**5610:460/560 WORKING WITH PARENTS  
OF MSPR INDIVIDUALS** 3 credits

Prerequisite: permission of instructor. Provides student with the competencies to facilitate working with parents to improve school, home adjustment of MSPR individuals.

**5610:490,1,2,3/590,1,2,3 WORKSHOP** 1-3 credits each

(May be repeated for a total of four credits)

Designed to explore special topics in in-service or preservice education on a needs basis.

**5610:494/594 EDUCATION INSTITUTES:  
SPECIAL EDUCATION** 1-4 credits

Special courses designed as in-service upgrading programs, frequently provided with the support of national foundations.

**5610:495 STUDENT TEACHING** 4-8 credits

Corequisite: 403. Student teaching with educable mentally retarded, learning disabled, orthopedically handicapped, or speech handicapped children under supervision of the directing therapist and supervisor.

**5610:497 INDEPENDENT STUDY: SPECIAL EDUCATION** 1-3 credits

Prerequisite: permission of adviser and supervisor of the independent study. Specific area of investigation determined in accordance with student's needs.

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## Graduate Courses

**5610:600 SEMINAR: SPECIAL EDUCATION** 3 credits

Prerequisite: 12 credits of graduate study in special education. Critical examination of practices and pertinent research in special education. Legislation and court decisions affecting special education programs in Ohio and nation examined.

**5610:601 SEMINAR: SPECIAL EDUCATION CURRICULUM PLANNING** 3 credits

Prerequisite: certification in an area of special education. Study of curriculum planning practices unique to special education classes and services. Appropriate curriculum objectives for selected areas of instruction as well as effective organizational programs examined.

**5610:602 SUPERVISION OF INSTRUCTION** 3 credits

Prerequisite: certification in an area of special education. Study of administration and supervisory practices unique to special education classes and services.

**5610:603 ASSESSMENT AND EDUCATIONAL PROGRAMMING** 3 credits

Prerequisite: certification in an area of special education or permission of instructor. Overviews psychodiagnostic approach in assessment of handicapped individuals and examines methods for designing individuals programming based on formal and informal assessment. Program management also examined.

**5610:604 EDUCATION AND MANAGEMENT STRATEGIES FOR PARENTS OF EXCEPTIONAL INDIVIDUALS** 3 credits

Prerequisite: certification in an area of special education and/or permission of instructor. Methods of working with parents to facilitate effective programs for handicapped individuals. Strategies for providing support and educational services for parents examined.

**5610:605 PROGRAM DEVELOPMENT AND SERVICE DELIVERY SYSTEMS** 3 credits

Prerequisite: certification in special education and/or permission of instructor. Provides strategies for community analysis, case findings, funding sources and practices, and development of program models and service delivery systems to serve the handicapped.

**5610:695 FIELD EXPERIENCE: MASTER'S** 1-4 credits

(May be repeated for a total of eight credits)  
Designed to provide on-the-job experience in a special education program on an individual basis.

**5610:697 INDEPENDENT STUDY** 1-3 credits

(May be repeated for a total of nine credits)  
Prerequisite: permission of adviser and supervisor of the independent study. Specific area of investigation determined in accordance with student's needs.

**5610:698 MASTER'S PROBLEM** 2-4 credits

Prerequisite: permission of adviser. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in special education.

**5610:699 THESIS RESEARCH** 4-6 credits

Thorough study and analysis in depth of an educational problem, field projects in special areas; synthesis of existing knowledge in relationship to a specific topic.

**5610:798 RESEARCH PROJECT IN SPECIAL EDUCATION** 1-3 credits

Study, analysis and reporting of special education problem.

**5620:494/594 SCHOOL PSYCHOLOGY INSTITUTES** 1-4 credits

Prerequisite: permission of instructor. Specifically designed learning experience for program graduate focusing on critical topics.

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## Graduate Courses

**5620:600 SEMINAR: ROLE AND FUNCTION OF THE SCHOOL PSYCHOLOGIST** 3 credits

Prerequisite: permission of instructor. Seminar on role and function of school psychologist. The course, tailored to meet individual needs of trainees, is a consideration of professionals standards of school psychology practice.

**5620:601 COGNITIVE FUNCTION MODELS FOR PRESCRIPTIVE EDUCATIONAL PLANNING** 3 credits

Prerequisite: permission of instructor. Consideration of cognitive development theories and their application for educational programming.

**5620:602 BEHAVIORAL ASSESSMENT** 3 credits

Prerequisite: permission of instructor. Overview of behavioral theory and its application focusing upon the role of the school psychologist as an agent of behavior change.

**5620:603 CONSULTATION STRATEGIES IN SCHOOL PSYCHOLOGY** 3 credits

Prerequisite: permission of instructor. A consideration of consultant roles in the practice of school psychology as related to consultant process and with school and agency personnel, parents and children.

**5620:610 EDUCATIONAL DIAGNOSIS FOR SCHOOL PSYCHOLOGISTS** 4 credits

Prerequisite: permission of instructor. Clinical study and application of current assessment approaches applicable in assessment of children's learning problems.

**5620:611 PRACTICUM IN SCHOOL PSYCHOLOGY** 4 credits

Prerequisite: permission of instructor. Laboratory experience in psycho-educational study of individual children who have learning problems in school.

**5620:630,1 INTERNSHIP IN SCHOOL PSYCHOLOGY: FALL/SPRING** 3 credits each

Prerequisite: permission of instructor. Full-time paid work assignment under supervision of a qualified school psychologist for an academic year structured according to provisions of State Department of Education. Additional readings required.

**5620:640 FIELD SEMINAR I: ISSUES AND ASSESSMENTS (FALL)**

**5620:641 FIELD SEMINAR II: CLASSROOM ENVIRONMENT (SPRING)** 2 credits each

Prerequisite: permission of instructor. Consideration of pertinent topics in practice of school psychology with emphasis on field-based problems and issues of a practicing school psychologist.

**5620:694 RESEARCH PROJECT IN SPECIAL AREAS** 1-3 credits

Prerequisite: permission of adviser. Study, analysis and reporting of school psychology problem.

**5620:695 FIELD EXPERIENCE: MASTER'S** 1-3 credits

Prerequisite: permission of instructor. Practical school psychology-related experience in school setting.

**5620:696 FIELD EXPERIENCE: MASTER'S** 1-3 credits

Prerequisite: permission of instructor. Practical school psychology-related experience in appropriate setting other than a school.

**5620:697 INDEPENDENT STUDY** 1-4 credits

Prerequisite: permission of adviser and supervisor of the independent study. Documentation of specific area of investigation. Nature of the inquiry to be determined by student-supervisor agreement.

**5620:698 MASTER'S PROBLEM** 2-4 credits

Prerequisite: permission of adviser. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in school psychology.

**5620:699 THESIS RESEARCH** 4-6 credits

Prerequisite: permission of instructor. Thorough study, analysis and reporting in depth of an educational problem; field projects in special areas; synthesis of existing knowledge in relationship to specific topic.

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## 5620: School Psychology

**5620:490/590 WORKSHOP** 1-2 credits

Prerequisite: permission of instructor. Opportune topical experience provided periodically as needed and/or resources become available.

**5620:491,2/591,2 WORKSHOP** 1-3 credits each

Prerequisite: permission of instructor. Opportune topical experience provided periodically as needed and/or resources become available.

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## 5630: Multicultural Education

**5630:480 SPECIAL TOPICS: MULTICULTURAL EDUCATION** 1-4 credits

(May be repeated with a change in topic)  
Prerequisite: permission of instructor. Group study of special topics of critical, contemporary concern in professional education.

**5630:481/581 MULTICULTURAL EDUCATION IN UNITED STATES** 3 credits

Inquiry into multicultural dimensions of American education. Comparisons of urban, suburban and rural educational settings with reference to socio-economic differences.

**5630:482/582 CHARACTERISTICS OF CULTURALLY DIFFERENT YOUTH** 3 credits

Study of characteristics of culturally different youth with focus on youth in low-income areas. Emphasis on cultural, social, economic and educational considerations and their implications.

**5630:483/583 PREPARATION FOR TEACHING CULTURALLY DIFFERENT YOUTH** 3 credits

Designed to help prepare trainees to teach culturally different youth from low-income backgrounds. Through use of multimedia source materials trainees gain knowledge of background and culture of culturally different learners, determine role of teacher, explore techniques of discipline and classroom management, survey motivational and instructional techniques and examine, prepare and adapt variety of instructional materials for individual, small group and large group instruction.

**5630:484/584 PRINCIPLES OF BILINGUAL/MULTICULTURAL EDUCATION** 3 credits

An introduction to the theoretic, cultural, sociolinguistic bases of bilingual/multicultural education. Legislation, court decisions, program implementation included.

**5630:485/585 TEACHING READING AND LANGUAGE ARTS TO BILINGUAL STUDENTS** 4 credits

Prerequisite: permission of instructor. Course applies methodologies for teaching reading, language arts in the bilingual/multicultural classroom. The bilingual student's native language, culture stresses.

**5630:486/586 TEACHING MATHEMATICS, SOCIAL STUDIES AND SCIENCE TO BILINGUAL STUDENTS** 3 credits

Prerequisite: elementary education majors, 5200: 333,6,8; for secondary education majors, 5300:411 (science, social studies or mathematics). Course applies methodologies for teaching mathematics, science, social studies in the bilingual/multicultural classroom. The bilingual student's native language stressed.

**5630:487/587 TECHNIQUES FOR TEACHING ENGLISH AS A SECOND LANGUAGE IN THE BILINGUAL CLASSROOM** 4 credits

Prerequisite: permission of instructor. Course includes teaching language skills to Limited English Proficient students in grades K-12, administration of language assessment tests, selection and evaluation of materials.

**5630:490/590 WORKSHOP: BILINGUAL/MULTICULTURAL** 1-3 credits  
Emphasizes development of teaching devices and/or curriculum units, demonstration of teaching techniques, utilization of community resources.

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## Graduate Course

**5630:686 SEMINAR: EDUCATION OF THE CULTURALLY DIFFERENT** 2 credits

Survey of educational considerations for schools populated by low income culturally different youth. Field experience in form of visitations to agencies serving low-income families required.

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## 5700: Educational Administration

**5700:480 SPECIAL TOPICS: EDUCATIONAL ADMINISTRATION** 1-4 credits

(May be repeated with a change in topic)  
Prerequisite: permission of instructor. Group study of special topics of critical, contemporary concern in professional education.

**5700:490,1,2,3/590,1,2,3 WORKSHOP** 1-3 credits each  
Individual work under staff guidance on curriculum problems, utilization of community resources, planning of curriculum units.

**5700:494/594 EDUCATIONAL INSTITUTES** 1-4 credits  
Special courses designed as in-service upgrading programs, frequently provided with the support of national foundations.

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## Graduate Courses

**5700:601 PRINCIPLES OF EDUCATIONAL ADMINISTRATION** 3 credits

Theories and practices in administering schools and school systems, with emphasis on administrative process, common problems, career opportunities, getting the first job.

**5700:604 SCHOOL AND COMMUNITY RELATIONS** 2 credits  
Basics in maintaining cooperative relationships between educational institutions and their supporting publics. Examination, analysis of institutional environments and impact of mass media on public support.

**5700:605 DECISION-MAKING THEORY AND PRACTICE IN EDUCATIONAL ADMINISTRATION** 3 credits

Theories underlying process of decision making in philosophy, sociology, economics and politics of education. Alternative decisions and theory respective consequences. Fundamentals of PPBS and other decision-making aids.

**5700:606 EVALUATION OF EDUCATIONAL INSTITUTIONS** 3 credits  
Theories and practices involved in processes of delineating, obtaining and providing information for decision making.

**5700:607 LEGAL BASIS OF EDUCATION** 2 credits  
Legal principles underlying education in United States as reflected in statutory provisions, court decisions and administrative orders presented. Ohio school statutes covered in depth.

**5700:608 PRINCIPLES OF SCHOOL FINANCE** 2 credits  
Study of financial operations of school systems including tax and other income, expenditures and budgeting.

**5700:610 PRINCIPLES OF EDUCATIONAL SUPERVISION** 3 credits  
Study of principles, organizations and techniques of supervision with view to improvement of instruction.

**5700:611 SUPERVISION OF STUDENT TEACHING** 2 credits  
Primarily for supervising teachers in guidance of student teachers. Topics include readiness for student teaching, directing teacher and college supervisor relationships, use of the conference, demonstration and observation.

**5700:620 SECONDARY SCHOOL ADMINISTRATION** 3 credits  
Prerequisite: 601. Designed to help student gain knowledge and develop skills needed to successfully deal with problems, procedures of organization and administration of secondary school.

**5700:631 ELEMENTARY SCHOOL ADMINISTRATION** 2 credits  
Prerequisite: 601. Problems, procedures and principles of organization, administration and supervision in elementary schools.

**5700:694 FIELD EXPERIENCE FOR THE ELEMENTARY ADMINISTRATOR** 1-2 credits

(May be repeated for a total of two credits)  
On-the-job experience in a public school system working with administrators and/or supervisors.

**5700:695 FIELD EXPERIENCE FOR SUPERVISORS** 2 credits  
Prerequisite: completion of all coursework except research problem. Designed to help student test and develop understandings and skills in supervision.

Student participates in selected task areas which reflect supervisory responsibilities.

**5700:896 FIELD EXPERIENCE FOR THE SECONDARY SCHOOL ADMINISTRATOR** 3 credits

Prerequisite: completion or present enrollment in all coursework for the master's degree for the secondary school principal. Provides student with on-the-job experience in secondary school administration.

**5700:897 INDEPENDENT STUDY** 1-3 credits  
(May be repeated for a total of six credits)

Prerequisite: permission of adviser and supervisor of the independent study. Area of study determined by student's needs.

**5700:898 MASTER'S PROBLEM** 2-4 credits

Prerequisite: permission of adviser. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in educational administration.

**5700:899 THESIS RESEARCH** 4-6 credits

Prerequisite: permission of adviser. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in educational administration.

**5700:701 SCHOOL BUILDING AND CONSTRUCTION** 2 credits

Theories and practices involved in planning school facilities discussed. Includes field explorations of exemplary school buildings.

**5700:702 SCHOOL BUSINESS ADMINISTRATION** 2 credits

School business administration as part of total administrative pattern, and as creative planning process designed to facilitate instruction.

**5700:703 ADMINISTRATION OF STAFF PERSONNEL** 2 credits

Guidelines, techniques and procedures for helping administrator become democratic leader. Duties and responsibilities of staff as participants in administrative activity.

**5700:704 ADMINISTRATIVE ORGANIZATIONS IN EDUCATION** 2 credits

Study of organizations, strengths and weaknesses of bureaucratic model in administering them. Practical means by which weaknesses of bureaucracies are offset or lessened in educational institutions.

**5700:710 PRINCIPLES OF CURRICULUM DEVELOPMENT** 3 credits

Overview of instructional programs of a school in terms of basic purposes, functions and structures necessary to study and interpret these instructional programs.

**5700:715 EDUCATIONAL ORGANIZATIONAL INFORMATION PROCESSING** 2 credits

For graduate education student majoring in administration. Includes concepts of modern systems and their educational applications.

**5700:720 TOPICAL SEMINAR: EDUCATIONAL ADMINISTRATION** 1-3 credits

(May be repeated)

Prerequisite: permission of instructor. Topical studies in selected areas of concern to students, practicing administrators in public, private educational institutions, organizations.

**5700:730 SEMINAR IN SCHOOL ADMINISTRATION** 3 credits

Prerequisite: 601. Focus on recent research in administration and educational administration theory.

**5700:731 SEMINAR: PROBLEMS OF THE SCHOOL ADMINISTRATOR** 2 credits

Current administrative problems in educational institutions as perceived by student and practicing school executives. Emphasis on problem management, amelioration or solution. Field visits, or resource persons invited to classroom.

**5700:732 ORGANIZATIONAL COMMUNICATIONS AND THE SCHOOL ADMINISTRATOR** 3 credits

Fundamentals in interpersonal communications. Application of these principles to roles of educational administrators. Skill development in written and spoken communications, with attention to nonverbal communications: simulation and role-playing.

**5700:733 THE EDUCATIONAL ADMINISTRATOR AND PLANNED CHANGE** 2 credits

Prerequisites: 601 and 704. Relationship between technological and social change and needed change in education; theories, principles and mechanisms in planned educational change.

**5700:740 THEORIES OF EDUCATIONAL SUPERVISION** 3 credits

Prerequisite: 610, 5200:732 or 5300:721. Explanation and examination of various theories of supervision; sample models which implement existing theories.

**5700:745 PRACTICUM IN EDUCATIONAL ADMINISTRATION: URBAN SETTING** 2 credits

Prerequisite: completion of three-fourths of doctoral program courses. Analysis of uniquenesses of urban setting, e.g., multicultural and pluralistic urban populations. Stress on administrator's human relation skills.

**5700:746 POLITICS, POWER AND THE SCHOOL ADMINISTRATOR** 3 credits

Impacts of formal and informal community power structures and influential persons on educational planning and decision making. Administrator as an influence on the power structure for educational benefit.

**5700:747 PRACTICUM: COMPETING AND COMPLEMENTARY SOCIAL SYSTEMS** 3 credits

Designed to bring educational administrator into direct contact with individuals responsible for other community service delivery systems, e.g., city government. Methods of interagency cooperation to provide client services.

**5700:795,6 INTERNSHIP IN EDUCATIONAL ADMINISTRATION** 2 credits each

(May be repeated for a total of six credits)

Work under a practicing administrator involving experience in optimum number of administrative tasks. Includes seminars and written work.

**5700:797 FIELD EXPERIENCE FOR THE ELEMENTARY ADMINISTRATOR** 2 credits

Entails supervised, on-the-job, administration experience in administrative task areas of staff personnel, pupil personnel, curriculum, community relations, finance and physical facilities.

**5700:895 FIELD EXPERIENCE FOR THE SUPERINTENDENT** 2 credits

Prerequisite: permission of instructor. Cooperative, field-based experience in central office of a school district in which student performs assignments in administrative task areas.

**5700:896 FIELD EXPERIENCE IN SCHOOL PLANT PLANNING** 2 credits

Prerequisite: permission of instructor. Selected field experiences. Emphasis on analysis of school enrollments, evaluation of school plants and financial aspects of plant planning.

**5700:897 INDEPENDENT STUDY** 1-3 credits

(May be repeated for a total of six credits)

Prerequisite: permission of adviser. In-depth study of a research problem in education. Student must be able to demonstrate critical and analytical skills in dealing with a problem in secondary education.

**5700:898 RESEARCH PROJECT IN SPECIAL AREAS** 1-2 credits

Prerequisite: permission of adviser. Critical and in-depth study of specific problem in educational administration.

**5700:899 DISSERTATION** 1-20 credits

Prerequisite: permission of adviser. Specific research problem that required student to apply research skills and techniques to the problem being studied.

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## 5800: Special Educational Programs

**5800:490/590 WORKSHOP IN ECONOMIC EDUCATION OR IN SOCIAL STUDIES** 1-3 credits

Individual work under staff guidance on curriculum problems; utilization of community resources; planning of curriculum units.

**5800:491/591 WORKSHOP IN ARITHMETIC OR IN PHYSICAL SCIENCE** 1-3 credits

Individual work under staff guidance on curriculum problems; utilization of community resources; planning of curriculum units.

**5800:492/592 WORKSHOP IN READING** 1-3 credits

Individual work under staff guidance on curriculum problems; utilization of community resources; planning of curriculum units.

**5800:483/583 WORKSHOP ON EXCEPTIONAL CHILDREN** 1-3 credits  
Individual work under staff guidance on curriculum problems; utilization of community resources; planning of curriculum units.

**5800:494/584 INTERNATIONAL SCHOOL STUDY** 3-6 credits  
On-the-scene study of education in foreign countries, usually by concentrating on the study of schools in one restricted geographical area.

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## 5850: Educational Technology

**5850:100 INTRODUCTION:  
PUPIL PERSONNEL WORK** 2 credits  
Purposes, needs, scope, character of pupil personnel services.

**5850:201 INFORMATIONAL SERVICES IN GUIDANCE  
AND SPECIAL EDUCATION** 2 credits  
Emphasis on organization and status of informational services as related to activities of educational technologist.

**5850:204 HUMAN RELATIONS IN EDUCATION** 3 credits  
Study of individual and group relationships in educational setting including development of basic interpersonal skills.

**5850:207 MECHANICS OF STUDENT APPRAISAL** 3 credits  
Introduction to group appraisal with major emphasis on assisting certified personnel in group test administration, scoring, organizing and recording test results.

**5850:213 ORIENTATION OF THE EDUCATIONAL  
TECHNICIANS TO THE SECONDARY SCHOOL** 2 credits  
Designed to provide student preparing for role of educational technician with framework for understanding secondary education.

**5850:260 SPECIAL EDUCATION TECHNOLOGY** 2 credits  
Survey of selected procedures and materials employed in classrooms especially designed and operated for exceptional children.

**5850:295 EDUCATION TECHNICIAN FIELD EXPERIENCE** 5 credits  
(May be repeated once)  
Supervised field experience in school setting designed for educational technician enrollees only.

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## 5900: Higher Education Administration

**5900:700 INTRODUCTORY ADMINISTRATIVE  
COLLOQUIUM IN HIGHER EDUCATION** 1 credit  
Introductory examination of issues, trends, topics and activities in institutions of higher education.

**5900:715 SEMINAR IN HIGHER EDUCATION:  
ADMINISTRATION IN HIGHER EDUCATION** 3 credits  
Prerequisite: 5700:704 or permission. In-depth study of problems, procedures and principles of administration in institutions of higher education. Emphasis is placed on the administrative process and major administrative task areas.

**5900:725 SEMINAR IN HIGHER EDUCATION:  
STUDENT SERVICES** 3 credits  
Prerequisite: permission. Topics of concern to student specializing in student personnel services in higher education. Topics may differ each semester depending upon specific student needs and interests.

**5900:730 HIGHER EDUCATION CURRICULUM AND  
PROGRAM PLANNING** 3 credits  
Study of strategies for implementing and monitoring the curricular change process. Broad aspects of higher education program planning shall be examined.

**5900:735 INSTRUCTIONAL STRATEGIES AND  
TECHNIQUES FOR THE COLLEGE INSTRUCTOR** 3 credits  
Selected topics in instructional theory, techniques and strategies which are appropriate to instructional planning and development of college level courses. Criterion-reference formating is emphasized, including student achievement testing and evaluation.

**5900:745 INDEPENDENT STUDY IN HIGHER EDUCATION** 1-3 credits  
(May be repeated for a total of six credits)  
Prerequisite: permission. Selected area of independent investigation in an area of higher education as determined by adviser and student in relation to student's academic needs and career goals.

**5900:800 ADVANCED ADMINISTRATIVE COLLOQUIUM  
IN HIGHER EDUCATION** 1 credit  
(May be repeated)  
Prerequisite: permission. Examination of selected perspectives and topics which pose concerns to participating students.

**5900:801 INTERNSHIP IN HIGHER EDUCATION** 1-3 credits  
(May be repeated for a total of six credits)  
Prerequisite: permission; corequisite: 802. Intensive work experience in operations of an institution of higher education, related to student's own program of studies and professional goals.

**5900:802 INTERNSHIP IN HIGHER EDUCATION SEMINAR** 1 credit  
(May be repeated for a total of three credits)  
Prerequisite: permission; corequisite: 801. To be taken in conjunction with internship for synthesis of problems encountered in internship experience and to provide the opportunity to share ideas and experiences from various areas of higher education internship placement.

# College of Business Administration

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## 6000: Cooperative Education

**6000:301 Cooperative Education** 0 credits  
(May be repeated)  
For Cooperative Education Students only. Work experience in business, industry, or governmental agency. Comprehensive performance evaluation and written report required.

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## 6200: Accounting

**6200:201 ACCOUNTING I** 4 credits  
Introduction to accounting, the language of business. Emphasis on basic principles, concepts and terminology of accounting for assets, liabilities and proprietorship.

**6200:202 ACCOUNTING II** 4 credits  
Prerequisite: 201. Study of accounting informational needs of management. Emphasis on planning and control, including financial statement analysis, funds flow, budgets, cost-volume-profit analysis and decision-making costs.

**6200:301 COST ACCOUNTING** 3 credits  
Prerequisites: 3250:202, and grades of not less than "C" in 6200:201 and 202. Introduction to product costing, emphasizing analysis of materials, labor and factory overhead. Cost control achieved through use of flexible budgets, standard costs and variance analysis.

**6200:317 INTERMEDIATE ACCOUNTING I** 4 credits  
Prerequisite: grades of not less than "C" in 201 and 202. Accounting theory and problems of statement preparation; in-depth study of cash, temporary investments, receivables, inventories, tangible fixed assets, intangibles and current liabilities.

**6200:318 INTERMEDIATE ACCOUNTING II** 4 credits  
Prerequisite: 317. Study of long-term liabilities and investments, capital stock, retained earnings, accounting changes, funds statement, pensions, leases, statement analysis and price level accounting.

**6200:355 ACCOUNTING INFORMATION PROCESSING** 3 credits  
Prerequisite: 202. Introduction to automatic data processing systems in an accounting and management environment. Fundamentals of computer programming presented to student.

**6200:360 BUDGETING** 3 credits  
Prerequisite: 301. Study of principles and policies of budgeting. Emphasis on managerial control of expenses, capital expenditures and related activities.

**6200:401 ACCOUNTING SURVEY** 3 credits  
Prerequisite: permission of instructor. Introductory course for student with no previous accounting background. Essential accounting concepts, techniques and terminology for business organizations.

**6200:402 ADVANCED COST ACCOUNTING** 3 credits  
Prerequisite: 301. Study of use of standard cost procedures, job-order costing procedures and advanced problems in area of cost accounting.

**6200:410 TAXATION FOR THE NONACCOUNTANT** 3 credits  
Provides nonaccountant basic knowledge of federal tax law as applied to individuals and businesses. Not open to accounting major.

**6200:420/520 ADVANCED ACCOUNTING** 3 credits  
Prerequisite: 318. Examination of accounting theory emphasizing accounting for business combinations, partnerships, foreign operations, nonprofit entities, and consolidated statements.

**6200:425 CURRENT DEVELOPMENTS IN ACCOUNTING** 3 credits  
Prerequisite: 318. Official pronouncements of Accounting Principles Board, Financial Accounting Standards Board and Securities and Exchange Commission, and other current developments in accounting theory. Essential for C.P.A. preparation.

**6200:430/530 TAXATION I** 3 credits  
Prerequisite: 317. Application of current federal tax law to individuals and proprietorships. Types of income, deductions and structure of tax return covered.

**6200:431/531 TAXATION II** 3 credits  
Prerequisite: 317 and required for an accounting major. Application of current federal tax law to partnerships, corporations, trusts, estates and gifts. Social security taxes and Ohio income, sales and personal property taxes discussed.

**6200:440/540 AUDITING** 3 credits  
Prerequisites: 301 and 318; 355 and 6500:322 must be taken prior to or concurrently; or permission of instructor. Examines auditing standards and procedures used by independent auditor in determining whether a firm has fairly represented its financial position.

**6200:454 INFORMATION SYSTEMS** 3 credits  
Prerequisites: 301, 355 and permission of instructor. Focus on development of accounting methods and procedures, installation and improvement of accounting systems and evaluation of automated data processing systems.

**6200:460 CONTROLLERSHIP PROBLEMS** 3 credits  
Prerequisites: 301, 318. Examination of quantitative accounting methods of planning, control and decision making. Standard costing, variable costing and contribution approach to decision making emphasized.

**6200:470/570 GOVERNMENTAL AND INSTITUTIONAL ACCOUNTING** 3 credits  
Prerequisite: 201 or 601, and either senior or graduate level standing. Theory and procedures involved in application of fund accounting, budgetary control, appropriations and various accounting systems to governmental units, educational, medical and other nonprofit institutions.

**6200:480/580 ACCOUNTING PROBLEMS** 3 credits  
Prerequisite: 318. Independent research on advanced accounting problem in student's specific area of interest.

**6200:485 CPA PROBLEMS: COMMERCIAL LAW** 2 credits  
Prerequisite: permission of instructor. Deals with those general principles of commercial law which appear on CPA examination.

**6200:486 CPA PROBLEMS: ACCOUNTING PRACTICE** 3 credits  
Prerequisite: permission of instructor. Study of methods for solving various types of problems which appear on accounting practice section of CPA examination.

**6200:467 CPA PROBLEMS: TAXATION** 1 credit  
Prerequisite: permission of instructor. Application of current developments in federal income tax law to CPA examination.

**6200:488/588 CPA PROBLEMS: AUDITING** 2 credits  
Prerequisite: 440/540 or permission of instructor. Preparation for auditing section of CPA examination, focusing on auditing principles, standards and ethics and situations encountered by independent auditor.

**6200:489/589 CPA PROBLEMS: THEORY** 2 credits  
Prerequisite: permission of instructor. Preparation for theory section of CPA examination, focusing on current developments and use of basic accounting theory to solve advanced accounting problems.

**6200:491/591 WORKSHOP IN ACCOUNTING** 1-3 credits  
(May be repeated)  
Prerequisite: permission of instructor. Group study of accounting under faculty guidance. May not be used to meet undergraduate or graduate accounting major requirements, but may be used for elective credit only with permission of instructor or department.

**6200:495 INTERNSHIP IN ACCOUNTING** 3 credits  
Prerequisite: permission of instructor. On-the-job training for student in field of public, industrial or nonprofit accounting. Individual assignments made by supervising faculty member.

**6200:497 HONORS PROJECT** 1-3 credits  
(May be repeated for a total of six credits)  
Prerequisite: senior standing in Honors Program. Individual Seniors Honors

This or creative project relevant to accounting approved and supervised by member of the department faculty.

**6200:499 INDEPENDENT STUDY IN ACCOUNTING** 1-3 credits  
Prerequisite: permission.

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## Graduate Courses

**6200:601 FINANCIAL ACCOUNTING** 3 credits  
Introductory course for student with no accounting background. Examines accounting principles as applied to financial problems of firm.

**6200:610 ACCOUNTING MANAGEMENT AND CONTROL** 3 credits  
Prerequisite: 601 or equivalent. Investigation of role of accounting as management tool in areas of production, marketing, internal control and capital budgeting with focus on management planning.

**6200:630 TAX RESEARCH AND PLANNING** 3 credits  
Prerequisite: 431 or equivalent. Designed to develop research competence in solving complex tax problems involving federal income, estate trust and gift tax laws.

**6200:631 CORPORATE TAXATION I** 3 credits  
Prerequisite: 431. Detailed examination of tax problems of corporations and their shareholders. Formation, distribution, redemption, liquidation and penalty taxes covered.

**6200:632 TAXATION OF TRANSACTIONS IN PROPERTY** 3 credits  
Prerequisite: 431. Explores federal tax implications of gains and losses derived from sales, exchanges and other dispositions of property.

**6200:633 ESTATE AND GIFT TAXATION** 3 credits  
Prerequisite: 431. Analyzes provisions of federal estate and gift tax laws and tax consequences of testamentary and lifetime transfers.

**6200:637 ADVANCED ACCOUNTING THEORY** 3 credits  
Prerequisite: 318. Examination of accounting concepts and standards through critical analysis of articles on current trends in profession. Discussion and outside research stressed.

**6200:640 ADVANCED AUDITING** 3 credits  
Prerequisite: 440/540. Conceptual foundations and current research on professional and internal auditing. Includes government regulation and litigation, statistics, computer systems as well as current and prospective developments in auditing.

**6200:641 TAXATION OF PARTNERSHIPS AND SUBCHAPTER S CORPORATIONS** 3 credits  
Prerequisite: 431. Examines intensively provisions of subchapters K and S of Internal Revenue Code and uses of partnerships and subchapter S corporations for tax planning.

**6200:642 CORPORATE TAXATION II** 3 credits  
Prerequisite: 631. Continuation of 631. Concludes study of subchapter C of Internal Revenue Code with major focus on corporate reorganization.

**6200:643 TAX ACCOUNTING** 2 credits  
Prerequisite: 431. Attention focused on timing of income and expenses for individuals and businesses and its relation to tax planning.

**6200:644 INCOME TAXATION OF TRUSTS AND ESTATES** 2 credits  
Prerequisite: 633. Analysis of income taxation of trusts and estates and their creators, fiduciaries and beneficiaries.

**6200:645 ADVANCED INDIVIDUAL TAXATION** 3 credits  
Prerequisite: 430. In-depth study of some of the more involved areas of individual income taxation.

**6200:646 CONSOLIDATED TAX RETURNS** 2 credits  
Prerequisite: 431. Intensive study of tax provisions concerning use of consolidated tax returns.

**6200:647 DEFERRED COMPENSATION** 3 credits  
Prerequisite: 431. Nature, purpose and operation of various forms of deferred compensation examined with much emphasis on pension and profit-sharing plans.

**6200:648 TAX PRACTICE AND PROCEDURE** 2 credits  
Prerequisite: 431. In-depth study of administration and procedures of Internal Revenue Service and responsibilities of tax practitioner.

**6200:649 STATE AND LOCAL TAXATION** 2 credits  
Prerequisite: 631. Examines common types of taxes imposed by state and local governments and includes taxation of multistate businesses.

**6200:650 ESTATE PLANNING** 2 credits  
Prerequisite: 633. Considers entire process of planning the estate with due regard for disposition of property, tax minimization, liquidity requirements and administrative costs.

**6200:651 UNITED STATES TAXATION AND TRANSNATIONAL OPERATIONS** 2 credits  
Prerequisite: 431. Examines United States taxation of foreign income of domestic corporations, citizens and residents, as well as United States income of nonresident aliens and foreign corporations.

**6200:652 TAX-EXEMPT ORGANIZATIONS** 2 credits  
Prerequisite: 431. Analysis of tax aspect of tax-exempt organizations, including nature of and limitations of its exemption.

**6200:653 BUSINESS PLANNING** 2 credits  
Prerequisite: 631. Uses cases depicting complex problems to permit student to integrate knowledge of taxation.

**6200:654 INDEPENDENT STUDY IN TAXATION** 1-3 credits  
Prerequisite: permission of instructor. Intensive study of particular topic or limited number of topics not otherwise offered in curriculum.

**6200:655 ADVANCED INFORMATION SYSTEMS** 3 credits  
Prerequisites: 355 and 610. Advanced study of accounting information system theory, elements, principles, design and implementation. Practical data processing and networks to control flow of information.

**6200:670 COST CONCEPTS AND CONTROL** 3 credits  
Prerequisite: 610. Focus on analysis and control of costs and their uses in decision making. Determination of cost data and efficiency of decision emphasized.

**6200:680 INTERNATIONAL ACCOUNTING** 3 credits  
Prerequisite: 610. Examination of accounting theory and practice from international perspective with emphasis on multinational investment, business and auditing activities and reporting problems.

**6200:697 INDEPENDENT STUDY IN ACCOUNTING** 1-3 credits  
(May be repeated for a total of three credits)  
Focus on special topics of study and research in accounting on an independent basis.

**6200:699 SEMINAR IN ACCOUNTING** 3 credits  
(May be repeated for a total of six credits)  
Prerequisite: permission of instructor. Program of independent research in account area of student's choice, requiring submission of a finished report within a year.

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## 6400: Finance

**6400:318 RISK MANAGEMENT AND INSURANCE** 3 credits  
Prerequisite: 371 or permission of instructor. Concept of risk and risk management and principle of insurance are developed in business. Life and health insurance related to employee benefit problems.

**6400:320 THE LEGAL ENVIRONMENT OF BUSINESS** 4 credits  
Gives student an understanding of legal reasoning and analysis. Discussions include court and procedures, business organizations, commercial transactions and legal aspects of government regulation of business.

**6400:321 BUSINESS LAW I** 3 credits  
Discussions designed to develop legal reasoning within substantive areas of contractual obligation, agency relationships, partnerships, corporations, accountant's legal responsibility, federal securities regulation and antitrust law.

**6400:322 BUSINESS LAW II** 3 credits

Applications of Uniform Commercial Code in sales, commercial paper and secured transactions. Additional discussions include property, wills, estates, trusts, bailments, insurance, suretyship, bankruptcy and labor law.

**6400:323 INTERNATIONAL BUSINESS LAW** 3 credits

The law and international commercial transactions. Among the subjects covered are sovereignty; treaties; agreements; antitrust practices; property rights; international arbitration.

**6400:338 FINANCIAL INTERMEDIARIES** 3 credits

Prerequisites: 371 or permission of instructor. Studies the flows of funds. Analyzes major financial intermediaries. Money and capital markets reviewed with emphasis on interest rates and their impact upon administration of specific financial intermediaries.

**6400:343 INVESTMENTS** 3 credits

Prerequisite: 371 or permission of instructor. Range of security investment media explored, alternative investment programs considered and role of securities markets through which goals can be achieved studied.

**6400:351 FINANCIAL DECISION MAKING** 3 credits

Prerequisite: 371 or permission of instructor. A study of the tools and techniques used to describe, analyze and determine impact on the firm of problems facing the firm as it attempts to achieve short- and long- term goals.

**6400:371 BUSINESS FINANCE** 3 credits

Prerequisite: 6200: 201,2; 3250: 201,2, and completion of collegiate mathematics requirement. Study of problems of business firm from financial manager's viewpoint. Topics include planning, sources and uses of funds, capital budgeting and optimum financial structure.

**6400:373 FINANCIAL STATEMENT ANALYSIS** 3 credits

Prerequisite: 371 or permission of instructor. Analysis and interpretation of the financial position and performance of the business firm from the perspective of the credit and financial analyst. Emphasizes mechanics and art of financial analysis.

**6400:400 REAL ESTATE PRINCIPLES: A VALUE APPROACH** 3 credits

Prerequisites: 371 or permission of instructor. A study of real estate: the profession, the process and the product. Emphasis is on real estate as a product and the valuation process. The measurement of value requires tool abilities in accounting, statistics and finance.

**6400:401 REAL ESTATE INVESTMENT AND FINANCE** 3 credits

Prerequisites: 371 and 400, or permission of instructor. Covers investing in real estate, financing such activities. Included are the methods, institutions, instruments, valuation, appraisal, role of public policy in real estate investment and finance.

**6400:402 INCOME PROPERTY APPRAISAL** 3 credits

Prerequisites: 371 and 400, or permission of instructor. Advanced course in real property appraisal and valuation. Techniques and concepts will be covered along with the theory underlying such techniques.

**6400:410 PERSONAL FINANCIAL MANAGEMENT** 3 credits

Covers the many personal financing decisions made by individuals. Areas of study include money management, credit acquisition, insurance program development, investment analysis and pension evaluation.

**6400:417 LIFE AND HEALTH INSURANCE** 3 credits

Prerequisite: 318. Detailed study of life and health insurance contracts, insurance companies, industry regulations.

**6400:419 PROPERTY AND LIABILITY INSURANCE** 3 credits

Prerequisite: 318. A study of the property and casualty insurance contracts, the insurance companies and the industry regulation.

**6400:424 LEGAL CONCEPTS OF REAL ESTATE: A MANAGERIAL APPROACH** 3 credits

Prerequisite: 371 or permission of instructor. Study of concepts of law governing the many interests in real estate including acquisition, encumbrance, transfer, rights and obligations of parties, and the various state and federal regulations. The legal concepts of the business of real estate are likewise examined. Emphasis is on a managerial approach utilizing the case method.

**6400:425 BUSINESS AND SOCIETY** 3 credits

Prerequisite: senior standing. Conceptual course considers financial, economic, legal and sociopolitical implications of business in society. Issues related to economic and legal framework for business decisions.

**6400:436 COMMERCIAL BANK MANAGEMENT** 3 credits

Prerequisite: 338 or permission of instructor. Study of administrative policy determination and decision making within the commercial bank. Analyses of policymaking in areas of liquidity, loan and security investment and sources of funds.

**6400:447 SECURITY ANALYSIS** 3 credits

Prerequisite: 343 or permission of instructor. Application of quantitative and qualitative techniques of analysis to limited income and equity securities. Timing changes in portfolio composition.

**6400:479 ADVANCED BUSINESS FINANCE** 3 credits

Prerequisites: 371 or permission of instructor. Case method utilized, emphasizing application of analytical techniques from texts and journal readings to solution of complex problems in financial management.

**6400:491/591 WORKSHOP IN FINANCE** 1-3 credits

(May be repeated)  
Group studies of special topics. May not be used to meet undergraduate or graduate major requirements in finance. May be used for elective credit only with permission of instructor or department.

**6400:495 INTERNSHIP IN FINANCE** 1-3 credits

Prerequisite: permission of instructor. On-the-job experience with cooperating private and public sector organizations. Individual assignments made by supervising faculty member. Periodic reports and term papers required as appropriate.

**6400:497 HONORS PROJECT** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisite: senior standing in Honors Program. Individual Senior Honors Thesis or creative project relevant to finance approved and supervised by member of the department faculty.

**6400:499 INDEPENDENT STUDY: FINANCE** 1-3 credits

Prerequisite: permission of department head. Provides means for individualized in-depth study of finance problem or problems from which student can derive significant benefit.

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## Graduate Courses

**6400:602 MANAGERIAL FINANCE** 3 credits

Prerequisites: 6200:201 and 202 (or 601) and 3250: 201 and 202 (or 600). Emphasis on financial decision making related to goal of firm; specifically, the investment decision, the financing decision and the dividend decision.

**6400:623 LEGAL ASPECTS OF BUSINESS TRANSACTIONS** 3 credits

(Not open to students with six credits of undergraduate business law)  
Study of the fundamental legal concepts that apply to business transactions, and the administration of a business.

**6400:633 MANAGEMENT OF DEPOSITORY FINANCIAL INSTITUTIONS** 3 credits

Prerequisite: 602. Policy determination, administrative decision making in banks, savings and loans using computer simulation games.

**6400:635 MANAGEMENT OF NON-DEPOSITORY FINANCIAL INSTITUTIONS** 3 credits

Prerequisite: 602. Study of policy determination, funds management in non-depository financial institutions such as pension funds, insurance, investment companies.

**6400:645 INVESTMENT ANALYSIS** 3 credits

Prerequisite: 602 or permission of instructor. Study of the economic and market forces that influence security prices. Techniques of analysis used in evaluating limited income and equity securities.

**6400:649 PORTFOLIO MANAGEMENT** 3 credits

Prerequisite: 645 or permission of instructor. Advanced techniques used by sophisticated individuals, professional managers of large portfolios.

**6400:650 ADMINISTERING COSTS AND PRICES** 3 credits

Prerequisite: 3250:600 or equivalent. Provides an understanding of managerial economics. Short- and long-run decisions of firm analyzed. Analysis includes impact of costs and prices on business profitability.

**6400:655 GOVERNMENT AND BUSINESS** 3 credits

Prerequisite: 3250:600 and 6500:600. Public policy with regard to business institutions and issues are considered from an economic, legal, ethical, political framework.

**6400:665 COMPARATIVE INDUSTRIAL RATIONALE** 3 credits

Analytic approach to proper allocation of resources. Consideration given to industrial structure and evaluation made of relationship between structure and total economy. Various economic and political systems considered.

**6400:674 FINANCIAL MANAGEMENT AND POLICY** 3 credits

Prerequisite: 602 or equivalent. Working capital management, controlling inventory investments, administering costs and funds, managing investment in plant and equipment, administering business income and forecasting for financial management.

**6400:676 MANAGEMENT OF FINANCIAL STRUCTURE** 3 credits

Prerequisite: 674. Emphasizes determination of volume and composition of sources of funds. Primary attention directed to cost of capital for specific sources of financing.

**6400:678 CAPITAL BUDGETING** 3 credits

Prerequisite: 674. Attempt to integrate various theories of capital budgeting into comprehensive conceptual scheme. Theoretical concepts and practical applications blended for better understanding of capital problems.

**6400:679 MERGERS, ACQUISITIONS, CONSOLIDATION, TAKEOVERS: AN INVESTMENT BANKING APPROACH**

Prerequisite: 602 or permission of instructor. A comprehensive study of financial planning, factors, steps to be considered for successful consummation of a merger.

**6400:681 INTERNATIONAL BUSINESS FINANCE** 3 credits

Prerequisite: 602 or equivalent. Financial policies and practices of companies involved in multinational operations. Considers management of working capital and permanent assets, return on investment and capital budgeting for the global firm.

**6400:690 SELECTED TOPICS IN FINANCE** 3 credits

(May be repeated for a total of 6 credits)  
Prerequisite: 674. Provides study of contemporary issues and areas not covered in current finance graduate courses.

**6400:697 INDEPENDENT STUDY IN FINANCE** 1-3 credits

(May be repeated for a total of three credits)  
Focus on special topics of study and research in finance on an independent basis.

**6400:698 INDEPENDENT STUDY: BUSINESS LAW** 1-3 credits

Focus on special topics of study and research in the legal aspects of business administration.

**6400:699 SEMINAR IN FINANCE** 3 credits

(May be repeated for a total of six credits)  
Prerequisites: 674 and a total of 15 Phase II graduate credits. Individual research projects.

**6500:322 QUANTITATIVE BUSINESS ANALYSIS II** 3 credits

Prerequisite: 321. Statistical analysis of business data including analysis of variance, regression and correlation, time series, index numbers, distribution-free statistics, Bayesian decision making.

**6500:323 COMPUTER APPLICATIONS FOR BUSINESS** 3 credits

Emphasis on batch and realtime programming. Includes graphics using PLOTALL, simulation in GPSS, business programming using BASIC, flow-charting, hardware, software, management information systems.

**6500:331 PRODUCTION AND SYSTEMS MANAGEMENT** 3 credits

Prerequisite: 301 and corequisite: 321. Emphasis on design, analysis of operating systems, utilizing scientific decision-making methodology. Case exercises, project.

**6500:332 PRODUCTION AND OPERATIONS MANAGEMENT** 3 credits

Prerequisite: 323, 331 and corequisite: 322. Introduces use of models for production scheduling, materials management, quality control, distribution and project management. Includes linear programming, PERT, simulation. Cases, exercises, problems, computer analysis.

**6500:341 PERSONNEL MANAGEMENT** 3 credits

Prerequisites: two courses in psychology, sociology and 301. Principles, policies, practices in administering functions of recruiting, selecting, training, compensating, appraising human resources of organizations.

**6500:342 PERSONNEL RELATIONS** 3 credits

Prerequisite: 341. Analysis of management, union and employee objectives, attitudes and strategy, as they affect conduct of business and economy. Stress placed on group assigned readings and reports.

**6500:407 INDEPENDENT STUDY IN SMALL BUSINESS MANAGEMENT** 3 credits

Prerequisite: senior standing. Focuses on problems of organizing and operating a small business. Case studies and field experiences.

**6500:421 OPERATIONS RESEARCH** 3 credits

Examines the use of operations research techniques in managerial decision-making processes; constrained linear optimization, non-linear optimization, network analysis, queuing theory, simulation.

**6500:433 BUSINESS OPERATIONAL PLANNING** 3 credits

Prerequisites: 322, 332. Application of quantitative techniques for planning overall operations of firm. Emphasis given to external-internal factors, which influence short- and long-run economic success of firm.

**6500:434 PRODUCTION PLANNING AND CONTROL** 3 credits

Prerequisites: 322, 332. Forecasting, materials management, production planning, scheduling, control. Integrates previous courses, provides overall framework including use of computer and quantitative methods. Cases and a project in an operating organization.

**6500:435 Quality Control** 3 credits

Prerequisite: 322. Emphasis on statistical techniques essential to controlling product quality for both measurement and attribute data. Includes control chart methods and acceptance sampling plans.

**6500:443 ADVANCED PERSONNEL MANAGEMENT** 3 credits

Prerequisite: 341. Advanced study of current issues and problems in field of personnel. Emphasis given to current literature and research. Activities may include projects, library research, case studies.

**6500:471/571 MANAGEMENT PROBLEMS** 3 credits

(Student who has earned credit in 471 is ineligible to register for or earn credit in 472.3.)  
Prerequisite: 332 or 342 or 443 and senior standing. Student applies modern management principles, practices, theory to an actual problem in industry.

**6500:472 MANAGEMENT PROBLEMS - PRODUCTION** 3 credits

(Student who has earned credit in 472 is ineligible to register for or earn credit in 471.3.)  
Prerequisite: 332 and senior standing. Student applies modern management principles, practices, and theory to an actual production problem in industry.

**6500:473 MANAGEMENT PROBLEMS - PERSONNEL** 3 credits

(Student who has earned credit in 473 is ineligible to register for or earn credit in 471.2.)  
Prerequisite: 342 or 443 and senior standing. Student applies modern management principles, practices and theory to an actual personnel problem in industry.

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## 6500: Management

**6500:301 MANAGEMENT: PRINCIPLES AND CONCEPTS** 3 credits

Prerequisite: Three credits in behavioral science, economics, mathematics. Theory, practice in management of human, other economic resources, with extensive coverage of operations systems.

**6500:302 INTRODUCTION TO ORGANIZATIONAL BEHAVIOR** 3 credits

Prerequisite: 301 and two courses in psychology, sociology. Investigation of applications of behavioral and social sciences as they relate to individual, group behavior in organizations.

**6500:321 QUANTITATIVE BUSINESS ANALYSIS I** 3 credits

Prerequisite: completion of collegiate mathematics requirement. Statistical analysis of business data including coverage of probability theory, probability distributions, sampling, estimation, hypothesis testing.

**6500:480/580 INTRODUCTION TO HEALTH CARE MANAGEMENT** 3 credits

Prerequisite: upper college or graduate standing and permission of instructor. Introductory course for health professionals providing in-depth study of management and principles and concepts as applied to particular health care organizations and health care delivery system. Topics covered include (a) physical resource management, (b) human resource management including motivation, leadership, supervision communication practices, work group dynamics with emphasis on managing health care professional and resources of health care organization, and (c) principles and techniques of decision making, planning, organizing and controlling in health care setting. For those registered for graduate credit, a major research paper is required.

**6500:485/585 SPECIAL TOPICS IN HEALTH SERVICES ADMINISTRATION** 1-3 credits

Prerequisite: permission of instructor. Special topics in health services administration (i.e., management) focusing on historical and/or contemporary managerial organizational and/or policy/strategy issues as related to health care organizations and health care systems. Separate topics may be repeated for a maximum of six credits. For those registered for graduate credit, a major research paper is required.

**6500:490 BUSINESS POLICY** 4 credits

Prerequisites: senior standing (97 credits) and 6200:202; 6400:371; 6500:301; 6600:300; and corequisites: 6500:322; 6400:321,2 or 6400:320; 6500:323 or 6200:355. Integrates the core business disciplines (accounting, economics, finance, management, marketing) through the use of case analyses. Student evaluates objective and strategy formulation from an administrative viewpoint.

**6500:491 WORKSHOP IN MANAGEMENT** 1-3 credits

(May be repeated with permission of instructor or department)  
Group studies of special topics in management. May not be used to meet undergraduate major requirements in management. May be used for elective credits only.

**6500:495 INTERNSHIP IN MANAGEMENT** 1-3 credits

Prerequisite: permission of instructor. On-the-job experience with cooperating private and public sector organizations. Individual assignments made by supervising faculty member. Periodic reports, term papers required as appropriate.

**6500:421 OPERATIONS RESEARCH** 3 credits

Examines the use of operations research techniques in managerial decision-making processes; constrained linear optimization, non-linear optimization, network analysis, queuing theory, simulation.

**6500:497 HONORS PROJECT** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisite: senior standing in Honors Program. Individual Senior Honors Thesis or creative project relevant to management approved and supervised by member of the department faculty.

**6500:499 INDEPENDENT STUDY: MANAGEMENT** 1-3 credits

Prerequisite: senior standing and permission of department head. Provides a means for individualized study in management from which student can derive significant value.

**6500:851 PRODUCTIVITY AND QUALITY OF WORKLIFE ISSUES** 3 credits

Prerequisite: 652 or permission of instructor. A comprehensive study of innovations in organizations designed to increase human satisfaction and productivity through changes in human management.

**6500:852 ORGANIZATIONAL BEHAVIOR** 3 credits

Prerequisite: 600 or equivalent. Study of factors which influence human behavior in business organizations. Emphasis on theories of individual and group behavior, motivation, leadership and communication in organizations.

**6500:853 ORGANIZATIONAL THEORY** 3 credits

Prerequisite: 652. Leadership styles in organized institutional setting; influence of these styles on individual, group behavior; organizational goal attainment. Analysis of leader's role in administrative process.

**6500:854 INDUSTRIAL RELATIONS** 3 credits

Prerequisite: 600. Study of rights and duties of management in dealing with labor and economic consequences of union and management policies and practices.

**6500:856 MANAGEMENT OF INTERNATIONAL OPERATIONS** 3 credits

Prerequisite: 652 or equivalent. Deals with institutional environment of international business; parameters of international business system which hold the system together and which individual businessmen cannot materially alter.

**6500:857 THE LEADERSHIP ROLE IN ORGANIZATIONS** 3 credits

Prerequisite: 652. Analysis and development of leadership theory and thought. Identification of leaders in both formal and informal organizations. Training and development methods for leaders evaluated. Individual and small group field study assignments.

**6500:859 OPERATIONS AND STRATEGIC PLANNING** 3 credits

Prerequisites: 600, 1, 2 or equivalent. Long-range and short-term planning in organizations and linkage between the two. Planning models are presented of business and non-profit organizations.

**8500:862 QUANTITATIVE METHODS — OPERATIONS MANAGEMENT** 3 credits

Prerequisite: 601 or equivalent. Survey of basic techniques of operations research. Stresses application to functional areas of business with particular emphasis given to production and planning aspects.

**6500:863 APPLIED INDUSTRIAL STATISTICS I** 3 credits

Prerequisite: 601 or equivalent. Designs for survey sampling and estimation. Simple linear regression analysis, including inferences, aptness of the model and joint confidence intervals.

**6500:864 APPLIED INDUSTRIAL STATISTICS II** 3 credits

Prerequisite: 663. Applications of multiple regression including determining "best" set of independent variables, correlation models, analysis of variance models including multifactor models. Experimental designs including randomized block and Latin square designs.

**6500:871 ADVANCED OPERATIONS RESEARCH** 3 credits

Prerequisite: 662. Designed to present in more depth and breadth certain topics surveyed in 662, with emphasis on application of these techniques to student's own business situations.

**6500:872 MANUFACTURING AND OPERATIONS ANALYSIS** 3 credits

Prerequisite: 601 or equivalent. Provides an applications forum where skills gained in other manufacturing — quantitative areas of curriculum can be empirically utilized and applied.

**6500:888 INDEPENDENT STUDY IN HEALTH SERVICES ADMINISTRATION** 1-3 credits

(May not be repeated for more than 3 credits)  
Prerequisite: permission of instructor. Independent study and research of a special topic of interest in health services administration (i.e., management), chosen by the student in consultation with and under the supervision of the instructor.

**6500:889 SEMINAR IN HEALTH CARE SYSTEMS MANAGEMENT** 3 credits

Prerequisite: 600 or equivalent or permission of instructor. In-depth study of nonprofit health care organizations and health care delivery system. Examination of organizational structure and management differences between nonprofit health care organizations and traditional business organizations. Study of providers (patient care-third party payers), and role of governmental programs. Major research paper.

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## Graduate Courses

**6500:600 MANAGEMENT AND PRODUCTION CONCEPTS** 3 credits

Introduces basic marketing concepts, stresses the components of marketing programs involved in the operations of profit and non-profit organizations within various macroenvironments.

**6500:601 QUANTITATIVE DECISION MAKING** 3 credits

Prerequisite: finite math. Applies quantitative techniques to business decision making. Topics covered include probability estimation and hypothesis testing, simple and multiple regression and correlation analysis, analysis of variance and nonparametric statistics.

**6500:602 COMPUTER TECHNIQUES FOR MANAGEMENT** 3 credits

An introduction to computer techniques which will aid the manager in decision making. Elementary programming skills useful for business programming developed.

**6500:640 INFORMATION SYSTEMS AND MANAGEMENT** 3 credits

Prerequisite: 602 or equivalent. An introduction to systems design, management information systems, data base management; their relationships to problem solving and the organization.

**6500:690 SELECTED TOPICS IN MANAGEMENT** 3 credits

(May be repeated for a total of six credits)  
Prerequisite: 652. Selected-topics in historical, contemporary and/or operational and functional areas of management.

**6500:695 BUSINESS STRATEGY AND POLICY: DOMESTIC AND INTERNATIONAL** 3 credits

Prerequisite: to be final course in MBA program. A case-oriented course which focuses on integration of theoretical and practical knowledge acquired in core business courses. Students analyze, evaluate, formulate organization objectives and strategies within domestic and international environmental contexts.

**6500:697 INDEPENDENT STUDY IN MANAGEMENT** 1-3 credits

(May be repeated for a total of three credits)  
Focus on special topics of study and research in management on an independent basis.

**6500:699 GRADUATE SEMINAR IN MANAGEMENT** 3 credits

(May be repeated for a total of six credits)  
Prerequisite: total of 15 Phase II graduate credits. For master's degree candidate in management. Independent study and reading. Leads to finished paper which should be completed within one year from time of enrollment of course.

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## 6600: Marketing

**6600:300 MARKETING PRINCIPLES** 3 credits

Prerequisites: 3250:201,2 or permission. Broad course integrating commodity, institutional, functional and managerial concepts of marketing process: total framework of economic activity.

**6600:310 BUYER BEHAVIOR** 3 credits

Prerequisite: two courses from 3750 or 3850 or permission. Interdisciplinary approach to analysis and interpretation of the nature and dynamics of buying motives, habits and procedures in consumer, industrial, intermediate and institutional markets. Economic, psychological and sociocultural actions and reactions of these buying units are viewed in terms of their decision-making processes as they affect and are affected by strategic and tactical decisions of the marketing organization.

**6600:320 PHYSICAL DISTRIBUTION** 3 credits

Prerequisite: 300. Basic course in source, movement and storage of goods, including emphasis on economics of transportation and requirements of an effective system.

**6600:330 INTERNATIONAL MARKETING** 3 credits

Prerequisite: 300. Student concentrates on principles of international trade, balances, and import and export distribution machinery. Pin-points characteristics and potentials of various foreign markets.

**6600:340 RETAIL MANAGEMENT** 3 credits

Prerequisite: 300. Presents principles of management resulting in service to consumers at profit to retailer. Store location, staffing, planning and control, buying, pricing and promotion explored.

**6600:350 ADVERTISING AND MARKETING COMMUNICATIONS** 3 credits

Full range of marketing communication elements. Emphasis on role of each element and coordination required of marketing manager in developing successful and systematic program of marketing communications.

**6600:360 INDUSTRIAL MARKETING** 3 credits

Prerequisite: 300. Following principles of modern marketing management, focuses on development of local, regional, national markets. Emphasis on problems of industrial goods manufacturers.

**6600:370 PURCHASING** 3 credits

Prerequisite: 3250:202. Process and activities associated with cost effective buying, internal management of all materials, equipment needed by manufacturer to produce product or provide a service.

**6600:360 SALES MANAGEMENT** 3 credits

Prerequisite: 350 or 360. Advanced consideration of firm's marketing mix as applied and adjusted to marketing objectives and policies and their implementation and control.

**6600:390 MANAGEMENT OF MARKETING CHANNELS** 3 credits

Prerequisite: 300. An integrative approach to analysis of marketing channels of distribution to complement the more specialized analyses of retailing, wholesaling and physical distribution. Stresses the interaction of firms comprising a channel and the nature of managerial decisions designed to coordinate the efforts of the group of institutions that make up a channel of distribution.

**6600:420/520 LOGISTICS SYSTEMS ANALYSIS** 3 credits

Prerequisite: 320, 660 (graduate). Stresses application of quantitative techniques in design and operation of individual logistics components as well as integration of total logistics system in the firm. Emphasis on student's evaluation and solving of logistics problems.

**6600:429/529 INTERNATIONAL BUSINESS ENTERPRISE** 3 credits

Prerequisite: 300 or 660 (graduate). Provides a comprehensive overview of international business with an emphasis on understanding the interactions between factors in the global environment and decision-making of the multinational organization.

**6600:430 PROMOTIONAL CAMPAIGNS** 3 credits

Prerequisite: 350. Examination of total communications efforts involved in planning, developing and monitoring promotional campaigns. Stress is placed on understanding the nature and roles of advertiser, agency and support services.

**6600:440/540 PRODUCT PLANNING** 3 credits

Prerequisite: 300 or 660. In-depth study of tools and techniques involved in new product development process and management of the product through its life cycle. Emphasis on alternative forms of corporate structures for product development and management, product policies and strategies, and product planning procedures and techniques. Differences between consumer and industrial products.

**6600:460 MARKETING RESEARCH** 3 credits

Prerequisites: 300, 6500:321. Through lectures, cases and team projects, a student is taught to detect and evaluate actionable forces in the marketplace. Emphasis on investigation appropriate to economics of situation.

**6600:465/565 FORECASTING AND QUANTITATIVE METHODS IN MARKETING** 3 credits

Prerequisite: 460, 620 (graduate) Explores the more sophisticated quantitative and forecasting methods, tools, procedures available to marketing researchers, decision makers; how these are applied to marketing problems.

**6600:491 WORKSHOP IN MARKETING** 1-3 credits

Group studies in special topics in marketing. Not used to meet undergraduate or graduate major requirements in marketing. May be used for elective credit with permission of instructor or department.

**6600:495 INTERNSHIP IN MARKETING** 1-3 credits

Prerequisite: permission of instructor. On-the-job experience with cooperating private and public sector organizations. Individual assignments made by supervising faculty member. Periodic reports and term papers required as appropriate.

**6600:497 HONORS PROJECT** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisite: senior standing in Honors Program. Individual Senior Honors Thesis or creative project relevant to marketing, approved and supervised by member of the department faculty.

**6600:499 INDEPENDENT STUDY: MARKETING** 1-3 credits

Prerequisite: permission of instructor. Provides a means for individualized in-depth of marketing problem or problems from which student can derive significant benefit.

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## Graduate Courses

**6600:600 MARKETING CONCEPTS** 3 credits

Assessment of basic marketing principles involved in business and industry. Required of all nonbusiness undergraduates; may not be selected for Phase II credit.

**6600:620 STRATEGIC MARKETING MANAGEMENT** 3 credits

Prerequisite: 600 or equivalent. Managerial assessments of opportunities, threats are explored as are the development and management of appropriate strategic marketing plans and their tactical implementation.

**6600:630 INTERNATIONAL MARKETING POLICIES** 3 credits

Prerequisite: 620. Explores the problems of formulating and implementing marketing strategies and tactics within complex and changing multi-national organizations and international markets. A planning framework is emphasized.

**6600:640 MARKETING INFORMATION SYSTEMS AND RESEARCH** 3 credits

Prerequisites: 620, 6500:601, 2. Explores managerial development and maintenance of systematic methods for locating, acquiring, processing, analyzing and utilizing marketing information for marketing decision making.

**6600:650 CONSUMER BEHAVIOR** 3 credits

Prerequisite: 620. Methods of identifying and analyzing final industrial and institutional markets are explored. Focus is placed upon theoretical models, research tools, appropriate marketing responses.

**6600:655 MARKETING COMMUNICATIONS** 3 credits

Prerequisite: 620. Total range of marketing communication tools are examined

individually, in the context of the planning, development and implementation of systematic marketing communications programs.

**6600:680 MARKETING THEORY** 3 credits

Prerequisite: 620. Designed to apply those theoretical works from areas of economics, psychology, sociology and cultural anthropology which have relevance to a general theory of marketing.

**6600:690 SEMINAR IN INTERNATIONAL BUSINESS** 3 credits

Prerequisites: 529 and a total of 15 Phase II graduate credits. Permits M.B.A. candidate to independently analyze a significant international business problem culminating in a major paper.

**6600:697 INDEPENDENT STUDY IN MARKETING** 1-3 credits

(May be repeated for a total of three credits)  
Focus on special topics of study and research in marketing on an independent basis.

**6600:699 SEMINAR IN MARKETING** 3 credits

(May be repeated for a total of six credits)  
Prerequisite: a total of 15 Phase II graduate credits. Capstone course permits M.B.A. candidate to undertake a carefully delineated program of independent study and reading which leads to a finished major paper.

# College of Fine and Applied Arts

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## 7000: Cooperative Education

### 7000:301 Cooperative Education 0 credits

(May be repeated)  
For Cooperative Education Students only. Work experience in business, industry, or governmental agency. Comprehensive performance evaluation and written report required.

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## 7100: Art

### 7100:100 SURVEY OF HISTORY OF ART I 4 credits

Architecture, sculpture, painting and minor arts from Primitive sources through Gothic time period in Europe.

### 7100:101 SURVEY OF HISTORY OF ART II 4 credits

Prerequisite: 100. Architecture, sculpture, painting and minor arts from Renaissance through 1960s, primarily in Western art. Development of photography and its application as art form integrated into artistic styles of Twentieth Century.

### 7100:105 UNDERSTANDING ART 3 credits

Uses different societies have found for art and how social and technological levels of the society have affected the kind of art they make.

### 7100:120 FUNDAMENTALS OF SCULPTURE 3 credits

A study of sculpture through lecture and studio work in a variety of media. An exploration and enrichment opportunity for the non-art major. No credit toward major in art.

### 7100:121 THREE-DIMENSIONAL DESIGN 3 credits

Introduction to meaning of "design" and act of designing in real space. Study of naturally occurring form, structure and process.

### 7100:130 FUNDAMENTALS OF SCREEN PRINTING 3 credits

A study of screen printing through lecture and studio experiences. An exploration and enrichment opportunity for the non-art major. No credit toward major in art.

### 7100:131 INTRODUCTION TO DRAWING 3 credits

Freehand drawing experience with an orientation to elements and principles of visual organization. Limited media.

### 7100:140 FUNDAMENTALS OF ACRYLIC PAINTING 3 credits

A study of the acrylic painting medium through lecture, demonstration and study activity. An exploration and enrichment opportunity for the non-art major. No credit toward a major in art.

### 7100:144 TWO-DIMENSIONAL DESIGN 3 credits

Experimentation with systems for purposeful organization of visual elements on a two-dimensional surface. Study of visual theory including color theory. Lecture and studio experience.

### 7100:150 FUNDAMENTALS OF CERAMICS 3 credits

A study of ceramics through lecture and studio experiences. An exploration and enrichment opportunity for the non-art major. No credit toward major in art.

### 7100:160 FUNDAMENTALS OF JEWELRY 3 credits

A study of jewelry making through lecture and studio for the non-art major. No credit toward major in art.

### 7100:170 FUNDAMENTALS OF PHOTOGRAPHY 3 credits

A study of photography through lecture, demonstration and studio work. An exploration and enrichment opportunity for the non-art major. No credit toward major in art.

### 7100:180 FUNDAMENTALS OF GRAPHIC DESIGN 3 credits

A study of graphic design through lecture and studio work in a variety of media. An exploration and enrichment opportunity for the non-art major. No credit toward a major in art.

### 7100:190 FUNDAMENTALS OF OFF-LOOM WEAVING 3 credits

A study of off-loom weaving through lecture and studio work in a variety of media. An exploration and enrichment opportunity for the non-art major. No credit toward a major in art.

### 7100:191 DESIGN 2 credits

Basic principles of creative design and color theory. Discussion and studio. No credit toward major or teaching field in art.

### 7100:213 INTRODUCTION TO LITHOGRAPHY 3 credits

Prerequisites: 131, 144 or 231. Use of lithographic stone and metal plate as printmaking media. Stone and plate preparation, lithographic drawing materials and techniques, paper registration and printing press covered. Emphasis on aesthetic theory, technique and related history.

### 7100:214 INTRODUCTION TO SCREEN PRINTING 3 credits

Prerequisites: 131, 144 or 231. Silk screen printmaking. Theory and use of stencil process, positive and negative block-out techniques, photo stencil, registration and printing procedures. Emphasis on aesthetic theory, technique and related history.

### 7100:215 INTRODUCTION TO RELIEF PRINTING 3 credits

Prerequisites: 131, 144 or 231. Printmaking using found objects, synthetic materials, as well as traditional woodcut and linoleum engraving. Emphasis on aesthetic theory, technique and related history.

### 7100:216 INTRODUCTION TO INTAGLIO PRINTING 3 credits

Prerequisites: 131, 144 or 231. Intaglio printmaking using drypoint engraving, aquatint and soft-ground techniques. Emphasis on aesthetic theory, technique and related history.

### 7100:221 DESIGN APPLICATIONS 3 credits

Prerequisite: 121. Application of creative designing principles to problems of utilitarian function in human-designed and -produced items. May include product design/prototype development, furniture design and construction, display design, etc.

### 7100:222 INTRODUCTION TO SCULPTURE 3 credits

Prerequisite: 121. Exploration of aesthetic factors influencing sculptural statements. Development of proficiency in the use of tools, materials, and techniques.

### 7100:231 DRAWING II 3 credits

Prerequisite: 131. Continuation of 131. In-depth exploration of wide range of techniques and media. Attention to controlled descriptive drawing and space illusion and their aesthetic applications.

### 7100:232 INSTRUMENT DRAWING 3 credits

Creative uses of mechanical drawing processes for visually descriptive purposes. Proficiency in use of mechanical drawing instruments stressed. Both practical and theoretical drawing styles undertaken.

### 7100:233 LIFE DRAWING 3 credits

Prerequisite: 131. Perceptual problems in drawing from the life model. Study of skeletal, muscular, mechanical nature of human figure and application of this knowledge to the resolution of aesthetic problems.

### 7100:244 COLOR CONCEPTS 3 credits

Prerequisites: 121 or 144 or 286 or 2240:124. Lecture and studio experience giving information concerning perception of color, additive color phenomena of light, subtractive color phenomena of pigments and dyes, color notation systems and psychological effects of color.

### 7100:245 INTRODUCTION TO POLYMER ACRYLIC PAINTING 3 credits

Prerequisites: 131, 144. Technical, aesthetic problems involved in polymer acrylic painting. Student pursues, through lecture and experimentation, transparent and opaque uses of this water-based paint.

### 7100:246 INTRODUCTION TO WATERCOLOR PAINTING 3 credits

Prerequisites: 131, 144. Studio course in theory and technique of watercolor painting. Study of traditional transparent watercolor methods, and experimentation with less conventional approaches to aqueous media.

### 7100:247 INTRODUCTION TO OIL PAINTING 3 credits

Prerequisites: 131, 144. Study of technical and aesthetic problems involved in oil painting. A painterly orientation toward plasticity of form as mediated by color.

<b>7100:254 INTRODUCTION TO CERAMICS</b>	<i>3 credits</i>	<b>7100:321 FIGURATIVE SCULPTURE</b>	<i>3 credits</i>
Studio/lecture course exploring potentials of hand-building techniques in both sculptural and functional forms. Clay processing, glaze application and practical kiln firing.		Prerequisite: 233. Lecture/studio course exploring the use of the human figure as a sculptural subject. Individual interpretation of the figure using various media and techniques.	
<b>7100:266 INTRODUCTION TO JEWELRY</b>	<i>3 credits</i>	<b>7100:322 SCULPTURE: CASTING</b>	<i>3 credits</i>
Studio experience in which student is introduced to properties of metals, processes of silversmithing and design and production of jewelry.		Prerequisite: 121. Studio experience in the sculpture foundry. Will include other techniques in a variety of metals.	
<b>7100:268 ENAMELING ON METAL</b>	<i>3 credits</i>	<b>7100:331 DRAWING III</b>	<i>3 credits</i>
Prerequisite: 266. Studio course in which student investigates inherent aesthetic qualities of color and texture resulting when molten, colored glass is applied to metal surfaces.		Prerequisites: 141, 231, 233. Continues concerns of visual organization and technical proficiency with materials begun in 131 and 231, but places more emphasis on use of imagination and development of ideas in drawing.	
<b>7100:275 INTRODUCTION TO PHOTOGRAPHY</b>	<i>3 credits</i>	<b>7100:333 ADVANCED LIFE DRAWING</b>	<i>3 credits</i>
Lecture, studio and laboratory course. Techniques and aesthetics are studied using both 4x5 and 35mm cameras. A 35mm camera with full manual control is required.		(May be repeated for a total of six credits) Prerequisites: 231, 233. Studio course in drawing from human figure. Individual interpretation of human figure, using numerous media and drawing techniques. Emphasis on aesthetic structure and formal realization of personal intention.	
<b>7100:282 ARCHITECTURAL PRESENTATIONS</b>	<i>3 credits</i>	<b>7100:348 PAINTING II</b>	<i>3 credits</i>
Prerequisites: 131, 144 or 286 or 2240:124. Study and studio practice in architectural design and presentation methods, both residential and commercial and the development of graphic presentations of interior and exterior concepts. Emphasis on professional presentations, renderings of interiors, methods of illustrative and photographic presentations.		(May be repeated for a total of nine credits, but limited to a maximum of three credits in a given medium) Prerequisites: 235, 6 or 7 in the appropriate medium. Continuation of painting with concentration in one medium designated by letter as follows: A. Polymer Acrylic, B. Watercolor, C. Oil.	
<b>7100:283 DRAWING TECHNIQUES</b>	<i>3 credits</i>	<b>7100:354 CERAMICS II</b>	<i>3 credits</i>
Prerequisites: 131 and 232. Includes advanced drawing and presentation techniques commonly used in graphic design. Various presentation and design problems will be encountered stressing use of selected drawing methods and processes.		Prerequisite: 254. Wheel throwing of both functional and sculptural form. Experiments in glaze chemistry and firing experience with both gas and electric kilns. Emphasis on technique, studio procedures and critical evaluation of each student's progress.	
<b>7100:284 INTRODUCTION TO GRAPHIC DESIGN</b>	<i>3 credits</i>	<b>7100:366 METALSMITHING II</b>	<i>3 credits</i>
Prerequisites: 131 and 232. Studio experience in use of tools and materials of commercial graphic artist. Elementary design problems in commercial graphic design.		(May be repeated for a total of six credits) Prerequisite: 266. Continuation of experiences presented in 266 with further development of skills and expansion of technical knowledge.	
<b>7100:286 COMMERCIAL DESIGN THEORY</b>	<i>3 credits</i>	<b>7100:368 ADVANCED ENAMELING</b>	<i>3 credits</i>
Prerequisite: 284. Basic course in visual problem solving emphasizing visual movements in, and graphic elements of, single as well as multiple images. Equal emphasis given to existing and created images.		(May be repeated for a total of nine credits) Prerequisite: 268. Continuation of 268. Development of personal aesthetic values. Advanced techniques with metal foils, champleve, cloisonne, limoge and grisaille processes.	
<b>7100:288 LETTER FORM AND TYPOGRAPHY</b>	<i>3 credits</i>	<b>7100:375 PHOTOGRAPHY II</b>	<i>3 credits</i>
Prerequisite: 286. Letter symbols studied in terms of communication and aesthetic awareness. History of letter forms, hand lettering, alphabet design, contemporary type faces and reproduction processes.		Prerequisite: 275. Projects utilizing photographic media and tools designed to expand student's awareness of visual qualities and order, both in the subject and photographic image. Student must own or have use of camera with controllable shutter, lens, diaphragm, focus and exposure meter.	
<b>7100:293 INTRODUCTION TO WEAVING</b>	<i>3 credits</i>	<b>7100:376 PHOTOGRAPHICS</b>	<i>3 credits</i>
Development of visual perception and manual dexterity through on- and off-loom techniques. Experimentation with various materials.		Prerequisite: 375. Photographic media and equipment used experimentally to produce line conversions, high contrast images, tone separations, shadow reversals and other photo-abstractions.	
<b>7100:300 ART SINCE 1945</b>	<i>3 credits</i>	<b>7100:380 GRAPHIC VIDEO</b>	<i>3 credits</i>
Prerequisite: 101 or permission of instructor. Consideration of significant developments in visual art forms since World War II in architecture, sculpture, printing, photography, metal, textile, ceramics, printmaking and graphic design.		Prerequisites: junior standing in graphic design or mass media-communication and permission of instructor. Study of applied video technologies as related to visual design principles and visual communication concepts in the design and use of graphic imagery.	
<b>7100:302 ART IN EUROPE DURING THE SEVENTEENTH AND EIGHTEENTH CENTURIES</b>	<i>3 credits</i>	<b>7100:387 ADVERTISING LAYOUT DESIGN</b>	<i>3 credits</i>
Prerequisite: 101 or permission of instructor. Analysis of major European examples of architecture, landscape design, painting, prints and sculpture from beginning of the Seventeenth Century until approximately 1850.		Prerequisites: 275, 288. Creative exploration of problems in visual merchandising. Projects offer exercises in developing skills from concept through final comprehensive presentation.	
<b>7100:303 RENAISSANCE ART IN ITALY</b>	<i>3 credits</i>	<b>7100:388 ADVERTISING PRODUCTION AND DESIGN</b>	<i>3 credits</i>
Prerequisite: 101 or permission of instructor. Study of architecture, painting and sculpture of Italy during Thirteenth through Sixteenth Centuries.		Prerequisites: 387 and (either 2240:222 or 7100:376). Continuation of 387. More complex projects with emphasis given to mechanical preparation of finished art for various printing processes.	
<b>7100:304 ART IN EUROPE DURING THE NINETEENTH CENTURY</b>	<i>3 credits</i>	<b>7100:389 CORPORATE IDENTITY AND GRAPHIC SYSTEMS</b>	<i>3 credits</i>
Prerequisite: 101 or permission of instructor. Study and analysis of major developments in visual arts in Europe from 1800 to 1900.		Prerequisite: 388. Advanced projects in corporate identity, graphic systems analysis, design. Problem solving for these specific areas of graphic design within mechanical limitations of art reproduction.	
<b>7100:305 ART FROM 1900 to 1945</b>	<i>3 credits</i>	<b>7100:393 WEAVING II</b>	<i>3 credits</i>
Prerequisite: 101 or permission of instructor. Study of significant developments in visual arts from approximately 1900 to 1945.		(May be repeated for a total of nine credits) Prerequisite: 293. Continuation of 293. Development of the techniques of spinning and twill weaving. Emphasis upon either aesthetic considerations or	
<b>7100:317 PRINTMAKING II</b>	<i>3 credits</i>		
(May be repeated for a total of 12 credits with a different process) Prerequisites: 213 or 14 or 15 or 16 in the appropriate medium. Continuation of studio work in printmaking with concentration in one process designated by letter as follows: A. Lithography, B. Serigraphy, C. Relief, D. Intaglio.			

commercial preparation techniques, depending upon the student's intended application.

**7100:400/500 ART IN THE UNITED STATES BEFORE WORLD WAR II** 3 credits

Prerequisite: 101 or permission of instructor. Consideration of development of art in the United States from earliest evidences to approximately World War II.

**7100:401 SPECIAL TOPICS IN HISTORY OF ART** 1-3 credits  
(May be repeated for credit when a different subject or level of investigation is indicated)

Prerequisites: 100,1 or permission of instructor. Lecture course in which subject is specified each time course is offered. Focuses upon an art movement, time period, the production of a single artist or a specific art medium.

**7100:405/505 HISTORY OF ART SYMPOSIUM** 1-3 credits  
(May be repeated for credit when a different subject is indicated)

Prerequisite: 15 credits in art history or permission of instructor. Lecture, individual research and evaluation, group discussion related to a specific time period or to an artistic problem.

**7100:418 ADVANCED PRINTMAKING** 3 credits  
(May be repeated for a total of 12 credits)

Prerequisites: 121, (either 245 or 246 or 247), 317 in the appropriate process, and 375. Lectures, demonstrations and experiments with more sophisticated printmaking techniques and applications. Concentration in one process designated by letter as follows. A. Lithography, B. Serigraphy, C. Relief, D. Intaglio.

**7100:422 ADVANCED SCULPTURE** 3 credits  
(May be repeated for a total of nine credits)

Prerequisite: 322. Development of individual points of view and sculptural statements.

**7100:431 DRAWING IV** 3 credits  
(May be repeated for a total of nine credits)

Prerequisites: 121, 232, 331. In-depth study of drawing for advanced art student. Emphasis on interpretive and inventive drawing using widest possible range of media and techniques.

**7100:449 ADVANCED PAINTING** 3 credits  
(May be repeated for a total of nine credits)

Prerequisites: 121, 231, 233, 348 in the appropriate medium. Advanced level painting course. Opportunity to explore polymer acrylic, oil or watercolor painting techniques, and experiment with aesthetics of color, form and style. Concentration in one medium designated by letter as follows: A. Polymer Acrylic, B. Watercolor, C. Oil.

**7100:454 ADVANCED CREAMICS** 3 credits  
(May be repeated for a total of 15 credits)

Prerequisite: 354. Emphasis on refinement of technique toward personal aesthetic statement in preparation for professional or private studio production. Student may choose a general survey of subject matter or a more concentrated area of study.

**7100:455 FIBER, CLAY AND METAL SEMINAR** 2 credits

Prerequisite: permission of instructor. Open formal seminar designed to explore ideas in clay, fiber and metal art through reading, discussion and production.

**7100:466 ADVANCED METALSMITHING** 3 credits  
(May be repeated for a total of 12 credits)

Prerequisites: 283, 366. Investigation in depth of aesthetic and technical problems of metalsmithing. Student works on individual projects under guidance from instructor.

**7100:475 ADVANCED PHOTOGRAPHY** 3 credits  
(May be repeated for a total of 12 credits)

Prerequisites: 233, 376 and 3650:137. Photographic media, light and photographic equipment manipulated experimentally to produce creative graphic images. Student works under guidance of instructor on advanced individual projects.

**7100:480 ADVANCED GRAPHIC DESIGN** 3 credits  
(May be repeated for a total of nine credits)

Prerequisite: 388 or permission of instructor. Student works on advanced level individual projects under supervision of instructor.

**7100:484 ILLUSTRATION** 3 credits

Prerequisite: 283 or permission of instructor. Application of painting and

drawing skills and aesthetic sensitivity to specific commercial illustration and editorial art assignments.

**7100:485 ADVANCED ILLUSTRATION** 3 credits  
(May be repeated for a total of nine credits)

Prerequisite: 484 or permission of instructor. Advanced projects designed to tune student's personal aesthetic to communicative imagery. A more individual approach to design. Drawing and painting emphasized as is experimentation with multimedia.

**7100:486 PACKAGING DESIGN** 3 credits

Prerequisite: 387 or permission of instructor. Synthesis of two- and three-dimensional visual thinking. Research in materials applicable to packaging of various products. Assignment of projects stressing development of conventional and experimental package design.

**7100:488 PUBLICATION DESIGN** 3 credits

Prerequisite: 389. Advanced research, design of promotional brochures, annual reports and other multipaged communicational print. Emphasis on total design from concept to camera-ready art. Individual approach to communicative graphics stressed. Portfolio development.

**7100:489 SPECIAL TOPICS IN STUDIO ART** 3 credits  
(May be repeated for credit when a different subject or level of investigation is indicated)

Prerequisite: advanced standing or permission of instructor. Group investigation of a particular phase of art not offered by other courses.

**7100:490/590 WORKSHOP IN ART** 1-4 credits  
(May be repeated for credit when a different subject or level of investigation is indicated 490 to maximum of eight credits, or 590 to maximum of 12 credits)

Prerequisite: advanced standing in art or permission of instructor. Group investigation of a particular phase of art not offered by other courses in curriculum.

**7100:497/597 INDEPENDENT STUDIES** 1-3 credits  
(May be repeated)

Prerequisite for art majors: advanced standing in area chosen, and permission of instructor. Prerequisite for non-art majors: permission of instructor. Investigation in depth of aesthetic and technical problems within a studio-selected area of specialization. Student must present in writing a proposed study plan and time schedule for instructor approval.

**7100:498/598 SPECIAL PROBLEMS IN HISTORY OF ART** 1-3 credits  
(May be repeated for credit when a different subject or level of investigation is indicated)

Prerequisite: 20 credits in art history and permission of instructor and department head. Individual research in art history centered around limited topic, such as specific time period, history of specific techniques, a single artist or movement in art history. No more than 10 credits will be counted toward major.

**7100:499 HONORS IN ART** 3 credits  
(May be repeated for a total of nine credits)

To be used for research in the honors program established by student and his adviser(s).

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## 7400: Home Economics and Family Ecology

**7400:121 TEXTILES** 3 credits

Basic study of natural and man-made fibers. Emphasis on physical properties, selection and care. Attention given to design and manufacture of textiles. Lecture.

**7400:123 CLOTHING CONSTRUCTION** 3 credits

Basic theory and methods of garment construction including experience with pattern alterations, diverse fabrics and special construction techniques. Two hours lecture, four hours laboratory.

**7400:132 EARLY CHILDHOOD NUTRITION** 2 credits

Emphasis on nutrition as component of Early Childhood programs. Nutrition principles discussed in relation to self and young children. Prenatal and infant nutrition studied. Food as learning experience, menu planning, purchasing.

sanitation, food labeling, storage and parent involvement included. For Family and Child Development Option, and an educational technology student.

**7400:133 NUTRITION FUNDAMENTALS** 3 credits

Study of fundamental concepts of nutrition; emphasis on nutrients and requirements at different stages of the individual's life cycle.

**7400:141 FOOD FOR THE FAMILY** 3 credits

Application of nutrition to meal planning; problems in selecting, budgeting and preparing food; table etiquette, meal service. Three, two-hour laboratories.

**7400:147 HOME ECONOMICS SURVEY** 1 credit

Survey of history and development of home economics with emphasis on professional and career opportunities.

**7400:158 INTRODUCTION TO INTERIOR DESIGN AND FURNISHINGS** 3 credits

Introduction to home furnishings involving topics such as furniture styles, utilization of space, color, lighting, wallcoverings, window treatments, floor coverings, furniture arrangement/selection and accessorizing. Lecture/Laboratory.

**7400:159 FAMILY HOUSING** 3 credits

Study of housing alternatives related to stages in the family life cycle. Also overview of physical aspects of house: construction financing, insulation, heating/cooling systems, wiring and kitchen design. Lecture/Laboratory.

**7400:201 RELATIONAL PATTERNS IN MARRIAGE AND FAMILY** 3 credits

Study of familial interaction in various life-styles with emphasis on self-concept, changing roles, developmental tasks, family life cycles and socio-economic and cultural influence upon individual and family.

**7400:204 SURVEY OF APPLIED HOME ECONOMICS IN THE COMMUNITY** 1 credit

Directed study and observation of ongoing community and business programs in home economics and family ecology related areas including housing, home management, family financial management, food and nutrition, clothing, child development, parent effectiveness, and handicapping conditions through family life cycle. Weekly two-hour local tour in addition to class sessions.

**7400:218 FAMILY HEALTH AND HOME NURSING** 2 credits

Overview of strategies for generation of positive physical, mental and emotional health across individual and family life cycles. Emphasis on preventative strategies as well as home care procedures.

**7400:245 BASIC NUTRITION AND FOODS** 5 credits

Prerequisite: 133, 3150:129 or permission of instructor. Scientific and aesthetic principles involved in the selection, storage and preparation of common foods to maintain the highest nutritional quality and palatability.

**7400:255 FATHERHOOD: THE PARENT ROLE** 2 credits

Overview of development of stereotyped behavior as it affects the father role and his interactive relationship with other family members. Directives for family life education, research, theory and social policy.

**7400:265 CHILD DEVELOPMENT** 3 credits

Physical, social, mental and emotional development of child from prenatal through five. Observation in child care and preschool centers.

**7400:275 PLAY AND CREATIVE EXPRESSION ACTIVITIES** 4 credits

Prerequisite: 265. Importance of play in child's social, emotional, intellectual and physical growth. Encouragement of creativity in adults and children through planned experiences that provide for individual expression.

**7400:285 ORIENTATION TO THE HOSPITAL SETTING** 2 credits

Prerequisite: 265, comparable course or permission of instructor. Focuses on hospital as a major social institution; introduces procedures and functions of the hospital; roles played by various hospital personnel plus cursory knowledge of medical terminology, common childhood diseases, illnesses and injuries.

**7400:290 ADMINISTRATION OF CHILD CARE CENTERS** 3 credits

Prerequisite: 265, 275 or permission of instructor. Study of principles, concepts and procedures involved in working with children in preschool programs. Curriculum innovation and implementation, parent involvement, observation and recording of children's progress.

**7400:301 CONSUMER EDUCATION** 3 credits

Study of consumer needs, concerns and problems as related to individual consumer, to consumers in the market economy and to the complex society in which families function.

**7400:305 ADVANCED CONSTRUCTION AND TAILORING** 3 credits

Prerequisite: 123. Advanced theory and principles in construction of couture garment. Construction of coat or suit jacket utilizing custom tailoring techniques. Two hours lecture, four hours laboratory.

**7400:311 CONTEMPORARY NEEDLE ARTS** 3 credits

Use of appropriate textiles, yarns and needles in creation of various items for purposes of enhancing leisure time or as earning skills. Lecture/Laboratory.

**7400:313 INTRODUCTION TO FOOD SYSTEMS MANAGEMENT** 3 credits

Prerequisite: 245 or permission; corequisite: 314. Introductory course in management of dietetic food service systems which relates to achievement of nutrition care goals.

**7400:314 INTRODUCTION TO FOOD SYSTEMS MANAGEMENT - CLINICAL** 1 credit

Prerequisite: CUP student only, corequisite: 313, 416. Demonstration of food preparation techniques in production area of community facilities; understanding of basic responsibilities of production supervisors; identification of resources involved in total management of base hospital's food service system.

**7400:316 SCIENCE OF NUTRITION** 4 credits

Prerequisite: 133, 3100:207, 3150:203. In-depth characterization of composition, metabolism, physiological functions and interrelationships of nutrients. Analysis and interpretation of current literature; assessment of nutrition counseling techniques.

**7400:317 HISTORIC COSTUME** 3 credits

Chronological study of costume from ancient to modern times as source of inspiration for contemporary dress and the theatre with consideration of cultural forces that affected the development. Lecture.

**7400:328 INTRODUCTION TO NUTRITION IN MEDICAL SCIENCE** 4 credits

Prerequisite: 316. Analysis of therapeutic healthcare concepts. Consideration of nutritional implications of pathological conditions; construction of diets for specific disorders.

**7400:329 INTRODUCTION TO NUTRITION IN MEDICAL SCIENCE - CLINICAL** 2 credits

Prerequisites: 316, CUP student only; corequisite: 328. Clinical experiences in area hospitals for application of principles of nutritional care learned in 328.

**7400:331 APPLIED HOME FURNISHINGS** 3 credits

Prerequisite: 121. Laboratory: for the student to apply knowledge of home furnishings principles specifically in areas of drapery making, reupholstering/slipcovering and accessory construction.

**7400:333 INTERIOR DESIGN I: RESIDENTIAL** 3 credits

Prerequisite: 7100:282. An in-depth study of the interior design profession and its complexities, with emphasis on developing skills necessary to function effectively as a residential designer.

**7400:334 INTERIOR DESIGN II: CONTRACT** 3 credits

Prerequisite: 333. Continuation of *Interior Design I* with an emphasis on both residential interior design and commercial interior design, and the development of the basic skills necessary to function effectively as an interior designer.

**7400:335 FUNDAMENTALS OF BUYING HOME FURNISHINGS** 3 credits

Study of the business aspects of interior design: business procedures, manufacturing of home furnishings and principles and psychology of marketing home furnishings.

**7400:340 MEAL SERVICE** 2 credits

Prerequisites: 245, 316 (or 133, 141). Management of resources in relation to marketing, meal preparation and service; appropriate forms of service for various types of meals. Preparation of foods from various parts of the world.

**7400:350 THE CHILD IN THE HOSPITAL** 4 credits

Prerequisite: 265, comparable course or permission of instructor. Seminar dealing with special needs and problems of hospitalized/ill child and family. Literature related to effects, separation, illness and stress. Examination of strategies for coping.

**7400:355 PRACTICUM: ESTABLISHING AND SUPERVISING A CHILD LIFE PROGRAM** 3 credits

Prerequisite: 350. Explores procedures for implementing and setting up child life programs; critical analysis of currently functioning program.

- 7400:359 TAILORING FOR MEN** 3 credits  
Prerequisite: 123 or permission. Fundamentals of tailoring for men. Construction of a suit jacket and slacks. Emphasis on alterations, construction techniques and fabric selection. Analysis of current market trends and men's wear designers. Prior experience with clothing construction necessary.
- 7400:362 HOME MANAGEMENT THEORY** 3 credits  
Introduction to management theories, processes and principles as applied to utilization of human and material resources in promotion of individual and family well-being.
- 7400:380 INTRODUCTION TO COMMUNITY NUTRITION** 1 credit  
Orientation to the philosophy, objectives and structure of government and voluntary agencies and organizations which have nutrition components. Clinical observation scheduled.
- 7400:395 COMMUNITY INVOLVEMENT IN HOME ECONOMICS** 1-3 credits  
Development of managerial expertise through experience. Selected participation sites in business and industry, hospitals, community agencies and with individual families with special managerial problems.
- 7400:401/501 FAMILY LIFE PATTERNS IN THE ECONOMICALLY DEPRIVED HOME** 2 credits  
Study of family life orientation and life-style patterns among economically deprived with emphasis on impact of socioeconomic and psychological deprivation on family members throughout family life span.
- 7400:403/503 ADVANCED FOOD PREPARATION** 3 credits  
Prerequisite: 141 or 245 or permission of instructor. Study of advanced techniques of food preparation. Introduction to and interpretation of classic and foreign cuisines. Emphasis on individualized experience, skill development and evaluation of procedures and results.
- 7400:404/504 ADOLESCENCE IN THE FAMILY CONTEXT** 3 credits  
Prerequisite: 201, 265 or permission of instructor. The influences of adolescent behavior on the family and the influence of the family environment on adolescent development.
- 7400:406/506 FAMILY RESOURCE MANAGEMENT** 3 credits  
Management of family resources as families function as consuming units in today's economy. Exposure to current consumer education resources including sources of consumer information and methods of utilizing these resources.
- 7400:412 INSTITUTIONAL MANAGEMENT** 3 credits  
Organization and management in administration of food service systems; problems in administration of food service systems; problems in control of labor, time and cost. Field experience in food production.
- 7400:413 FOOD SYSTEMS MANAGEMENT** 3 credits  
Prerequisite: 313, corequisite: 414. Advanced concepts in management of dietetic service systems relating to achievement of nutritional care goals.
- 7400:414 FOOD SYSTEMS MANAGEMENT — CLINICAL** 3 credits (credit/noncredit)  
Prerequisite: 314, corequisite, 413. Application of advanced food systems management concepts in community dietetic food service facilities; preparation for entry-level staff positions as administrative dietitians; clinical experience for 24 hours per week for 10 weeks of semester.
- 7400:415 HOUSEHOLD EQUIPMENT** 2 credits  
Selection, use and care of modern household equipment. Survey of commercial equipment used in home economics related professions.
- 7400:416 QUANTITY FOOD PREPARATION** 3 credits  
Prerequisite: 245. Theoretical concepts and practical application of principles and procedures in quantity food management, preparation and service.
- 7400:419 CLOTHING COMMUNICATION** 3 credits  
Study of cultural, social, psychological and economic aspects of clothing. Emphasis on expression and use of clothing in relation to self, society and culture. Lecture/Discussion.
- 7400:420 EXPERIMENTAL FOODS** 3 credits  
Prerequisites: 245, 3150:130 or permission of instructor. Theory and methods used in the experimental study of foods. Application of analytical methods to sensory and instrumental evaluation of food quality. Individual research emphasized.
- 7400:421 SPECIAL PROBLEMS IN HOME ECONOMICS** 1-3 credits  
Additional study or apprentice experience in specialized field or preparation; group and individual experimentation.
- 7400:422 ADVANCED HOME MANAGEMENT** 3 credits  
Theoretical and practical experiences utilized in study of management processes and principles as applied to families. Management of human and material resources and decision-making processes emphasized.
- 7400:426 THERAPEUTIC NUTRITION** 4 credits  
Prerequisites: 316, 3100:130, 3150:202 or permission. Application of principles of normal nutrition to diet in disease. Effects of pathological conditions on planning of modified diets to meet nutritional needs. Practice in writing therapeutic diets and interviewing hospitalized patients; limited experience in specialized clinics.
- 7400:428 NUTRITION IN MEDICAL SCIENCE** 5 credits  
Prerequisite: 328; corequisite: 429. Overview of major areas of diet therapy not covered.
- 7400:429 NUTRITION IN MEDICAL SCIENCE - CLINICAL** 3 credits (credit/noncredit)  
Prerequisite: 329, CUP students only; corequisite: 428. Clinical experience in hospitals applying of principles of nutritional care learned in 428.
- 7400:430 COMPUTER-ASSISTED FOOD SERVICE MANAGEMENT** 3 credits  
Use of computer programs in application of management concepts for food service systems.
- 7400:439 FASHION** 3 credits  
Prerequisite: Sophomore standing, 121. Overview of fashion industry including growth, promotion and impact of cultural influences. Review of international and American fashion scene. Lecture/Discussion.
- 7400:442/542 HUMAN SEXUALITY** 3 credits  
Prerequisite: 201 or permission of instructor. Introduction to problems and values. Emphasis is on the role of values in intimate relationships, the diverse dimensions of sexual responsibility.
- 7400:445/545 PUBLIC POLICY AND THE AMERICAN FAMILY** 3 credits  
How legislation in such areas as housing, clothing, consumer affairs, family formation and dissolution, resource conservation, child development and health care affects and, in some cases, determines the nature, structure and quality of the family as a social institution.
- 7400:447 CRITICAL ISSUES IN HOME ECONOMICS** 1 credit  
Prerequisites: 147 and senior standing. Consideration of home economics as a profession and its impact on the quality of life of individuals, families and their environments. Analysis of challenges facing the profession and all home economists.
- 7400:449 FLAT PATTERN DESIGN** 3 credits  
Prerequisite: 305. Theory and experience in women's clothing design using flat pattern techniques. Two hour lecture, four hour laboratory.
- 7400:450 DEMONSTRATION TECHNIQUES** 2 credits  
A major only. Provides practical experience in organization and presentation of demonstrations. Emphasis on competencies in coordination of materials, motion and speech in presentation.
- 7400:459 MACHINE STITCHERY** 3 credits  
Understanding the utilization of the sewing machine as a creative tool. Emphasis on developing the artistic and technical skills necessary for doing embroidery, applique, drawing, quilting, patchwork, cutwork and other related textile arts by machine.
- 7400:460/560 ORGANIZATION AND SUPERVISION OF CHILD CARE CENTERS** 2 credits  
Prerequisite: permission of instructor. Theory and principles involved in establishing and operating centers for infants and young children.
- 7400:480 COMMUNITY NUTRITION I.** 3 credits  
Prerequisite: 316; corequisite: 481. Major food and nutrition related problems in the community. Emphasis on community assessment program implementation and evaluation; rationales for nutrition services.
- 7400:481 COMMUNITY NUTRITION I - CLINICAL** 1 credit (credit/noncredit)  
Prerequisite: CUP students only; corequisite: 480. Field placement in area agencies offering nutrition services. Study of agencies goals, organization and philosophy of nutritional care.
- 7400:482 COMMUNITY NUTRITION II.** 3 credits  
Prerequisite: 480; corequisite: 483. Food and nutrition-related problems on a

national and international level. Emphasis on legislation, nutrition policies, controversies, cultural differences and educational approaches.

**7400:483 COMMUNITY NUTRITION II - CLINICAL** 1 credit

Prerequisite: CUP student only. corequisite: 482. Field placement in area agencies offering nutrition services. Study of agencies goals, organization and philosophy of nutritional care.

**7400:485/585 SEMINAR IN HOME ECONOMICS** 1-3 credits

Prerequisite: permission of instructor. Exploration and evaluation of current developments in selected areas.

**7400:486 STAFF RELIEF: DIETETICS** 1 credit (credit/noncredit)

Prerequisite: CUP senior only, 414. Opportunity to function as an entry-level dietitian in area of administrative, therapeutic or community dietetics. The graduating senior CUP student spends two 40-hour weeks in a mutually agreeable agency primarily under direction of staff dietitians or coordinators.

**7400:490/590 WORKSHOP IN HOME ECONOMICS AND FAMILY ECOLOGY** 1-3 credits

Prerequisite: at least junior standing. Investigation on current issue or topic in selected areas of home economics and family ecology. May be on off-campus study tour or an on-campus full-time group meeting.

**7400:495 INTERNSHIP: GUIDED EXPERIENCES IN CHILD LIFE PROGRAM** 6 credits

Prerequisite: 355. A field experience in a child life program as a child life specialist at Children's Hospital-Medical Center of Akron.

**7400:496/596 PARENTING SKILLS** 3 credits

Prerequisite: 265, comparable course or permission of instructor. Reviews and analyzes various child-rearing techniques with major emphasis on practical application.

**7400:497 INTERNSHIP IN HOME ECONOMICS AND FAMILY ECOLOGY** 2-6 credits

Prerequisite: Permission of instructor. In-depth field experience in business, industry or community agencies related to student's area of specialization.

**7400:499 SENIOR HONORS PROJECT IN HOME ECONOMICS AND FAMILY ECOLOGY** 1-3 credits

(May be repeated for a total of six credits)

Prerequisite: Senior standing in Honors Program and approval of Honors preceptor. Individual study supervised by adviser. Student and preceptor develop goals, objectives and methodology.

**7400:616 INFANT AND CHILD NUTRITION** 2 credits

Emphasizes current research trends in physiology of infant and young child in relation to nutritional requirements and feeding practices.

**7400:651 FAMILY AND CONSUMER LAW** 3 credits

Study of laws which control and protect individuals within family. Emphasis on current trends, legal rulings. Course taught by attorney.

**7400:660 PROGRAMMING FOR CHILD CARE CENTERS** 2 credits

Principles, procedures involved in program development for child care centers. Examination of current programs available for preschool children. Implications, literary analysis, application, evaluation stressed.

**7400:665 DEVELOPMENT IN INFANCY AND EARLY CHILDHOOD** 3 credits

Analysis of research and theoretical frameworks regarding infant and child development from conception through age five. Implications for guidance and education.

**7400:675 CONCEPTUAL FRAMEWORKS IN FAMILY ECOLOGY** 3 credits

The ecosystem will be used as a model for viewing the family as a unit and the relation between familial groups and the environment.

**7400:695 INTERNSHIP IN FAMILY AND CHILD DEVELOPMENT** 5 credits

Prerequisite: permission of adviser. Community-based experience designed to supplement classroom studies. A student works with agency personnel and clientele in programs designed to meet needs of children and/or families.

**7400:697 INDIVIDUAL INVESTIGATION IN FAMILY DEVELOPMENT** 1-3 credits

Prerequisite: permission of graduate adviser only. Individual pursuit and analysis in specific area of student's interest and design under direction of faculty adviser.

**7400:698 INDIVIDUAL INVESTIGATION OF CHILD DEVELOPMENT** 1-3 credits

Prerequisite: permission of graduate adviser only. Individual pursuit and analysis in specific area of student's interest and design under direction of faculty adviser.

**7400:699 THESIS** 5 credits

Prerequisite: permission of adviser. Preparation of thesis pertaining to a selected research project in area of family or child development.

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## Graduate Courses

**7400:600 EVALUATION OF HOME ECONOMICS LITERATURE** 3 credits

A study of selected literature with emphasis upon evaluation and interpretation strategies.

**7400:601 FAMILY IN TRANSITION** 2 credits

Overview of family in historical perspective. Effects of social change upon family and emerging relational patterns. Review of theory, research and educational strategies.

**7400:602 FAMILY IN LIFE SPAN PERSPECTIVE** 2 credits

Study of individual and family development across life span. Emphasis on management of available resources, adjustment patterns and interpersonal competence. Implications for education, theory, research and social policy.

**7400:603 FAMILY: MIDDLE AND LATER YEARS** 2 credits

Study of family patterns and problems during middle and later years of life with emphasis on psychological and biological changes and economic and social adequacy. Research and trends in gerontology.

**7400:605 DEVELOPMENTAL PARENT-CHILD INTERACTIONS** 3 credits

Prerequisite: 265, or equivalent, or permission. Study of reciprocal interactions formed between parent and child from birth to adulthood. Consideration of cross-cultural studies, historical and societal influences and varying family characteristics and structures.

**7400:607 FAMILY DYNAMICS** 3 credits

Development of techniques in home economics programs utilizing role theory, exchange theory and systems theory as understood through the study of the family across the life cycle.

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## 7500: Music

**7500:100 FUNDAMENTALS OF MUSIC** 2 credits

Introduction of basic notation and development of functional music reading and keyboard skills. Conducted in electronic keyboard laboratory with computer-assisted instruction available. For non-music majors only, with little or no previous musical training.

**7500:101 INTRODUCTION TO MUSIC THEORY** 2 credits

Designed for prospective music major to correct deficiencies in theory background as determined through department placement testing. Includes classroom instruction and computer-assisted instruction in basic notation, scales, meter, key signatures, ear training and basic familiarity with the keyboard. Credit not applicable toward music degree.

**7500:104 CLASS PIANO I** 2 credits

Prerequisite: 101 or permission of instructor. Designed for student with no previous keyboard experience to learn rudimentary keyboard skills such as playing scales, chords, arpeggios and melodic patterns as well as simple music.

**7500:105 CLASS PIANO II** 2 credits

Prerequisite: 104 or permission of instructor. Continuation of work begun in 104.

**7500:107 CLASS VOICE I** 2 credits

Prerequisite: 101 or permission of instructor. Minimum memorization and solo singing requirement: seven songs. Voice literature emphasis: folk songs, ballads, spirituals, sacred songs and easy art songs in English.

- 7500:108 CLASS VOICE II** 2 credits  
Prerequisite: 107. Minimum memorization and solo singing requirement: eight songs. Vocal literature emphasis: old Italian and English songs, art songs in English or foreign language if student is conversant with the language.
- 7500:110 CLASS GUITAR FOR NON-MUSIC MAJORS** 1 credit  
Prerequisite: permission of instructor. Introduction to the guitar, its repertoire and techniques. Basic classical techniques and music reading, strums, finger-picking, accompaniment patterns, blues styles will be covered.
- 7500:151,2 THEORY I, II** 3 credits each  
Sequential. Prerequisite: 101 or permission of instructor. Study and creative use of elements of music; investigation of music of major composers of classic and romantic eras; introduction to earlier musical practices and contemporary music.
- 7500:154,5 MUSIC LITERATURE I, II** 2 credits each  
Sequential. Familiarization with large body of musical material from all branches of music writing: vocal, instrumental, symphonic and choral music literature. Special attention given to style, form and structural procedures of principal composers.
- 7500:157 STUDENT RECITAL** 0 credits  
Required of all music majors until minimum requirement is met. Forum for student and faculty members providing lectures, recitals and opportunity for practice of various skills necessary for successful music performance.
- 7500:161 AURAL/ORAL MUSIC READING SKILLS** 4 credits  
Prerequisite: 101 or passing placement test or permission of instructor. Competency-based, supervised drill in the vocal mastery of scales, modes, intervals, broken chords, melodies, rhythms, meter, tempo, modulation. Computer-based education programs in ear training and error detection.
- 7500:173 NOTATION AND CALLIGRAPHY** 2 credits  
Prerequisite: 101. Techniques involved in writing music symbols and their correct placement on staff paper. Included are specific techniques in orchestral, choral, jazz, popular notation.
- 7500:205 MARCHING BAND ORGANIZATION AND TECHNIQUE** 1 credit  
Prerequisite: 104. All aspects of band on the field discussed. Student learns to write complete half-time show, administer marching band program, etc.
- 7500:210 JAZZ IMPROVISATION I** 2 credits  
Prerequisites: 262 and permission of instructor. Study and application of principles of jazz improvisation as they relate the chord-scale structures, motif development and style.
- 7500:211 JAZZ IMPROVISATION II** 2 credits  
Prerequisite: 408. Advanced study in principles of jazz composition.
- 7500:212 THE MUSIC INDUSTRY: A SURVEY OF PRACTICES AND OPPORTUNITIES** 2 credits  
A study of current practices affecting the professional musician and a survey of career opportunities relating to the music industry.
- 7500:251,2 THEORY III, IV** 3 credits each  
Sequential. Prerequisite: 152. Renaissance vocal counterpoint; baroque instrumental counterpoint; form and analysis of music of all eras.
- 7500:254,5 STRING INSTRUMENT TECHNIQUES I, II** 2 credits each  
Sequential. Fundamentals of technique, tone production, methods and materials pertaining to violin, viola, cello and string bass; heterogeneous string ensemble activities.
- 7500:261,2 KEYBOARD HARMONY I, II** 2 credits each  
Sequential. Prerequisites: 105 or equivalency and 152. Essentials of basic theory and harmony practically applied at keyboard; accompaniment, improvisation, transposition, modulation and sight-reading.
- 7500:263 SERVICE PLAYING FOR ORGANISTS** 2 credits  
Prerequisites: 152 and 261. Practical course in basic keyboard skills needed by organist to play for religious services in various denominations. Hymn playing, anthem accompaniment and simple improvisation.
- 7500:264 BEGINNING PIANO PEDAGOGY AND LITERATURE** 2 credits  
Prerequisite: permission of instructor. Examination of musical content and pedagogical orientation of beginning piano material to include appropriate teaching works, methods and ensemble pieces from a variety of historical periods.
- 7500:265,6 DICTION FOR SINGERS I, II** 2 credits each  
Sequential. Prerequisite: permission. Study of diction of the four most used languages (Italian, German, French and English) in vocal performance and international Phonetic Alphabet. Designed for student who expects to function as vocal performers and/or choral and studio voice teachers.
- 7500:301 MUSIC APPRECIATION: MUSIC BEFORE 1800** 2 credits
- 7500:302 MUSIC APPRECIATION: NINETEENTH AND TWENTIETH CENTURIES** 2 credits  
301 and 302 designed as electives for non-music major to provide introductory survey of art of music.
- 7500:306 MARCHING BAND ARRANGING** 2 credits  
Prerequisite: 152 or permission of instructor. A student arranges music for marching band including style, sound projection, etc. Includes discussion of scoring for concert band as related to marching band.
- 7500:307 TECHNIQUES OF STAGE BAND PERFORMANCE AND DIRECTION** 2 credits  
Prerequisite: permission of instructor. Provides for basic experiences relating to conducting, rehearsal techniques, improvisation, performance, repertoire and other matters pertaining to organization and direction of stage bands.
- 7500:308 THE HISTORY AND LITERATURE OF JAZZ** 3 credits  
Prerequisite: permission of instructor. Study of origins of jazz music, its development and influence on today's culture. Investigates evolution of musical instruments as they pertain to jazz music, the artists who perform on them, and their music through live and recorded listening experiences.
- 7500:309 JAZZ KEYBOARD TECHNIQUES** 2 credits  
Prerequisite: 262. Study of and familiarization with basic jazz keyboard techniques as they relate to contemporary jazz harmony and theory.
- 7500:310 JAZZ IMPROVISATION III** 2 credits  
Prerequisite: 211. Advanced study in the principles of jazz improvisation.
- 7500:311 JAZZ IMPROVISATION IV** 2 credits  
Prerequisite: 310. Advanced study in the principles of jazz improvisation.
- 7500:325 RESEARCH IN MUSIC** 2 credits  
Prerequisites: 155, 161, 252, 262. Techniques of basic research methods; examination of selected music materials; field trips to specialized collections.
- 7500:340 GENERAL MUSIC** 3 credits  
(May be repeated for a total of six credits)  
Prerequisites: 155, 162, 252, 262. Introductory and developmental sequence of studies related to skills, techniques and materials appropriate to nonpublic performance music classes in grades K-12. Clinical and field-based experiences.
- 7500:342 WIND-PERCUSSION INSTRUMENT TECHNIQUES** 3 credits  
(May be repeated for a total of six credits)  
Prerequisites: 155, 162, 252, 262. Basic techniques in teaching woodwind, brass and percussion instruments. Development of knowledges and skills on band instruments applied to ensemble, large group and individualized instruction. Clinical and field-based experiences.
- 7500:351,2 MUSIC HISTORY I, II** 3 credits each  
Sequential. Prerequisites: 152, 155. Development of music from ancient to modern times; scores, recordings and live performances as illustrative material.
- 7500:353 ELECTRONIC MUSIC** 3 credits  
(May be repeated for a total of six credits)  
Prerequisite: 252. Theory of electronically-generated sound and practice of electronic music composition. Emphasis is on developing practical understanding of the components of the voltage-controlled studio.
- 7500:356 MUSIC IN THE TEACHING OF RETARDED AND HANDICAPPED PEOPLE** 2 credits  
Prerequisite: permission of instructor. Study of application of music to needs of the special person in public/private school, clinical settings.
- 7500:358 FUNCTIONAL CLASS GUITAR** 2 credits  
Prerequisite: knowledge of music rudiments and permission of instructor. Provides student in music education with basic rudiments of guitar playing as related to use in music classrooms.

**7500:361 CONDUCTING** 2 credits

Prerequisite: 152. Study and practice of conducting techniques; beat patterns, fermatas, tempo and dynamic change, attacks and releases, score reading.

**7500:362 CHORAL ARRANGING** 2 credits

Prerequisites: 252, 352 or permission of instructor. Designed to provide student with an understanding of principles of choral arranging and composition in all idioms and styles.

**7500:365 SONG LITERATURE** 2 credits

Prerequisite: 252 or permission. Exposes student systematically to vocal literature, aiding in their ability to distinguish between various periods and styles of music through recordings and class participation.

**7500:368 GUITAR STYLES** 2 credits

Prerequisite: 200 performance level or permission of instructor. Techniques involved in performing musical styles other than those in classical guitar. Included are plectrum styles such as bluegrass, country and rock, as well as flamenco, folk, popular and jazz.

**7500:369 HISTORY AND LITERATURE OF THE GUITAR AND LUTE** 2 credits

Prerequisite: permission of instructor. Study of plucked, fretted, string instruments from the 14th century to the present: construction, notation, literature and performance practices. Modern editions and recordings evaluated.

**7500:371 ANALYTICAL TECHNIQUES** 2 credits

Prerequisite: 252. Techniques for analysis of musical score from all eras of western music history, with major emphasis on works of baroque, classical and romantic periods.

**7500:372 TECHNIQUES FOR THE ANALYSIS OF TWENTIETH CENTURY MUSIC** 2 credits

Prerequisite: 252. Techniques for the analysis of musical scores from the twentieth century. Required of a theory-composition major.

**7500:407 JAZZ ARRANGING AND SCORING** 2 credits

Prerequisite: 454 or permission of instructor. Study of jazz instrumentation from small groups to large ensembles.

**7500:451/551 INTRODUCTION TO MUSICOLOGY** 2 credits

Prerequisite: 352. Comparative musicology; acoustics; psychology and physiology of music; aesthetics; theory of music theory; historical musicology.

**7500:452 COMPOSITION** 2 credits

Prerequisite: 252 or permission of instructor. Study and creative use of major styles and idioms of musical composition; emphasis on twentieth-century techniques.

**7500:454 ORCHESTRATION** 2 credits

Prerequisite: 252. Theory of instrumentation ranging from small ensembles to full band and orchestras.

**7500:455/555 ADVANCED CONDUCTING: INSTRUMENTAL** 2 credits

Prerequisites: 361 and 454. Baton techniques and problems relating to practice, reading and preparation of scores; organization of orchestra and band, problems in programming and practice conducting larger instrumental ensembles.

**7500:456/556 ADVANCED CONDUCTING: CHORAL** 2 credits

Prerequisite: 361 or equivalent. Adaptation of basic conducting techniques to the choral ensemble, including leadership, error detection, tonal development, stylistic accuracy and analysis.

**7500:462/562 REPERTOIRE AND PEDAGOGY: ORGAN** 3 credits

Prerequisite: permission of instructor. Survey of organ literature of all eras and styles, and of methods of teaching organ, applying principles to literature.

**7500:463/563 REPERTOIRE AND PEDAGOGY: STRING INSTRUMENTS** 3 credits

Prerequisite: permission of instructor. Study in depth of the four bowed string instruments, their teaching and close relationship. Despite obvious difference in physical application of cello and bass from violin and viola, methods of bowing, sound production and coloring are closely related. Application of the instruments to solo, chamber and orchestral playing.

**7500:471 COUNTERPOINT** 2 credits

Prerequisite: permission of instructor. Designed to give student of theory-composition necessary knowledge and skills for understanding contrapuntal practices and procedures; emphasis on twentieth-century techniques.

**7500:472 ADVANCED ORCHESTRATION** 2 credits

Prerequisite: 454. Study of techniques of orchestral style as found in major works from classical orchestra of Haydn and Mozart through modern orchestra of Stravinsky, Bartok, Berg and Schoenberg.

**7500:490/590 WORKSHOP IN MUSIC** 1-3 credits

Prerequisite: permission of instructor. Investigation of topics not offered in regular curriculum. Graduate student must fulfill additional requirements.

**7500:491 SPECIAL TOPICS IN MUSIC** 2 credits

(May be repeated for a total of four credits)  
Group project related to a specific phase of music. Experimental course topics designed and implemented according to student interest. For elective credit only.

**7500:497 INDEPENDENT STUDY IN MUSIC** 1-2 credits

(May be repeated for a total of four credits)  
Prerequisites: senior standing and permission of department head. Music major only. Independent study under supervision of specially selected faculty members in subject area bearing on student's own goals.

**7500:498 SENIOR HONORS PROJECT: MUSIC** 1-3 credits

(May be repeated for a total of six credits)  
Individually designed project demonstrating scholarship, analysis, advanced musicianship, research and/or creativity according to student interest. Restricted to University Honors Music student.

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## Graduate Courses

**7500:601 CHORAL LITERATURE** 2 credits

Prerequisite: permission of instructor. Study in depth of style, structure, technical demands, manner of setting text, and special performance problems found in masterworks by great choral composers of nine centuries.

**7500:604 DEVELOPMENT OF OPERA** 2 credits

Prerequisite: permission of instructor. Growth and development of opera from 1600 to present. Includes detailed examination of stylistic and structural changes as well as performance practices.

**7500:608 SEMINAR IN MUSIC OF THE WESTERN HEMISPHERE** 2 credits

Prerequisite: permission of instructor. Designed to develop understanding of peoples and cultures of Western Hemisphere through study of music of each major area. Research and writing in areas of special interest.

**7500:611 FOUNDATIONS AND PRINCIPLES OF MUSIC EDUCATION** 3 credits

Prerequisite: permission of instructor. Study of basic philosophical, historical, sociological and psychology concepts around which public school music programs function.

**7500:612 PRACTICES AND TRENDS IN MUSIC EDUCATION** 3 credits

Prerequisite: permission of instructor. In-depth exploration of innovative practices and trends in music education. Findings of research and practice related to prevailing situations in public/private school programs.

**7500:614 MEASUREMENT AND EVALUATION IN MUSIC** 2 credits

Prerequisite: permission of instructor. Study and application of principles of music aptitude, music achievement, and content evaluation. Elementary statistics for music test interpretation and construction explored.

**7500:615 MUSICAL STYLES AND ANALYSIS I** 2 credits

Prerequisite: permission of instructor. Detailed study of compositional techniques and stylistic traits observed in western music from period of Gregorian chant through music of Palestrina, Gesualdo and others of late Renaissance.

**7500:616 MUSICAL STYLES AND ANALYSIS II** 2 credits

Prerequisite: permission of instructor. Detailed study of compositional techniques and stylistic traits observed in western music from Monteverdi through early Beethoven.

**7500:617 MUSICAL STYLES AND ANALYSIS III** 2 credits

Prerequisite: permission of instructor. Detailed study of compositional techniques and stylistic traits observed in western music from period of late Beethoven through Mahler and Strauss.

**7500:618 MUSICAL STYLES AND ANALYSIS IV** 2 credits

Prerequisite: permission of instructor. Detailed study of compositional techniques and stylistic traits observed in western music in twentieth century.

**7500:619 THEORY AND PEDAGOGY** 2 credits

Prerequisite: permission of instructor. Methodology of theory teaching in twentieth century. Focus on differing philosophies of approach to theory instruction as noted from texts on subject. Recent innovations and techniques of teaching, such as programmed material, computer-assisted instruction, etc., studied.

**7500:620 COMPUTER ANALYSIS IN MUSIC** 2 credits

Prerequisite: a minimum of one course in the 615-618 series. A systematic study of analytic techniques in music which make use of the computer. Hands-on experiences with music encoding, card manipulation, interactive systems and program writing as related to music analysis.

**7500:621 MUSIC HISTORY SURVEY: MIDDLE AGES AND RENAISSANCE** 2 credits

Prerequisite: permission of instructor. Historical and stylistic analysis of all aspects of music of Middle Ages and Renaissance. Research and writing in areas of special interest.

**7500:622 MUSIC HISTORY SURVEY: BAROQUE** 2 credits

Prerequisite: permission of instructor. Historical and stylistic analysis of baroque music; study in depth of specific examples, from recordings, scores and live performances; continuation and synthesis of approaches normal to study of music history; selected readings related to each student's particular fields of interest; project papers.

**7500:623 MUSIC HISTORY SURVEY: CLASSIC AND ROMANTIC** 2 credits

Prerequisite: permission of instructor. Historical and stylistic analysis of classic and romantic music; study in depth of specific examples, through recordings, scores and live performances; continuation and synthesis of approaches normal to study of music history; selected readings related to each student's particular fields of interest; project papers.

**7500:624 MUSIC HISTORY SURVEY: TWENTIETH CENTURY** 2 credits

Prerequisite: permission of instructor. Historical and stylistic analysis of twentieth century music; study in depth of specific examples from scores, recordings and live performances; continuation and synthesis of approaches normal to study of music history; selected readings and project papers.

**7500:625 GRADUATE BIBLIOGRAPHY AND RESEARCH IN MUSIC** 2 credits

Prerequisite: undergraduate music degree or equivalent. Examination of all types of published music materials; research methods for thesis preparation and professional publishing; field trips to music libraries, computerized music research.

**7500:630 TEACHING AND LITERATURE: BRASS INSTRUMENTS** 2 credits

Prerequisite: permission of instructor. Research in current trends and issues in brass teaching techniques and appropriate literature.

**7500:631 TEACHING AND LITERATURE: WOODWIND INSTRUMENTS** 2 credits

Prerequisite: permission of instructor. To delineate and clarify contemporary techniques of woodwind pedagogy and to develop a comprehensive understanding of woodwind literature.

**7500:632 TEACHING AND LITERATURE: PERCUSSION INSTRUMENTS** 2 credits

Prerequisite: permission of instructor. To prepare an experienced instrumental music educator in new trends of percussion education. Emphasis placed on research, literature, performance techniques, new instruments and problems of teaching percussion from elementary level through high school.

**7500:633 REPERTOIRE AND PEDAGOGY: PIANO AND HARPSICHORD** 2 credits

Prerequisite: permission of instructor. The examination of piano and harpsichord literature in historically chronological order with special attention to its pedagogical value and stylistic differences.

**7500:634 TEACHING AND LITERATURE: STRING INSTRUMENTS** 2 credits

Prerequisite: permission of instructor. Research in current trends and issues in string teaching techniques and appropriate literature.

**7500:647 MASTER'S CHAMBER RECITAL** 1 credit

Prerequisite: permission of instructor. Composition student will present a recital of chamber music compositions (at least one-half hour in length) written while in residence at the University. Student will actively organize and coordinate the recital and will also participate either as performer or conductor.

**7500:665 VOCAL PEDAGOGY** 3 credits

Prerequisite: permission. In-depth study of subjects dealing with teaching of voice: physiology of vocal instrument, principles governing vocal production and application of vocal pedagogy.

**7500:666 ADVANCED SONG LITERATURE** 3 credits

Prerequisite: permission of instructor. Systematic study of song literature presented chronologically according to national schools of composition. Stylistic compositional characteristics and representative works of all major composers of solo song literature.

**7500:697 ADVANCED PROBLEMS IN MUSIC** 1-3 credits

(May be repeated for a total of eight credits)  
Prerequisite: permission of graduate adviser. Studies or research projects related to problems in music.

**7500:698 GRADUATE RECITAL** 2 credits

Prerequisite: permission of graduate adviser. Recital prepared and presented as a requirement for any appropriate degree option. If recital document is to be written in conjunction with the recital, add 699 for the additional credit.

**7500:699 THESIS RESEARCH/RECITAL DOCUMENT** 4-6 credits

Prerequisite: permission of graduate adviser. Research related to the completion of the master's thesis or recital document written in conjunction with the graduate recital, depending on the student's degree option.

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## 7510: Musical Organizations

No fee is charged for enrollment of a qualified student in music organizations. Enrollment may be repeated. For specific requirements for an undergraduate student in music, consult page six of the *Music Department Handbook*.

**7510:101 CONCERT CHOIR** 1 credit

Mixed chorus. Membership by audition. Open to any qualified university student. Previous choral experience and knowledge of music reading essential. Campus, regional and tour performances. Also annual concerts with Akron Symphony Orchestra and Chorus. Major conducted ensemble.

**7510:102 UNIVERSITY CHORUS: SYMPHONY** 1 credit

Membership by audition. Prospective members are advised to contact Department of Music two weeks prior to beginning of term. Music reading skills and previous choral experience required. Performs with Akron Symphony Orchestra. Major conducted ensemble.

**7510:103 UNIVERSITY SYMPHONY ORCHESTRA** 1 credit

Membership by audition. Organization devoted to study of orchestral literature. Full-length concerts as well as special university appearances. Major conducted ensemble.

**7510:104 UNIVERSITY BAND** 1 credit

Includes Symphony Band/Wind Ensemble and Concert Band as major conducted ensembles. Marching Band (fall semester only) and Varsity Band. Membership in all bands open to all university students by audition with director of bands.

**7510:105 CHORAL ENSEMBLE** 1 credit

Membership by audition. Study and performance of literature for chamber vocal ensemble from all periods of music history. Frequent public concerts. Designed for personnel with good music reading ability and previous choral experience.

**7510:106 BRASS ENSEMBLE** 1 credit

Membership by audition. Study and performance of literature for brass ensemble from all periods of music history. Frequent public concerts. For advanced brass players.

**7510:107 STRING ENSEMBLE** 1 credit

Membership by audition. In-depth study of performance of chamber music literature with special emphasis on string quartet and piano trio.

**7510:106 OPERA WORKSHOP** 1 credit

Membership by audition. Musical and dramatic group study of excerpts from operatic repertoire. Includes annual production of standard opera and/or contemporary chamber work with staging, costumes and scenery.

**7510:109 PERCUSSION ENSEMBLE** 1 credit

Membership by audition. Study and performance of literature for various percussion groups; develops skill in ensemble performance.

**7510:110 WOODWIND ENSEMBLE** 1 credit

Membership by audition. Study and performance of woodwind literature from all periods for various combinations of woodwinds. Develops performance skills and knowledge of woodwind literature.

**7510:111 CHAMBER ORCHESTRA** 1 credit

Membership by audition. Organization designed to study for performance the substantial repertoire for small orchestra. Open to student of advanced ability.

**7510:112 MEN'S GLEE CLUB** 1 credit

Membership by audition. Designed to perform variety of music written for male voices in ensemble.

**7510:113 WOMEN'S GLEE CLUB** 1 credit

Membership by audition. Designed to perform variety of music written for female voices in ensemble.

**7510:114 KEYBOARD ENSEMBLE** 1 credit

Involves three hours a week of accompanying. Keyboard major required to enroll for at least three years. Music education major may substitute another musical organization for one year.

**7510:115 JAZZ ENSEMBLE** 1 credit

Membership by audition. Provides experience in jazz ensemble performance. Student is assumed to have knowledge of rudiments of music and some experience in jazz performance.

**7510:116 GUITAR ENSEMBLE** 1 credit

Membership by audition. Provides experience in conducted ensemble performance for guitarists. Major conducted ensemble.

**7510:117 COLLEGIUM MUSICUM** 1 credit.

Prerequisite: permission of instructor. A musical ensemble that performs music written before 1750 on copies of authentic instruments.

**7510:606 BRASS ENSEMBLE** 1 credit

Membership by audition. Study and performance of literature for brass ensemble from all periods of music history. Frequent public concerts. For advanced brass players.

**7510:607 STRING ENSEMBLE** 1 credit

Membership by audition. In-depth study and performance of chamber music literature with special emphasis on string quartet and piano trio.

**7510:608 OPERA WORKSHOP** 1 credit

Membership by audition. Musical and dramatic group study of excerpts from operatic repertoire. Includes annual production of standard opera and/or contemporary chamber work with staging, costumes and scenery.

**7510:609 PERCUSSION ENSEMBLE** 1 credit

Membership by audition. Study and performance of literature for various percussion groups; develops skill in ensemble performance.

**7510:610 WOODWIND ENSEMBLE** 1 credit

Membership by audition. Study and performance of woodwind literature from all periods for various combinations of woodwinds. Develops performance skills and knowledge of woodwind literature.

**7510:611 CHAMBER ORCHESTRA** 1 credit

Membership by audition. Organization designed to study for performance the substantial repertoire for small orchestra. Open to a student of advanced ability.

**7510:612 MEN'S GLEE CLUB** 1 credit

Membership by audition. Designed to perform variety of music written for male voices in ensemble.

**7510:613 WOMEN'S GLEE CLUB** 1 credit

Membership by audition. Designed to perform variety of music written for female voices in ensemble.

**7510:614 KEYBOARD ENSEMBLE** 1 credit

Involves three hours a week of accompanying. Keyboard major required to enroll for at least three years. Music education major may substitute another musical organization for one year.

**7510:615 JAZZ ENSEMBLE** 1 credit

Membership by audition. Provides experience in jazz ensemble performance. A student is assumed to have knowledge of rudiments of music and some experience in jazz performance.

**7510:616 GUITAR ENSEMBLE** 1 credit

Membership by audition. Provides experience in conducted ensemble performance for guitarists. Major conducted ensemble.

**7510:617 COLLEGIUM MUSICUM** 1 credit

Prerequisite: permission of instructor. A musical ensemble that performs music written before 1750 on copies of authentic instruments.

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## Graduate Courses

**7510:601 CONCERT CHOIR** 1 credit

Mixed chorus. Membership by audition. Open to any qualified university student. Previous choral experience and knowledge of music reading essential. Campus, regional and tour performances. Also annual concerts with Akron Symphony Orchestra and Chorus. Major conducted ensemble.

**7510:602 UNIVERSITY CHORUS: SYMPHONY** 1 credit

Membership by audition. Prospective members are advised to contact Department of Music two weeks prior to beginning of term. Music reading skills and previous choral experience required. Performs with Akron Symphony Orchestra. Major conducted ensemble.

**7510:603 UNIVERSITY SYMPHONY ORCHESTRA** 1 credit

Membership by audition. Organization devoted to study of orchestral literature. Full-length concerts as well as special university appearances. Major conducted ensemble.

**7510:604 UNIVERSITY BAND** 1 credit

Includes Symphony Band/Wind Ensemble and Concert Band as major conducted ensembles, Marching Band (fall semester only) and Varsity Band. Membership in all bands open to university student by audition with director of bands.

**7510:605 CHORAL ENSEMBLE** 1 credit

Membership by audition. Study and performance of literature for chamber vocal ensemble from all periods of music history. Frequent public concerts. Designed for personnel with good music reading ability and previous choral experience.

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## 7520: Applied Music

A student must contact the Department of Music and consult with the applied music instructor before registering for applied music.

A music major must perform annually before an applied music jury on each instrument studied privately for credit. The non-music major studying applied music will appear before a jury at the discretion of the private teacher.

Credit is earned on the basis of two credits per semester for one 30-minute lesson per week and 90 minutes practice per day. Enrollment may be repeated each semester for credit.

**7520:021-42 APPLIED MUSIC FOR NONMAJORS** 2-4 credits each

For a student below minimum level of performance skills expected for credit at 7520:100 level or above. Designed for those with limited background in applied study who wish to take lessons for their own pleasure, satisfaction and/or elective credit in nonmusic programs. Not to be counted for credit in any music major programs of study.

**7520:021 PERCUSSION****7520:022 CLASSICAL GUITAR**

7520:023 HARP  
 7520:024 VOICE  
 7520:025 PIANO  
 7520:026 ORGAN  
 7520:027 VIOLIN  
 7520:028 VIOLA  
 7520:029 CELLO  
 7520:030 STRING BASS  
 7520:031 TRUMPET/CORNET  
 7520:032 FRENCH HORN  
 7520:033 TROMBONE  
 7520:034 BARITONE  
 7520:035 TUBA  
 7520:036 FLUTE/PICCOLO  
 7520:037 OBOE/ENGLISH HORN  
 7520:038 CLARINET/BASS CLARINET  
 7520:039 BASSOON/CONTRABASSOON  
 7520:040 SAXOPHONE  
 7520:041 HARPSICHORD  
 7520:042 COMPOSITION  
 7520:061 JAZZ PERCUSSION  
 7520:062 JAZZ GUITAR  
 7520:063 JAZZ ELECTRIC BASS  
 7520:064 JAZZ PIANO  
 7520:065 JAZZ TRUMPET  
 7520:066 JAZZ TROMBONE  
 7520:067 JAZZ SAXOPHONE  
 7520:068 JAZZ COMPOSITION

**7520:121-441/521-541 APPLIED MUSIC FOR MUSIC MAJORS** *2 or 4 credits each*

The following courses are intended for a student majoring in one of the programs in the Department of Music. Course levels correspond approximately to class standing (100 for freshman, 200 for sophomore, etc.) A student may progress up one level by successfully completing an applied music jury, usually offered in the spring semester. NOTE: No more than eight credits at the 100, 200 or 300 level may apply in music degree programs; no such limit exists for the 400 level.

7520:121-221-321-421/521 PERCUSSION  
 7520:122-222-322-422/522 CLASSICAL GUITAR  
 7520:123-223-323-423/523 HARP  
 7520:124-224-324-424/524 VOICE  
 7520:125-225-325-425/525 PIANO  
 7520:126-226-326-426/526 ORGAN  
 7520:127-227-327-427/527 VIOLIN  
 7520:128-228-328-428/528 VIOLA  
 7520:129-229-329-429/529 CELLO

7520:130-230-330-430/530 STRING BASS  
 7520:131-231-331-431/531 TRUMPET OR CORNET  
 7520:132-232-332-432/532 FRENCH HORN  
 7520:133-233-333-433/533 TROMBONE  
 7520:134-234-334-434/534 BARITONE  
 7520:135-235-335-435/535 TUBA  
 7520:136-236-336-436/536 FLUTE OR PICCOLO  
 7520:137-237-337-437/537 OBOE OR ENGLISH HORN  
 7520:138-238-338-438/538 CLARINET OR BASS CLARINET  
 7520:139-239-339-439/539 BASSOON OR CONTRABASSOON  
 7520:140-240-340-440/540 SAXOPHONE  
 7520:141-241-341-441/541 HARPSICHORD  
 7520:142-242-342-442/542 PRIVATE LESSONS IN MUSIC COMPOSITION *2-4 credits each*  
 (May be repeated)  
 Prerequisite: 7500:252 and permission of instructor; 7500:452 recommended. Private instruction in composition. Primarily for student whose major is theory-composition.  
 7520:161-261-361-461 JAZZ PERCUSSION  
 7520:162-262-362-462 JAZZ GUITAR  
 7520:163-263-363-463 JAZZ ELECTRIC BASS  
 7520:164-264-364-464 JAZZ PIANO  
 7520:165-265-365-464 JAZZ TRUMPET  
 7520:166-266-366-466 JAZZ TROMBONE  
 7520:167-267-367-467 JAZZ SAXOPHONE  
 7520:168-268-368-468 JAZZ COMPOSITION

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## Graduate Courses

**7520:621-41 GRADUATE STUDY IN APPLIED MUSIC** *2 or 4 credits each*

(May be repeated)  
 Prerequisite: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition.

7520:621 PERCUSSION  
 7520:622 CLASSICAL GUITAR  
 7520:623 HARP  
 7520:624 VOICE  
 7520:625 PIANO  
 7520:626 ORGAN  
 7520:627 VIOLIN  
 7520:628 VIOLA  
 7520:629 CELLO  
 7520:630 STRING BASS  
 7520:631 TRUMPET OR CORNET  
 7520:632 FRENCH HORN

**7520:633 TROMBONE**

**7520:634 BARITONE**

**7520:635 TUBA**

**7520:636 FLUTE OR PICCOLO**

**7520:637 OBOE OR ENGLISH HORN**

**7520:638 CLARINET OR BASS CLARINET**

**7520:639 BASSOON OR CONTRABASSOON**

**7520:640 SAXOPHONE**

**7520:641 HARPSICHORD**

**7520:642 APPLIED COMPOSITION**

**7520:662 JAZZ GUITAR**

2-4 credits

(May be repeated)

Prerequisite: undergraduate degree with a major in music. Private instruction in composition offered primarily for a student majoring in composition. Another student may be approved by composition faculty.

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## 7600: Communication

**7600:102 SURVEY OF MASS COMMUNICATION**

3 credits

Considers entire field of contemporary American mass communication. Presents and explains functions of agencies through which news, views and entertainment reach the general public.

**7600:115 SURVEY OF COMMUNICATION THEORY**

3 credits

Presents models of major forms of speech communication and discusses elements of models, their interaction and their function in the human communication system.

**7600:201 NEWS WRITING**

3 credits

Prerequisite: 102; typing. Writing of news stories; applying theory through discussions, illustrative material; actual writing for publication.

**7600:204 EDITING**

3 credits

Prerequisites: 201, ability to type or permission. Copyreading, headline writing, proofreading, makeup, type and typography, printing machines and processes, newspaper methods and systems.

**7600:206 FEATURE WRITING**

3 credits

Prerequisites: 201, ability to type or permission. Short newspaper and magazine articles; preparation of articles for publication, human interest situations, extensive writing with class discussion.

**7600:225 LISTENING**

1 credit

Prerequisite: permission. Techniques and approaches involved in understanding the listening process and practice of listening improvement techniques.

**7600:226 INTERVIEWING**

1 credit

Prerequisite: 225 or permission. A concentrated study of the principles of interviewing and application of those principles of varied settings (especially those crucial to media study).

**7600:227 NONVERBAL COMMUNICATION**

1 credit

Focused study of the principal aspects of nonverbal communication in public, group and interpersonal settings.

**7600:228 INTERCOLLEGIATE FORENSICS**

1 credit

(May be repeated for a total of eight credits)

Study and techniques of contest speech and debate, including techniques of research presentation. Required participation in University's forensics program.

**7600:235 INTERPERSONAL COMMUNICATION**

3 credits

Prerequisite: 115. Theory and practice in interpersonal communication concepts and principles. Special topics in communication apprehension, assertive communication, communication dyads and triads, and transactional communication.

**7600:245 ARGUMENTATION**

3 credits

Prerequisite: 115 or permission of instructor. Study of process of developing, presenting and defending inferences and arguments in oral communication setting. Includes study and practice of evidence, reasoning, case construction, refutation and rebuttal.

**7600:252 PERSUASION**

3 credits

Prerequisite: 115 or permission. Emphasis on understanding persuasion theory and practice. Includes information analysis of motivational appeals and introduction to propaganda analysis.

**7600:270 VOICE TRAINING FOR MEDIA**

2 credits

Prerequisites: 115 and permission. Safe and effective uses of the vocal instrument in its specific application to radio, television and films.

**7600:280 MEDIA PRODUCTION TECHNIQUES**

3 credits

Introduction to production techniques used in the mass communication covers sound, image, lighting, fundamentals of conveying messages on slide, film and video.

**7600:282 RADIO PRODUCTION**

3 credits

Prerequisite: 281. Study of radio production techniques and the functional operation of AM and FM radio stations. Includes practical production experience in studio.

**7600:283 TELEVISION PRODUCTION**

3 credits

Prerequisite: 281 or permission. Function, structure and influence of television as communication medium with practical production experience in studio.

**7600:288 FILM PRODUCTION**

3 credits

Prerequisite: 281 or permission. Techniques, limitations and potentials of film production. A student learns script writing, directing, lighting and makeup; practical production experience in studios and on location.

**7600:301 ADVANCED NEWS WRITING**

3 credits

Prerequisite: 201 or permission. Advanced course in writing and editing news, features and analysis for print media. Behavioral approach to communication of information and ideas.

**7600:303 PUBLICITY WRITING**

2 credits

Prerequisite: 201 or permission. Acquaints student with functions of public relations in our society and explains basic theories and principles involved in publicity writing and placement.

**7600:309 PUBLICATIONS PRODUCTION**

3 credits

Prerequisites: 201, ability to type or permission. Fundamental course for person engaged in production of publications. Consideration of variety of processes for reproducing printed work including photoengraving, lithography, letterpress, rotogravure, mimeographing.

**7600:325 INTERCULTURAL COMMUNICATION**

3 credits

Study of effect on oral communication process of existence of cultural barriers. Includes study of verbal and nonverbal communication in transracial, informal international and diplomatic communicative settings.

**7600:335 ORGANIZATIONAL COMMUNICATION**

3 credits

Study of large organizational communication principles and practices. Group projects related to several communication problems inherent to organizations (1) inside communication flow, (2) communication outward, (3) incoming information to organization.

**7600:344 PUBLIC DECISION MAKING**

3 credits

Prerequisite: 115 or permission. Discussion of basic considerations, approaches and techniques involved in understanding and participating in the communication processes essential to public decision making.

**7600:345 BUSINESS AND PROFESSIONAL SPEAKING**

3 credits

Prerequisites: 1100:105 or 106. Practical improvement in speaking skills used in business settings.

**7600:355 FREEDOM OF SPEECH**

3 credits

Discussion and analysis of the Constitution's free speech guarantee; contemporary issues in freedom of communication; role of the media in free speech issues.

**7600:357 SPEECH IN AMERICA**

3 credits

Survey and critical analysis of major speakers, speeches and speech movements in American history. Examines how style and content of American speaking influenced events and reflected their times.

**7600:361 AUDIO RECORDING TECHNIQUES**

3 credits

Prerequisite: 280. Basic principles of sound, human hearing and the tech-

niques of audio recording. Theory and laboratory training, recording of live vocal and instrumental performance.

**7600:380 MASS MEDIA-COMMUNICATION INTERNSHIP** 1-8 credits  
(May be repeated for a total of eight credits)  
Prerequisite: 24 credits in departmental courses and permission. Provides student with supervised experience and on-the-job training. Written permission must be obtained from the department prior to the term for which credit is to be received.

**7600:383 ADVANCED TELEVISION PRODUCTION** 3 credits  
Prerequisite: 283. In-depth study of role of producer in complexities of developing a television program from inception to completion.

**7600:384 MASS MEDIA-COMMUNICATION RESEARCH** 3 credits  
Prerequisites: 102, 15. Fundamental concepts and methods of survey research, and the application and interpretation of survey data in communication and in media operations.

**7600:385 AMERICAN FILM HISTORY: THE BEGINNING TO 1945** 3 credits  
Prerequisite: 102 or permission. Acquaints undergraduate student with historical developments of film and film concepts; ends with films of 1945.

**7600:386 AMERICAN FILM HISTORY: 1945 TO THE PRESENT** 3 credits  
Prerequisite: 385 or permission. Continuation of student's survey of film history and film concepts begun in 385.

**7600:387 RADIO AND TV WRITING** 3 credits  
Prerequisite: 280. Practical application of script writing principles and techniques used in writing scripts for commercials, announcements, comedy/drama, news and documentaries.

**7600:388 HISTORY AND STRUCTURE OF BROADCASTING** 3 credits  
Prerequisite: 280. Growth of broadcasting in America; historical evolution of approaches to programming, news and financing of broadcasting operations.

**7600:395 RADIO STATION PROGRAMMING AND OPERATIONS** 3 credits  
Prerequisites: 282, 388. History and development of radio programming from early formation to present; nature, structure and function of educational and commercial radio broadcasting.

**7600:396 TELEVISION STATION PROGRAMMING AND OPERATIONS** 3 credits  
Prerequisites: 280 and 388. Examines the operations and programming processes of a broadcast station; programming philosophies, broadcast schedules, feature and syndication acquisition, local productions, issues of staffing and funding.

**7600:400/500 HISTORY OF JOURNALISM IN AMERICA** 3 credits  
A review and analysis of the historical evolution of journalism in America, focusing primarily on newspapers, magazines, radio, television.

**7600:401 PHOTO EDITING** 3 credits  
Prerequisite: 309. Use of the photograph as a reporting tool. Criteria for a publishable photograph, selection and cropping of photographs, display of photo stories, combining of print and photographs in a communication effort.

**7600:403 COMMUNICATION IN PUBLIC RELATIONS** 3 credits  
Prerequisite: 309. Selected communication theories used to analyze and implement effective public relations programs with emphasis placed upon research, planning, promotional messages and evaluation of program.

**7600:405 MEDIA COPYWRITING** 3 credits  
Prerequisites: 102, 484, ability to type or permission. Selected communication theories and research techniques used to plan, write and analyze commercial messages. Emphasis will be placed on selection of audience, medium, appeal, writing style and evaluation of efforts.

**7600:439 MASS MEDIA-COMMUNICATION PRACTICUM** 1-12 credits  
(May be repeated for a total of 12 credits)  
Prerequisite: permission from a departmental committee on special projects. Selected faculty-directed independent study projects. Appropriate documentation of project must be submitted to departmental committee and written permission obtained before registering for project.

**7600:450 SPECIAL TOPICS IN MASS MEDIA-COMMUNICATION** 3 credits

(May be repeated for a total of nine credits)  
Prerequisite: permission of instructor. Special interest topics in mass communication, journalism, or communication, supplementing courses listed in *University Bulletin*. See department for current listing of offerings.

**7600:454/554 THEORY OF GROUP PROCESSES** 3 credits  
Prerequisite: 344 or permission. Group communication theory and conference leadership as applied to individual projects and seminar reports.

**7600:465 NON-BROADCAST MEDIA** 3 credits  
Prerequisites: 201 or 206, 387 and permission of instructor. Analysis of production problems and design, production and evaluation of solutions involving slides, film and non-broadcast video. Materials fee.

**7600:470 ANALYSIS OF PUBLIC DISCOURSE** 3 credits  
Prerequisite: 245,52 or permission. Identifies principal textual and contextual elements of public discourse and presents various theories and models to be applied in studying rhetorical acts.

**7600:471/571 THEORIES OF RHETORIC** 3 credits  
Prerequisite: 115. Study of key figures in history of rhetorical theory, stressing interrelationships among theories of rhetoric, intellectual climates and social climates.

**7600:484 REGULATIONS IN MASS MEDIA** 3 credits  
Concentration on government regulations and self-regulatory bodies in broadcasting, film and print media.

**7600:465 SENIOR HONORS PROJECT IN MASS MEDIA-COMMUNICATION** 1-6 credits  
(May be repeated for a total of six credits)  
Prerequisite: senior standing in Honors Program; approval of Honors Preceptor. Independent study project leading to completion of Senior Honors Thesis or other original work.

**7600:488 BROADCAST SALES AND MANAGEMENT** 3 credits  
Prerequisite: senior standing or permission of instructor. Using simulation and case history techniques, this course examines the sales and decision-making processes of a broadcast station.

**7600:488/588 ADVANCED FILM PRODUCTION** 3 credits  
Prerequisites: 288 and permission of instructor (audition films or tapes required). Advanced study in film. Includes study of 35 mm, 16 mm, and Super-8 mm color and black and white, sound on film. Emphasis on individual production.

**7600:489 DOCUMENTARY FORM IN FILM AND TELEVISION** 3 credits  
Historical and critical study of documentary and non-fiction forms in film and television with an analysis of their roots in photography and radio. Emphasis on American film and TV.

**7600:490/590 MASS MEDIA-COMMUNICATION WORKSHOP** 1-3 credits  
(May be repeated for a total of six credits)  
Prerequisites: advanced standing and permission. Group study or group projects investigating a particular phase of media not covered by other courses in curriculum.

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## Graduate Courses

**7600:589 DOCUMENTARY FORM IN FILM AND TELEVISION** 3 credits  
Historical and critical study of documentary and nonfiction forms in film and television with an analysis of their roots in photography and radio. Emphasis on American film, TV.

**7600:600 INTRODUCTION TO GRADUATE STUDY IN MASS MEDIA-COMMUNICATION** 6 credits  
Introduction to the ideas and scholarship that constitute the various research interest in the department.

**7600:603 EMPIRICAL RESEARCH IN MASS MEDIA-COMMUNICATION** 3 credits

An introduction to elementary concepts of empirical and quantitative research and their application in studies of Mass Media research topics.

**7600:604 INTRODUCTION TO QUANTITATIVE RESEARCH IN MASS MEDIA-COMMUNICATION** 3 credits

Prerequisite: 603 or equivalent. An introduction to reading and understanding research designs employing basic parametric and non-parametric descriptive and hypotheses testing statistical models in Mass Media-Communication.

**7600:606 COMMUNICATION PROBLEMS IN THE BASIC SPEECH COURSE** 1 credit

Designed to train a graduate student in methods and materials of introductory speech course. Required of all teaching graduate assistants.

**7600:608 COMMUNICATION PEDAGOGY** 3 credits

Familiarizes students with aspects of teaching communication and media courses at the college level.

**7600:623 AMERICAN MASS MEDIA SYSTEMS** 3 credits

Analysis of role, performance and impact of media in America.

**7600:624 SURVEY OF COMMUNICATION THEORY** 3 credits

Study of dimensions of field of communication: information analysis, social interaction and semantic analysis.

**7600:625 THEORIES OF MASS COMMUNICATION** 3 credits

A review of theories of mass media and studies exploring the effect of media.

**7600:626 CONTEMPORARY ISSUES IN BROADCASTING** 3 credits

Study of issues important to the management of radio and television broadcast station. Subscription to professional journal required.

**7600:628 CONTEMPORARY PUBLIC RELATIONS THEORY** 3 credits

Study and practical application of communication concepts, theories and skills relevant to public relations programs in businesses and nonprofit organizations.

**7600:631 SEMINAR: ADVANCED PRODUCTION DESIGN I** 3 credits

Prerequisite: demonstrated competence in either photography, film, or video production and permission of instructor. Analysis of communication problems and the design of solutions mediated by film, video, and photography. Emphasis on production research and writing in various media formats. Design and production of a major project.

**7600:632 SEMINAR: ADVANCED PRODUCTION DESIGN II** 3 credits

Prerequisite: 631. Continuation of projects in 631 and an opportunity for students to work in additional media.

**7600:635 ISSUES IN LEGAL REGULATION OF THE MEDIA** 3 credits

Structure of the regulatory system; current regulatory issues in print, film, radio, and television broadcasting pay and cable-tv.

**7600:645 INTERCULTURAL COMMUNICATION THEORY** 3 credits

Analysis of the impact on the communication process of cultural difference between communicators; examination of existing literature in intercultural communication.

**7600:665 THEORIES OF ARGUMENT AND PERSUASION** 3 credits

Prerequisite: undergraduate course in argumentation, and in persuasion, or permission of instructor. Analysis of principal theories related to attitude formation and change.

**7600:670 COMMUNICATION CRITICISM** 4 credits

Introduces the basic elements, approaches and types of critical discourse as it is relevant to communication and mass media studies.

**7600:675 SEMINAR ON RHETORICAL CRITICISM** 3 credits

(May be repeated for a total of six credits)  
Organized around special problems and methods involved in analysis of different genres, forms and topics of discourse.

**7600:676 SEMINAR IN RHETORICAL THEORY** 3 credits

Concentrated study and research of ancient, modern or contemporary writers or on some specific topic in rhetorical theory.

**7600:678 RHETORICAL ELEMENTS OF SOCIAL MOVEMENTS** 3 credits

Examines role and function of collective rhetorical discourse in affecting change. Focus on various rhetorical methodologies for understanding social movements and case studies

**7600:686 STUDIES IN COMMUNICATION MEDIA: RADIO** 3 credits

Study of radio station programming.

**7600:687 STUDIES IN COMMUNICATION MEDIA: TELEVISION** 3 credits

**7600:691 ADVANCED COMMUNICATION STUDIES** 3 credits

(May be repeated for a total of six credits)  
Special topics in communication in areas of particular faculty expertise. Consult department for particular topic each semester.

**7600:692 SEMINAR IN FILM** 3 credits

Prerequisite: permission of instructor. Advanced historical and critical study of works and institutions in film and video. Topics vary.

**7600:697 GRADUATE RESEARCH IN MASS MEDIA-COMMUNICATION** 1-6 credits

(May be repeated for a total of six credits)  
Prerequisites: 7800:600 and approval of project prospectus one term prior to undertaking the project. Performance of research on problems found in mass media-communication.

**7600:699 MASTER'S THESIS/PROJECT/PRODUCTION** 1-6 credits

(May be repeated for a total of six credits)  
Prerequisite: permission of department head.

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## 7700: Communicative Disorders

**7700:100 MANUAL COMMUNICATION I** 5 credits

Prerequisite: 271 and 2210:104 or permission of instructor. Study of different communication systems employed by the deaf; characteristics, similarities and differences. Introduction to Ameslan as a language.

**7700:110 INTRODUCTION TO SPEECH DISORDERS** 3 credits

Overview of various types of speech disorders; their incidence, etiology and characteristics. Basic concepts and principles underlying speech pathology.

**7700:111 INTRODUCTION TO PHONETICS** 2 credits

Introduction to International Phonetic Alphabet, and overview of articulatory phonetics.

**7700:120 INTRODUCTION TO AUDIOLOGY/AURAL REHABILITATION** 3 credits

(Not open to a communicative disorder major.)  
Introduction to field of audiology including physics of sound, anatomy and physiology of auditory system, measurement of hearing impairment, nature and causes of hearing disorders and habilitation of persons with hearing impairment.

**7700:121 PSYCHO-SOCIAL ASPECTS OF DEAFNESS** 3 credits

Prerequisite: 120. The effects of deafness on the emotional, social, motor and intellectual development of the individual; the effects of deafness on interpersonal relationships.

**7700:130 BASES AND STRUCTURE OF LANGUAGES** 3 credits

Introduction to linguistic bases of speech and language: phonological, morphological, syntactical and semantic. Social and psychological variables in communicative process as applied to therapeutic environment presented.

**7700:140 INTRODUCTION TO AUDIOLOGY** 3 credits

Normal anatomy and physiology of hearing system and acoustics of hearing. Survey of field of audiology. Nature of hearing problems.

**7700:150 MANUAL COMMUNICATION II** 4 credits

Prerequisite: 100. Further study of Ameslan as a language. Practice in modifications which influence sign formation; more meaningful units and constructions; further similarities and differences among other signing systems.

- 7700:200 MANUAL COMMUNICATION III** 4 credits  
Prerequisite: 150. Further practice in developing expressive and receptive skills in Ameslan. Review of previous work and further in-depth study of linguistic components of manual communication systems of the deaf.
- 7700:210 APPLIED PHONETICS** 3 credits  
Prerequisite: 111. Training in allophonic transcription. Analysis of sound substitutions, distortions and dialectal variations. Study of Distinctive Feature Systems.
- 7700:211 INTRODUCTION TO SPEECH SCIENCE** 2 credits  
Study of anatomical, physiological and physical principles involved in production, transmission and reception of speech signal.
- 7700:222 INTRODUCTION TO THE DEAF CULTURE AND ITS ORIGINS** 2 credits  
Prerequisite: 2210:100 or permission of instructor. The treatment of deaf persons, their education and legal status in western cultures from early civilizations to modern times. Review of basic methods used in educating the deaf, the rationale behind these methods and the contributions of the use of the different methods on the deaf culture.
- 7700:223 SPEECH AND LANGUAGE OF THE DEAF CHILD AND ADULT** 4 credits  
(Not open to major in communicative disorders.)  
Prerequisite: 222. Introduction to acquisition of speech and language hearing and prelingually deaf children. Principles and techniques in language assessment and instruction will be covered.
- 7700:230 SPEECH AND LANGUAGE DEVELOPMENT** 3 credits  
Prerequisite: 130 or permission. Study of language development including acquisition of comprehension and production of phonology, syntax and semantics. Approaches to use of language in learning and thinking.
- 7700:240 AURAL REHABILITATION** 4 credits  
Prerequisite: 140. Introduction to philosophy and methods of aural rehabilitation for children and adults. Includes methods of speech reading, auditory training, speech conservation, hearing aid use and combined visual and auditory approaches.
- 7700:241 PRINCIPLES OF AUDIOMETRY** 3 credits  
Prerequisite: 140. Introduction to psychoacoustic principles which underlie basic audiometric tests; principles of speech audiometry, masking and impedance audiometry.
- 7700:250 OBSERVATION AND CLINICAL METHODS** 2 credits  
Prerequisite: to be taken concurrently with 321. Introduction to clinical procedures, analysis of preparation and structure essential to a successful therapy session and observation of therapy within several different settings.
- 7700:271 LANGUAGE OF SIGNS I** 3 credits  
Expressive and receptive skills in manual communication; introduction to various sign systems; philosophy of total communication and orientation to aspects of deafness; conversational sign language and developing speed and comprehension of fingerspelling skills. Laboratory.
- 7700:321 SPEECH PATHOLOGY I** 4 credits  
Prerequisites: 110, 210. Study of disorders of articulation, voice and stuttering including etiology, symptomatology, evaluation and therapeutic procedures.
- 7700:322 SPEECH PATHOLOGY II** 4 credits  
Prerequisites: 110, 3100:264. Study of organically based speech disorders: cleft palate, cerebral palsy, aphasia and dysarthria including etiology, symptomatology, evaluation and therapeutic procedures.
- 7700:330 LANGUAGE DISORDERS** 4 credits  
Prerequisite: 230. Etiology, identification, evaluation, intervention, remediation of symbolic, cognitive, interpersonal language disorders of children. Disorders viewed as correlates or sequelae of central nervous system dysfunction or emotional disturbance.
- 7700:340 AUDIOLOGIC EVALUATION** 2 credits  
Prerequisite: 241. "Test battery" approach to audiometry explored; techniques of case finding and handling of difficult-to-test cases; competency with all tests in the battery required.
- 7700:350 CLINICAL PRACTICUM: ARTICULATION** 1 credit  
(May be repeated for a total of two credits)  
Prerequisites: 250, 321. Supervised clinical practicum in articulation. Emphasis on therapy procedures, diagnostic techniques and preparation of reports.
- 7700:351 CLINICAL PRACTICUM: LANGUAGE** 1 credit  
(May be repeated for a total of two credits)  
Prerequisites: 250, 330. Supervised clinical practicum in language. Emphasis on therapy procedures, diagnostic techniques and preparation of reports.
- 7700:352 CLINICAL PRACTICUM: AURAL REHABILITATION** 1 credit  
(May be repeated for a total of two credits)  
Prerequisites: 240, 250. Supervised clinical practicum in hearing rehabilitation. Emphasis on therapy procedures, diagnostic techniques and preparation of reports.
- 7700:370 LANGUAGE OF SIGNS II** 1 credit  
Prerequisite: 271 or permission of instructor. Advanced work in signs and fingerspelling with emphasis on additional sign vocabulary acquisition and development of expressive and receptive skills. Stress on continued skill building in conversing with deaf adults.
- 7700:430/530 ASPECTS OF NORMAL LANGUAGE DEVELOPMENT** 3 credits  
May not be taken by a major in communicative disorders. Introduction to acquisition and development of comprehension and production of language—phonologically, semantically and syntactically. Relates language acquisition to perceptual development of child and looks at function of language in individual, family and school.
- 7700:450 INTRODUCTION TO SPEECH AND HEARING DIAGNOSTICS** 3 credits  
Prerequisite: senior status. Introductory course devoted to discussion of role of speech and hearing clinician in differential diagnosis. Emphasis on case history taking, and administration of standardized and informal procedures in diagnosis of communicative disorders.
- 7700:451 CLINICAL PRACTICUM: DIAGNOSTIC AUDIOLOGY** 1 credit  
(May be repeated for a total of two credits)  
Prerequisites: 250, 340. Supervised clinical practicum in hearing diagnostics. Diagnostic procedures, preparation of reports.
- 7700:460/560 SPEECH AND HEARING DISORDERS IN THE PUBLIC SCHOOLS** 2 credits  
May not be taken by a major in communicative disorders. Nature, causes and treatment of speech, hearing and language disorders in public schools. Special reference to role of classroom teacher in identifying and referring student with suspected problems and in working with school clinician.
- 7700:461 ORGANIZATION AND ADMINISTRATION: PUBLIC SCHOOL SPEECH AND HEARING PROGRAMS** 2 credits  
Prerequisite: senior standing; open to major in communicative disorders only. Designed for speech and hearing clinicians who plan to work in public school system. Covers following areas with particular reference to public school setting: case selection; scheduling, individual and group therapy; in-service training for classroom teachers; parent counseling; and certification and program standards as set up by the Ohio Department of Education.
- 7700:460 SEMINAR IN COMMUNICATIVE DISORDERS** 2 credits  
Prerequisite: senior standing. Provides a vehicle for detailed study and discussion of various communicative disorders.
- 7700:481 SPECIAL PROJECTS: COMMUNICATIVE DISORDERS** 1-3 credits  
(May be repeated for a total of four credits)  
Prerequisite: permission of instructor. Individual or group projects related to any of the problems of communicative disorders.
- 7700:483/583 COMMUNICATION DISORDERS: GERIATRIC POPULATION** 3 credits  
Examination of communication disorders that exist in geriatric population. Focus on etiology, symptomatology and concomitant rehabilitative procedures. Designed for a student interested in the aging population; not open to major in communicative disorders.
- 7700:490/590 WORKSHOP: COMMUNICATIVE DISORDERS** 1-3 credits  
(May be repeated for a total of four credits)  
Prerequisite: permission. Group investigation of particular phase of speech pathology and/or audiology not offered by other courses.
- 7700:495 INTERNSHIP: SPEECH PATHOLOGY AND AUDIOLOGY** 3-6 credits  
Prerequisite: permission of director of Speech and Hearing Center. Affords opportunity for in-depth clinical experience in variety of clinical settings out-

side The University of Akron Speech and Hearing Center. On-the-job experience with specialized case populations.

**7700:496 SENIOR HONORS PROJECT: SPEECH PATHOLOGY AND AUDIOLOGY** 1-3 credits

(May be repeated for a total of six credits)

Prerequisites: enrollment in the Honors Program, senior standing and major in communicative disorders.

## Graduate Courses

**7700:801 ADMINISTRATION AND SUPERVISION IN SPEECH AND HEARING PROGRAMS** 4 credits

Prerequisite: permission of instructor. Organization and management of speech and hearing programs in voluntary and official agencies. Philosophy and methodology in supervision of services.

**7700:610 INSTRUMENTATION IN SPEECH PATHOLOGY AND AUDIOLOGY** 2 credits

Principles and use of clinical and research instrumentation in speech and hearing.

**7700:611 RESEARCH METHODS IN COMMUNICATIVE DISORDERS I** 3 credits

Introduction to experimental design in field of communicative disorders.

**7700:612 RESEARCH METHODS IN COMMUNICATIVE DISORDERS II** 2 credits

Prerequisite: 611. Advanced experimental methods; development of a research study.

**7700:619 COMMUNICATION DISORDERS: ADULT DYSARTHRIA AND APRAXIA** 2 credits

Development, symptoms, diagnosis and treatment of adult dysarthria and apraxia.

**7700:620 ARTICULATION** 2 credits

Historical background, current theories and research related to etiology, diagnosis and treatment of articulatory disorders.

**7700:621 COMMUNICATIVE DISORDERS IN CLEFT PALATE** 2 credits

Historical background, current theories and research related to etiology, diagnosis and treatment of cleft palate.

**7700:622 COMMUNICATIVE DISORDERS IN MENTAL RETARDATION** 2 credits

Historical background, current theories and research related to etiology, diagnosis and treatment of mental retardation.

**7700:623 COMMUNICATIVE DISORDERS IN CEREBRAL PALSY** 2 credits

Historical background, current theories and research related to etiology, diagnosis and treatment of cerebral palsy.

**7700:624 APHASIA** 2 credits

Historical background, current theories and research related to etiology, diagnosis and treatment of adult aphasia.

**7700:625 LANGUAGE DEVELOPMENT: NORMAL AND DISORDERED** 3 credits

Survey of research in normal, discovered development of language skills.

**7700:626 VOICE PATHOLOGY** 3 credits

Prerequisite: permission of the instructor. Background and current research related to normal vocal function as well as the etiology, diagnosis and therapy of various disorders of voice.

**7700:627 STUTTERING: THEORIES AND THERAPIES** 3 credits

Reading and discussion of selected theories and therapies.

**7700:628 TOPICS IN DIFFERENTIAL DIAGNOSIS OF SPEECH AND LANGUAGE DISORDERS** 2 credits

(May be repeated for a total of four credits)

Prerequisite: permission of director of Speech and Hearing Center.

**7700:629 TOPICS: SPEECH PATHOLOGY AND AUDIOLOGY** 2 credits

Prerequisite: permission of instructor. Selected current topics in clinical and/or experimental areas of speech pathology, audiology or language. Emphasis on review of current and historical literature.

**7700:630 LANGUAGE SKILLS IN CHILDREN: ASSESSMENT AND INTERVENTION** 3 credits

Prerequisite: 625 or permission of instructor. Theoretical and applied study of child language assessment and intervention strategies.

**7700:638 SEMINAR IN LANGUAGE AND SPEECH OF THE HEARING IMPAIRED** 2 credits

Study of development of language and speech in hearing-impaired children, emphasizing psycholinguistic approach, and means of intervention. Communicative processes of hearing-impaired adults. Effect of conditions of minimum auditory stimulation and acoustic feedback on speech and language. Methods of speech conservation.

**7700:639 ADVANCED CLINICAL TESTING** 4 credits

Theoretical basis for pure tone, speech tests, masking and acoustic impedance measurements. Review of classical and current literature relative to above tests.

**7700:640 SPECIAL TESTS/MEDICAL AUDIOLOGY** 4 credits

Prerequisite: 639 or permission of instructor. Underlying psychoacoustic principles of administration and interpretation of site-of-lesion tests. Relationship between otology and audiology; application of clinical audiology in medical environment.

**7700:641 AMPLIFICATION** 3 credits

Prerequisite: 639 or permission of instructor. Components of amplification systems; methods of evaluating hearing aid performance.

**7700:642 PEDIATRIC AUDIOLOGY** 2 credits

Prerequisite: 639 or permission of instructor. Etiology of hearing loss in children, techniques for testing preschool and school-age children and other difficult-to-test clients.

**7700:643 INDUSTRIAL AUDIOLOGY** 2 credits

Prerequisite: 639 or permission of instructor. Theoretical principles of noise measurement; etiology of noise-induced hearing loss and acoustic trauma; industrial hearing conservation programs; Occupational Safety and Health Act (O.S.H.A.) regulations.

**7700:644 AURAL REHABILITATION** 4 credits

Prerequisite: permission of instructor. Review of current methodologies employed in aural rehabilitation of children and adults, as well as current and potential areas of research.

**7700:647 EXPERIMENTAL AUDIOLOGY** 2 credits

Prerequisite: six graduate audiology credits or permission of instructor. Principles of psychoacoustics. Review of instrumentation and research techniques. Study of significant literature in the field.

**7700:649 ELECTRONYSTAGMOGRAPHY** 2 credits

Prerequisite: permission of instructor. Study of the anatomy and physiology of the vestibular system; nystagmus; electronystagmographic (ENG) recording procedures; ENG protocols; interpretation of ENG results.

**7700:650 ADVANCED CLINICAL PRACTICUM: DIFFERENTIAL DIAGNOSIS** 1 credit

(May be repeated for a maximum of two credits)

Supervised clinical practicum in diagnostic procedures.

**7700:651 ADVANCED CLINICAL PRACTICUM: VOICE** 1 credit

Supervised clinical practicum in rehabilitation of voice disorders.

**7700:652 ADVANCED CLINICAL PRACTICUM: FLUENCY** 1 credit

Supervised clinical practicum in rehabilitation and disorders of fluency.

**7700:654 ADVANCED CLINICAL PRACTICUM: DIAGNOSTIC AUDIOLOGY** 1 credit

(May be repeated for a total of six credits)

Supervised clinical practicum: diagnostics and aural rehabilitation.

**7700:655 ADVANCED CLINICAL PRACTICUM: ARTICULATION** 1 credit

(May be repeated for a total of two credits)

Prerequisites: 321 and permission of the director of the Speech and Hearing Center. Supervised clinical practicum in articulation. Therapy procedures, diagnostic techniques and preparation of reports.

**7700:856 ADVANCED CLINICAL PRACTICUM: LANGUAGE** 1 credit  
(May be repeated for a total of three credits)  
Prerequisites: 330 and permission of the director of the Speech and Hearing Center. Supervised clinical practicum in language. Therapy procedures, diagnostic techniques and preparation of reports.

**7700:857 ADVANCED CLINICAL PRACTICUM: REHABILITATIVE AUDIOLOGY** 1 credit  
(May be repeated for a total of six credits)  
Prerequisites: 240 and permission of the director of the Speech and Hearing Center. Supervised clinical practicum in hearing rehabilitation. Emphasis on therapy procedures, diagnostic techniques and preparation of reports.

**7700:895 EXTERNSHIP: SPEECH PATHOLOGY AND AUDIOLOGY** 2-4 credits  
(May be repeated for a total of four credits)  
Clinical practicum in a selected area center.

**7700:897 SPECIAL PROBLEMS: SPEECH PATHOLOGY AND/OR AUDIOLOGY** 1-3 credits  
(May be repeated for a total of six credits)  
Prerequisite: permission of instructor. Guided research or reading in selected topics in speech pathology, audiology or language disorders.

**7700:899 RESEARCH AND THESIS** 4-6 credits  
(May be repeated for a total of six credits)  
Prerequisite: permission of department head.

**7750:425/525 SOCIAL WORK ETHICS** 3 credits  
Prerequisite: 276 or permission. Social Worker's code of ethics as applied to practices, problems and issues in social work.

**7750:430/530 HUMAN BEHAVIOR AND SOCIAL ENVIRONMENT FOR SOCIAL WORKERS** 3 credits  
Prerequisites for 430: 276 or permission; 3750:130 recommended; for 530: permission, Bio-psycho-social knowledge applied to social work. Emphasis on social workers' understanding of and use of individual interaction and growth within family as a system, groups (of society), roles, organizations, community and culture.

**7750:440/540 SOCIAL WORK RESEARCH** 3 credits  
Undergraduate prerequisites: 276, 3450:112, 3470:251.52 or permission; graduate prerequisite: permission. Social work practitioner's role in utilization of scientific method in the conduct of practice and utilization of social work research as found in social work and social science literature for improvement and advancement of social work practice.

**7750:445/545 SOCIAL POLICY ANALYSIS FOR SOCIAL WORKERS** 3 credits  
Undergraduate prerequisites: 276 or permission; graduate prerequisite: undergraduate social work degree or permission. Description, analysis and construction of social policy in social services; to understanding forces and processes which establish or change social policies; to predict consequences of social policies and to establish goals for social policy development; integrated into effective social work methodology.

**7750:450/550 SOCIAL NEEDS AND SERVICES FOR LATER ADULTHOOD AND AGING** 3 credits  
Prerequisite: 276 or permission. Application of knowledge and principles of professional social work practice to understanding, development and provision of social services to meet needs of aging and later maturity individuals, families and communities and institutions serving them and their relatives.

**7750:451/551 SOCIAL WORK IN CHILD WELFARE** 3 credits  
Prerequisite: 276 or permission. In-depth exploration of structure and functioning of social services designed to help children, and of practice of social work in child welfare settings. Consideration of supportive, supplementary and substitute services.

**7750:452/552 SOCIAL WORK IN MENTAL HEALTH** 3 credits  
Prerequisite: 276 or permission. Issues, organization, development and methodologies of current professional social work practice in mental health settings.

**7750:453/553 SOCIAL WORK WITH FAMILIES** 3 credits  
Prerequisite: 276 or permission. Professional social work practice with families in social services; the dynamics of family systems, assessment of family function and dysfunction, professional helping processes.

**7750:454/554 SOCIAL WORK IN JUVENILE JUSTICE** 3 credits  
Prerequisite: 276 or permission (undergraduate). The theory and practice of Social Work in the juvenile justice systems of the United States. Traditional procedures and recent developments, prevention, diversion and community outreach, legal concerns, case management, institutional functioning.

**7750:458/556 SOCIAL WORK IN HEALTH SERVICES** 3 credits  
Prerequisite: 276 or permission. Policies, programs and practice in health care settings: short-term, intermediate and long-term hospitals, out-patient services, emergency services, clinics, visiting nurse services, nursing homes, pediatric services, self-help organizations, etc.

**7750:457/557 ADVANCED PRACTICE WITH INDIVIDUALS** 3 credits  
Prerequisites: 401 or permission (undergraduate); an undergraduate social work degree or permission (graduate). Advanced professional development of direct and indirect strategies and techniques of intervention to aid individuals in improving psychosocial functioning.

**7750:465/565 ADMINISTRATION AND SUPERVISION IN SOCIAL WORK** 3 credits  
Prerequisites: 401 or permission. Preparation for use of supervision, staff development and program planning in a social work agency. Examines the social work/welfare agency in its community as it affects its organizational goal-setting and program-implementation problems.

**7750:470/570 LAW FOR SOCIAL WORKERS** 3 credits  
Prerequisite: 276 or permission. Basic terminology, theories, principles, organization and procedures of law will be explored along with the relationships between social work and law and comparisons of the theoretical bases of the two professions.

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## 7750: Social Work

**7750:270 POVERTY IN THE UNITED STATES** 3 credits  
Survey of social and personal dimensions of life in the inner city and other areas of poverty in United States. For person wishing to develop an in-depth understanding and/or intending to work in such areas.

**7750:276 INTRODUCTION TO SOCIAL WELFARE** 4 credits  
Survey of field of social welfare; place of social work profession within human services institutions of United States. Introduction of basic concepts relating social welfare institutions and social work to society.

**7750:401/501 SOCIAL WORK PRACTICE I** 3 credits  
Prerequisite: 276 or permission. Basic concepts and methods of social work practice, particularly relating to understanding and working with individuals and families.

**7750:402/502 SOCIAL WORK PRACTICE II** 3 credits  
Prerequisite: 401 or permission. Concepts and methods of social work practice particularly relating to understanding and working with groups in various settings in our society.

**7750:403/503 SOCIAL WORK PRACTICE III** 3 credits  
Prerequisite: 402 or permission. Development of understanding and practice methods for utilization of community organization and social planning as social work process in assessing problems and developing program to meet needs.

**7750:410/510 MINORITY ISSUES IN SOCIAL WORK PRACTICE** 3 credits  
Prerequisite: 276 or permission. Racial, ethnic and cultural issues in social work related to various practice and theoretical perspectives, to various types of social problems, service agencies, individual family, group, community and societal contexts integrated with the methodological processes of the social work practitioners.

**7750:411/511 WOMEN'S ISSUES IN SOCIAL WORK PRACTICE** 3 credits  
Prerequisite: 276 or permission. Social Work practice knowledge and skill, social welfare institutions and social policy in relation to women's issues and concerns in the United States.

**7750:421 FIELD EXPERIENCE SEMINAR** 1 credit  
Prerequisite: 401 and permission; corequisite: 495. Careful examination and integration of academic understanding and professional methodological studies into professional practice.

**7750:480/580 SPECIAL TOPICS IN SOCIAL WORK AND SOCIAL WELFARE** 1-3 credits

Prerequisite: permission of instructor. Analysis of current social work and social welfare theory and policy, settings, innovative interventions and trends in delivery systems in relation to selected areas of concern. Topics and credits variable.

**7750:490/590 SOCIAL WORK WORKSHOP** 1-4 credits

(May be repeated for a total of six credits)  
Prerequisite: permission of instructor. Group investigation of a particular phase of social work or social welfare not offered by other courses in curriculum.

**7750:495 FIELD EXPERIENCE IN SOCIAL AGENCY** 2-8 credits

(Two credits minimum and eight credits maximum-total in consecutive semesters only)

Prerequisite: 401 and permission; corequisite: 421. Individual placement in selected community and social service agencies for supervised experience with individuals, groups and communities in family service, health care, corrections, community development, mental health, child welfare, public welfare and similar social welfare settings. Student must register intent and receive permission to take the course with the course instructor during early part of semester preceding enrollment. For senior major in social work.

**7750:497/597 INDIVIDUAL INVESTIGATIONS IN SOCIAL WORK SOCIAL WELFARE** 1-3 credits

Prerequisite: permission and prearrangement with instructor. Individual readings, research or projects in area of interest in social welfare theory or institutional operations or in social work practice under guidance of social work faculty member. Preparation of report paper appropriate to nature of topic. For social work major.

**7750:499 SENIOR HONORS PROJECT IN SOCIAL WORK** 1-3 credits

(May be repeated for a total of six credits)  
Prerequisites: senior standing in Honors Program and approval of Honors preceptor in department. Open only to social work major enrolled in Honors Program. Independent study leading to completion of senior honors thesis or other original work resulting in writing of research paper in proper scholarly form, supervised by student's honors project adviser within the department.

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## Graduate Course

**7750:673 CONTEMPORARY SOCIAL WORK APPLICATIONS** 3 credits

Contemporary social work concepts and methods compared and applied in various social welfare, community service, educational and health settings. Particularly useful for professionals from related fields and for advanced practitioners.

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## 7800: Theatre Arts and Dance

**7800:115 DANCE AS AN ART FORM** 2 credits

Survey of dance for novice observer: aesthetics, philosophies, methods of training. Lecture and discussion of readings, viewing of film, videotape and live performances.

**7800:116 DANCE ANALYSIS I** 2 credits

Required of all dance majors in first two years. Lecture/laboratory. Understanding the body and its relation to technique.

**7800:117 DANCE ANALYSIS II** 2 credits

Prerequisite: 116 or permission. Continuation of 116. Lecture/laboratory. Use of body in dance technique as student, future teacher, or performer.

**7800:119 INTRODUCTION TO CONTEMPORARY DANCE I** 2 credits

(May be repeated for a total of four credits)  
Course for novice dancers and teachers wishing to explore contemporary styles and techniques.

**7800:120 INTRODUCTION TO CONTEMPORARY DANCE II** 2 credits

(May be repeated for a total of four credits)  
Prerequisite: permission. Continuation of 119. Expansion of contemporary movements and techniques.

**7800:122 BALLET TECHNIQUE I** 5 credits

(May be repeated for a total of ten credits)  
Prerequisite: permission. Fundamental theory, vocabulary, structure, placement.

**7800:124 INTRODUCTION TO BALLET I** 2 credits

(May be repeated for a total of four credits)  
Emphasis on body placement, muscular awareness.

**7800:125 INTRODUCTION TO BALLET II** 2 credits

(May be repeated for a total of four credits)  
Prerequisite: permission. Continuation of 124, basic exercises of classical ballet.

**7800:219 INTRODUCTION TO CONTEMPORARY DANCE III** 2 credits

Prerequisite: permission of instructor. Continuation of 120, expanding the contemporary dance techniques, designed to perfect the student's technique for entering the *Contemporary Technique I*.

**7800:220 INTRODUCTION TO CONTEMPORARY DANCE IV** 2 credits

Prerequisite: permission of instructor. Continuation of 219, expanding the contemporary dance techniques, designed to perfect the student's technique for entering the *Contemporary Technique I*.

**7800:222 BALLET TECHNIQUE II** 5 credits

(May be repeated for a total of 20 credits)  
Prerequisite: permission. Continuation of 122, expanding theory on vocabulary, structure, placement.

**7800:224 FUNDAMENTAL BALLET TECHNIQUE** 3 credits

(May be repeated for a total of six credits)  
Prerequisite: permission. Continuation of 124,25. Emphasis on barre and developing strength.

**7800:229 CONTEMPORARY TECHNIQUE I** 3 credits

(May be repeated for a total of 12 credits)  
Prerequisite: permission. Expanding the basic contemporary dance techniques.

**7800:251 VOICE FOR THE STAGE** 3 credits

Prerequisite: 7700:111, 211. Speech improvement as it specifically applies to the stage. This course is concerned with the proper techniques and principles of vocal production in their practical application to stage performance.

**7800:261 INTRODUCTION TO THEATRE** 3 credits

Aesthetics of theatre—stage theatre, opera theatre, musical theatre, dance theatre—and to some extent, media theatre. Attendance at campus productions and 20 hours of practical laboratory experience required.

**7800:262 STAGE MAKEUP** 3 credits

Theory and practice in the application of stage makeup from juvenile to character. Lecture/Laboratory.

**7800:263 SCENE PAINTING** 3 credits

The development of skills and knowledge of stage scenic painting required for the theatre designer and technician. Laboratory required.

**7800:264 INTRODUCTION TO TECHNICAL THEATRE** 3 credits

Introduction to various elements of technical production: personnel, organization, scheduling, shop processes, techniques and capabilities. Laboratory required.

**7800:265 BASIC STAGECRAFT I** 3 credits

Basic stagecraft including equipment, construction and handling of two-dimensional scenery and theatrical hardware. Laboratory required.

**7800:266 BASIC STAGECRAFT II** 3 credits

Prerequisite: 265. Aspects of stagecraft including the construction and handling of three-dimensional scenery and the rigging of scenic units. Laboratory required.

**7800:271 DIRECTING I** 3 credits

Emphasizes fundamentals of play directing, including responsibilities of direc-

tor, stage nomenclature, play selection, character analysis and rehearsals. One-act form emphasized.

**7800:272 ACTING I** 4 credits

Introductory fundamentals of acting through the investigation of the body as an instrument for the stage, improvisation, and basic scene study.

**7800:316 CHOREOGRAPHY I** 2 credits

Prerequisite: permission of the instructor. Study and practical application of choreographic principles in the areas of rhythm dynamics, spatial awareness, and body and eye focus.

**7800:317 CHOREOGRAPHY II** 2 credits

Prerequisites: 126 and permission of the instructor. Continuation of 126 with emphasis on established and traditional choreographic forms, including theme and variation, the suite and fugue and the narrative.

**7800:320 DANCE NOTATION** 2 credits

Beginning study of Labanotation method of recording movement, and preparation for beginners' examination of the Notation Bureau.

**7800:322 BALLET TECHNIQUE III** 5 credits

(May be repeated for a total of 30 credits)  
Prerequisite: permission. Continuation of 222. emphasis on technique, style and line.

**7800:323 JAZZ DANCE TECHNIQUE I** 2 credits

Emphasizes basic Jazz techniques and styles, including East Indian, Afro-Cuban, Early American Hoe-Down and Folklore styles. Also, Soft-Shoe, Charleston and Early Burlesque.

**7800:324 TAP TECHNIQUE I** 2 credits

Emphasizes basic tap combinations and routines, tap terminology and methods for recording combinations. Special clothing/shoes required.

**7800:328 PERIOD MOVEMENT AND DANCE** 2 credits

Medieval and Early Renaissance style and manners. Studio and lecture.

**7800:329 CONTEMPORARY TECHNIQUE II** 3 credits

(May be repeated for a total of 12 credits)  
Prerequisite: permission. Continuation of 229. expanded development of contemporary techniques.

**7800:330 THEATRE ARTS/DANCE PARTICIPATION** 1 credit

(May be repeated for a total of four credits)  
Practical laboratory experience in theatre projects vital to the mounting of major productions. Four credits required of all theatre majors

**7800:334 STAGE COSTUME CONSTRUCTION** 3 credits

Study and practice of stage costume construction techniques.

**7800:335 INTRODUCTION TO STAGE COSTUME HISTORY AND DESIGN** 3 credits

Study of historical civilian and theatre dress. Costumes designed for each historical period in class. Period patterns drafted and constructed during designated laboratory hours.

**7800:336 HISTORY AND CONSTRUCTION OF PERIOD FURNISHING FOR THE STAGE** 3 credits

Survey of historic furniture and hand prop styles, with emphasis on practical stage applications. Study of prop construction materials and techniques: wood, steel, foams and plastics, basic welding, upholstery, joinery, finishing methods.

**7800:350 ADVANCED VOICE FOR THE STAGE I** 3 credits

Prerequisite: 251. Vocal training through interpretation and analysis of various theatre styles.

**7800:351 ADVANCED VOICE FOR THE STAGE II** 3 credits

Prerequisite: 350. Continuation of 350.

**7800:382 ADVANCED STAGECRAFT** 3 credits

Prerequisite: 266. Aspects of advanced stagecraft: flying scenery, processes and techniques of rigging, textural and sculptured materials, surfaces. Lab required.

**7800:364 INTRODUCTION TO STAGE DESIGN** 3 credits

Introduction to basic design principles involving floor plans, elevations and renderings for the design of stage scenery. Laboratory.

**7800:365 STAGE DESIGN** 3 credits

Prerequisite: 364. The art of stage design: its demands, elements, principles.

**7800:367 HISTORY OF THEATRE I: GREEK-RENAISSANCE** 4 credits

Prerequisite: 261 or permission. Development of theatre in Greece and Rome, Medieval period and Renaissance, with emphasis on culture of each period, dramatists, plays, stage conventions, architecture.

**7800:368 HISTORY OF THEATRE II: RESTORATION TO PRESENT** 4 credits

Prerequisite: 261 or permission. Development of theatre from English Restoration, eighteenth and nineteenth century, to modern period with emphasis on culture of each period, dramatists, stage conventions, set designs and theatre architecture.

**7800:370 THE AMERICAN THEATRE: PLAYS, PLAYERS AND PLAYWRIGHTS** 3 credits

Study of American theatre, from its beginning in seventeenth century to present, with emphasis on achievements in twentieth century.

**7800:371 DIRECTING II** 3 credits

Prerequisite: 271 and permission. Advanced course in practical techniques of staging plays from major theatrical periods as well as principles of working with the actor.

**7800:373 ACTING II** 4 credits

Prerequisite: 272. Continuation of 272. Further emphasis on the psychology of the actor and development of performing techniques through scene study.

**7800:374 ACTING III** 4 credits

Prerequisite: 373. Further in-depth actor training with emphasis on the language and interpretation of Shakespeare through scene study.

**7800:376 THEATRE ORGANIZATION AND MANAGEMENT** 2 credits

Prerequisite: 261. Study of successful organization and management of non-professional theatre operation.

**7800:377 JAZZ DANCE TECHNIQUE II** 2 credits

Prerequisite: 323. The use of more complex Jazz technique combinations.

**7800:378 TAP TECHNIQUE II** 2 credits

Prerequisites: 124, 5, 324. A study of more complex routines and combinations, including syncopation, classical tap and style (Astaire, Kelly, Vereen, Draper, Bolger). Special clothing/shoes.

**7800:403 SPECIAL TOPICS IN THEATRE ARTS AND DANCE** 1-4 credits

(May be repeated as different subject areas are covered, but no more than 10 credits may be applied toward B.A. degree)  
Prerequisite: permission. Traditional and nontraditional topics in theatre arts/dance, supplementing courses listed in *General Bulletin*.

**7800:416 CHOREOGRAPHY III** 2 credits

Prerequisites: 127, permission of the instructor. Continuation of 127 with emphasis on rhythmic analysis and non-traditional forms.

**7800:417 CHOREOGRAPHY IV** 2 credits

Prerequisites: 226 and permission of the instructor. Continuation of 226 expanding into group choreography and counterpoint.

**7800:421 MUSICAL THEATRE PRODUCTION** 3 credits

Designed to make the musical theatre performer aware of the total creative process involved in mounting a stage musical. May be taught in conjunction with the production of a musical or a special departmental music project.

**7800:422 BALLET TECHNIQUE IV** 5 credits

(May be repeated for a total of 40 credits)  
Prerequisite: permission. Continuation of 322, professional level of technique.

**7800:423 HISTORY OF THE DANCE** 2 credits

Study of important developments in dance from pre-history to Renaissance.

**7800:424 20TH CENTURY DANCE** 2 credits

Prerequisite: dance major or permission. Investigation of changes in styles and techniques and their influence on current choreography.

**7800:425 DEVELOPMENT OF DANCE** 2 credits

Romantic and Diaghilev eras and their influence on current dance.

**7800:426 TECHNIQUES OF TEACHING DANCE I** 2 credits

Prerequisite: dance major or permission. Practical work in the basic principles of elementary teachers' training.

**7800:427 TECHNIQUES OF TEACHING DANCE II** 2 credits

Prerequisite: 426 or permission. Continuation of 426. Projects in teaching of elementary training.

**7800:428 DANCE REPERTOIRE** 2 credits

(May be repeated for a total of 12 credits)

Prerequisites: 122, permission of instructor. Designed to acquaint the dance student with classic and contemporary dance repertoire, both original works and reconstructions.

**7800:435 STAGE COSTUME DESIGN** 3 credits

Prerequisite: 335. Tools of fashion and figure drawing, stage costume rendering, and theatrical design assignments.

**7800:436 STYLES OF SCENIC DESIGN** 3 credits

Prerequisite: 365. Theatrical styles and periods in scenic design and scenography.

**7800:437 STYLES OF STAGE COSTUME DESIGN** 3 credits

Prerequisite: 435. The art and styles of costume design for the stage and the many processes needed to produce the stage costume for theatrical effects.

**7800:445 MOVEMENT FOR ACTORS I** 3 credits

Prerequisite: 272. Specialized physical training for the actor.

**7800:446 MOVEMENT FOR ACTORS II** 3 credits

Prerequisite: 445. Specialized training, integrating the actor's physical and vocal instrument.

**7800:462/562 PLAYWRITING** 2 credits

Prerequisite: permission. Principles of dramatic construction learned through analysis of playwright's art, as well as through writing of dramatic compositions by individual student.

**7800:464 STAGE LIGHTING** 3 credits

Outlines history, theories and practices of stage lighting. Among areas discussed are colored light and color theory; electricity and electrical safety; dimming control systems; other aspects of craft of effective stage lighting.

**7800:465 STAGE LIGHTING DESIGN** 3 credits

Prerequisite: 464. The art and technique of stage lighting design; light plotting, color theory, and optical effects.

**7800:467/567 CONTEMPORARY THEATRE STYLES** 3 credits

Study of contemporary theatre from emergence of modern drama in nineteenth century through a reading list of representative plays, with special emphasis on departures from realism.

**7800:468/568 CHILDREN'S THEATRE** 3 credits

Study of theatre for child audience: play selection, set design and construction, acting, directing. A full-length play for children produced by the class may culminate the course.

**7800:469 PROBLEMS IN LIGHTING DESIGN** 3 credits

Prerequisite: 465. Advanced study of practical application to problems confronting lighting designer and technician.

**7800:470 PRACTICUM IN PRODUCTION DESIGN/TECHNOLOGY** 1-3 credits

(May be repeated for a total of six credits)

Prerequisite: permission of instructor. Practice in selected production design/technology as it applies to projects in major departmental productions.

**7800:474 ACTING IV** 4 credits

Prerequisite: 374. Investigation of acting styles, through scene study, as they apply from Shakespeare through modern playwrights.

**7800:475 ACTING FOR THE MUSICAL THEATRE** 3 credits

Prerequisites: 373, 7520:124, permission. A scene study course in analyzing and performing roles in American musicals. Emphasis will be on coordinating the many aspects of the role for the purpose of fully developing characterization.

**7800:490/590 WORKSHOP IN THEATRE ARTS/DANCE** 1-3 cr.

(May be repeated for a total of eight credits)

Prerequisite: advanced standing or permission. Group study or group project, investigating particular phase of theatre arts or dance not covered by other courses in curriculum.

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## Graduate Courses

**7800:600 INTRODUCTION TO GRADUATE STUDIES IN SPEECH AND THEATRE ARTS** 1 credit

Study of basic research methods used in speech and theatre arts. The student presents an oral seminar report and written research paper to indicate competence in the several research methods.

**7800:603 SPECIAL TOPICS IN THEATRE ARTS AND DANCE** 1-4 credits

(May be repeated as different subject areas are covered, but no more than twelve credits may be applied toward M.A. degree)  
Traditional and experimental courses in theatre and dance, supplementing those listed in the *General Bulletin*.

**7800:641 PROBLEMS IN DIRECTING** 3 credits

Advanced directing course, with special emphasis on staging of complex plays from all periods of drama.

**7800:642 PROBLEMS IN CONTEMPORARY ACTING** 3 credits

Study of problems confronting advanced actor in such areas as style, environmental theatre, mixed media, nonverbal productions and participatory theatre.

**7800:658 HISTORY OF TECHNICAL PRODUCTION** 3 credits

History of technical production utilizing pictorial materials and models to study evolution of physical stage; scene changing devices; stage machines. Term paper or project required.

**7800:659 HISTORY AND THEORY OF STAGE LIGHTING** 3 credits

Historical survey of evolution of stage lighting culminating in understanding of modern lighting design skills and their practical application. Term paper or major project required.

**7800:660 ADVANCED TECHNICAL THEATRE** 2 credits

Detailed problems in mounting plays on secondary school, university and professional stages.

**7800:661 SEMINAR IN STAGE COSTUME DESIGN** 3 credits

Prerequisite: undergraduate costume design course or permission of instructor. Study and discussion of special interests in costume design; costumes for musical or opera theatre, research of specific period costume patterns, textile modification, portfolio projects, research of noted designers.

**7800:662 SEMINAR IN SCENE DESIGN** 3 credits

Prerequisite: 364 or undergraduate scene design course or permission of instructor. Study and discussion of problems in scene design; portfolio projects, research of noted designers, studies of theatre spaces, new scenographic materials, use of various rendering media.

**7800:663 SEMINAR: AMERICAN THEATRE** 2 credits**7800:665 AUDIENCE FOR THE ARTS: RESEARCH/ANALYSIS** 2 credits

Examination of both qualitative and quantitative methods of researching today's audience and support for the arts/cultural institutions, such as arts councils, foundations, etc. Research projects; team taught.

**7800:666 INTRODUCTON TO ARTS MANAGEMENT** 2 credits

Examination of efficient and practical arts management, with emphasis on theatre operations. Individual projects and lectures by experts in field highlight course.

**7800:667 STUDIES IN DRAMATIC PRACTICE I**

3 credits

Development of dramatic literature and its relationship to the social/political/religious influences of varying cultures from classical Greece to the Restoration and its relationship to the physical theatre.

**7800:668 STUDIES IN DRAMATIC PRACTICE II**

3 credits

Development of dramatic literature and its relationship to the social/political/religious influences in various cultures from the eighteenth century to modern times and its relationship to the physical theatre.

**7800:690 GRADUATE RESEARCH/READINGS**

1-3 credits

(May be repeated for a total of nine credits)

Prerequisite: permission. Individual research of independent readings under supervision of member of departmental graduate faculty.

**7800:691 SEMINAR: THE ROLE OF THE ARTS ADMINISTRATOR**

3 credits

In-depth examination of roles of arts administrator/manager in a number of

different situations, including but not limited to theatre, opera, ballet, arts organizations and performing arts halls/centers. Guest lecturers. Term paper required.

**7800:692 LEGAL REGULATIONS AND THE ARTS**

2 credits

Analysis of legal framework of arts regulation. Introduction to selected areas of law relevant to arts management through reading and discussion of legislation, cases and scholarly materials.

**7800:698 ARTS MANAGEMENT INTERNSHIP**

1-3 credits

(May be repeated for a total of three credits)

Prerequisite: permission. Faculty supervised work experience program in which student participates in an arts management situation with selected cultural organizations.

**7800:699 RESEARCH AND THESIS**

4-6 credits

(May be repeated for a total of six credits)

Prerequisite: permission of department head.

# College of Nursing

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## 8000: Cooperative Education

**8000: 301 COOPERATIVE EDUCATION** 0 credits  
(May be repeated). For Cooperative Education Students only. Work experience in business, industry, or governmental agency. Comprehensive performance evaluation and written report required.

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## 8200: Nursing

**8200:100 INTRODUCTION TO NURSING** 1 credit  
Designed to introduce student to nursing. Emphasis on historical perspective as basis for modern trends in profession of nursing.

**8200:101 INTRODUCTION TO BACCALAUREATE NURSING FOR THE R.N.** 1 credit (15 lecture hours)  
Prerequisite: Registered Nurse. Emphasize role resocialization for R.N.'s seeking a baccalaureate in nursing. Explores concepts incorporated in the philosophy, conceptual framework and curriculum structure of the baccalaureate nursing program.

**8200:200 NURSING THEORIES AND CONCEPTS** 5 credits  
Prerequisite: 100. Demonstrates relationship of relevant concepts and theories from various sciences with man's interaction with ecosystem. Relates these theories and concepts to practice of nursing in health care system utilizing scientific research approach.

**8200:300 NURSING: HEALTH** 12 credits  
Prerequisites: 100, 200. Healthy man's adaptation throughout life cycle. Emphasis on his interactions within an ecosystem approach. Nursing process used to view this approach as holistic man's adaptation.

**8200:305 NURSING THEORIES, CONCEPTS AND RESEARCH** 6 credits  
Prerequisites: 101, admission to college. The specific focus is to relate concepts, theories and investigative projects to the practice of nursing in a health care system using the nursing process.

**8200:320 NURSING: DIMINISHED HEALTH I** 12 credits  
Prerequisites: 100, 200, 300. Man's maladaptation throughout life cycle. Emphasis on his interactions within an ecosystem approach. Nursing process used to view this approach as holistic man's adaptation.

**8200:400 NURSING: DIMINISHED HEALTH II** 10 credits  
Prerequisites: 100, 200, 300, 320. Assists student in applying knowledge and skills for an integrated approach to nursing process in various settings and to develop roles of leadership and change-agent utilizing teaching/learning process.

**8200:405 HEALTH MAINTENANCE NURSING** 6 credits  
Prerequisites: 101, 305. Designed to focus on healthy man throughout the life cycle. Theory and practice focus on healthy man's reciprocal interaction with ecological variables.

**8200:415 DIMINISHED HEALTH NURSING** 5 credits  
Prerequisites: 101, 305. Theoretical and clinical components emphasize alternative behaviors for the client and the nurse, within the framework of the nursing process, to assist individuals and families experiencing diminished health to attain, maintain and regain optimal levels of health.

**8200:420 NURSING: SYNTHESIS** 10 credits  
Prerequisites: 100, 200, 300, 320. Provides student with independent practice opportunity. Emphasis on providing student with practice in an area of his/her choice. Guidance and direction provided to student as necessary by preceptor.

**8200:430/530 HEALTH CARE (CURRENT YEAR): ISSUES AND NURSING** 2 credits

Prerequisites: acceptance in the college. Survey and exploration of the state of health care delivery in the United States of America today and their ramifications and implications for nursing.

**8200:480 SENIOR HONORS PROJECT** 1-3 credits per semester

Prerequisite: senior standing in Honors Program and nursing major. A creative project, independent study or research relevant to nursing which is supervised by a faculty preceptor and/or sponsor.

**8200:489/589 SPECIAL TOPICS: NURSING** 1-4 credits

(May be repeated as new topics are presented)  
Group studies of special topics in nursing. May not be used to meet requirements for the major in nursing. May be used for elective credit.

**8200:493/593 WORKSHOPS** 1-3 credits

(May be repeated as new topics are presented)  
Group studies of special topics in nursing. May not be used to meet college undergraduate or graduate major requirements. May be used for elective credit only.

**8200:497 INDEPENDENT STUDY** 1-3 credits

Prerequisites: senior standing and permission of instructor. Provides opportunity to develop greater depth in an area of nursing through methodology specific to discipline of nursing.

**8200:498/598 SPECIAL READINGS** 1-4 credits

Prerequisite: permission of student's adviser or dean. Special readings in an area of concentration may be taken to satisfy elective credit. Special readings may not be used to satisfy requirements of the major.

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## Graduate Courses

**8200:800 THEORETICAL BASIS FOR FAMILY HEALTH NURSING I** 3 credits

Prerequisite: acceptance in the Family Health Nursing Program. Study of concept and theories common to nursing. Provides a firm basis for family health nursing within the ecological-phenomenological perspective.

**8200:601 THEORETICAL BASIS FOR FAMILY HEALTH NURSING II** 3 credits

Prerequisite: 600. Provides a forum for graduate students to explore a wide array of concepts and theories for use in the development of the leadership role of the family health nurse within an ecological-phenomenological perspective.

**8200:612 NURSING INQUIRY** 4 credits

Prerequisites: 3470:691, 661 and 600. Philosophies of science and ethics; concept formation and theory development shall be studied. Research in family health nursing within the ecological-phenomenological perspective shall be implemented.

**8200:618 FAMILY HEALTH APPRAISAL** 5 credits

Prerequisite: formal admission into the Family Health Nursing Program. A combination of seminar and practicum will be used to study health appraisal. The focus will be on the health of families and enfamilied selves across the life span.

**8200:620 FAMILY HEALTH NURSING I** 6 credits

Prerequisites: 600, 1, 618. Includes theory and practice of family health nursing. The focus is on concepts, theories and practice relative to families and enfamilied selves within the ecological-phenomenological perspective.

**8200:621 FAMILY HEALTH NURSING II** 6 credits

Prerequisites: 600, 1, 618, 620. Focuses on the application of the ecological-phenomenological perspective relative to family health nursing practice. The study of the ecological-phenomenological perspective relative to family health nursing is continued.

**8200:670,1 SPECIAL TOPICS** 2 credits each

Prerequisite: completion of all required first-year courses. Selected topics and areas of interest to faculty, student. Available as electives.

**8200:872 INDEPENDENT STUDY** 1-4 credits

An opportunity for the graduate student to elect an area of nursing for practice and is considered as an option for the following: 1) Nursing elective credit; and 2) Leadership Role of Nursing elective credit.

**8200:673 NURSING OF FAMILIES WITH OLDER MEMBERS** 3 credits

Prerequisite: graduate status. This course focuses on the diversity of roles held by older adults in various family situations such as: the new family, the multi-generational family, the family with a widowed member, the institutionalized family. Opportunities are provided to function in a leadership role in family health nursing and to become involved in community conferences which influence public policy for older adults.

**8200:675 CULTURE, ETHNICITY AND HEALTH CARE** 3 credits

Increase cultural sensitivity by exploration of culturally diverse health values, beliefs, practices. Life styles of selected ethnic groups, factors affecting the health of individuals in ethnic communities; the health care choices of ethnically diverse populations shall be examined from an ecological / phenomenological perspective.

**8200:680 FAMILY HEALTH NURSING LEADERSHIP SEMINAR: DIRECT CARE WITH FAMILIES** 3 credits

Corequisite: 621, 600,1, 612, 620. Examines family health nursing practice utilizing the ecological-phenomenological perspective, to identify and explore practice issues and goals.

**8200:681 FAMILY HEALTH NURSING LEADERSHIP PRACTICUM: DIRECT CARE WITH FAMILIES** 3 credits

Prerequisite: 680. Guided study and practice in the leadership role of a family health nurse in direct care with families within the ecological-phenomenological perspective.

**8200:685 FAMILY HEALTH NURSING LEADERSHIP SEMINAR: EDUCATION** 3 credits

Prerequisites: 600,1, 612, 620. Expanding the leadership role of the Family

Nurse from the philosophical perspective of education. Utilizes theoretical frameworks to develop and critique family health nursing curricula within the ecological-phenomenological perspective.

**8200:686 FAMILY HEALTH NURSING LEADERSHIP PRACTICUM: EDUCATION** 3 credits

Corequisite: 689. Prerequisites: 621, 685. Guided study and practice in the leadership role of a family health nurse educator within the ecological-phenomenological perspective.

**8200:687 FAMILY HEALTH NURSING LEADERSHIP SEMINAR: ADMINISTRATION** 3 credits

Prerequisite or Corequisite: 621. Prerequisite: 620. Expanding the leadership role of family health nurse from philosophical perspectives of administrator. Utilizes theoretical frameworks to develop and identify administrative goals within the ecological-phenomenological perspective.

**8200:688 FAMILY HEALTH NURSING LEADERSHIP PRACTICUM: ADMINISTRATION** 3 credits

Prerequisite: 687. Guided study and practice in the leadership role of a family health nurse administrator within the ecological-phenomenological perspective.

**8200:689 COLLOQUIUM** 1 credit

Corequisites: 681, 686, 688. Similarities and differences of the family health nurse leadership roles in administration, education, direct care with families within the ecological-phenomenological perspective are examined.

**8200:699 THESIS RESEARCH** 1-4 credits

Corequisite: 621. Prerequisites: 612, 621. Family health nursing research in which selected philosophies, theories, concepts are investigated within the ecological-phenomenological perspective.

# School of Law

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## 9200: Law

- 9200:601 CIVIL PROCEDURE I** 3 credits  
Survey of civil procedure in state and federal courts. Jurisdiction. Pleading, motions, joinder of parties and causes of action. Judgments. Trial and appellate practice.
- 9200:602 CIVIL PROCEDURE II** 3 credits  
Prerequisite: 601. Continuation of 601.
- 9200:603 CONSTITUTIONAL LAW I** 3 credits  
Governmental authority and its distribution under Constitution. Introduction to individual rights and liberties.
- 9200:604 CONSTITUTIONAL LAW II** 3 credits  
Prerequisite: 603. Continuation of 603. Rights, privileges and immunities under the Constitution.
- 9200:605 CONTRACTS I** 3 credits  
Nature and purpose of contract law. Formation. Consideration. Contractual alternatives. Reality of consent. Capacity. Statute of Frauds.
- 9200:606 CONTRACTS II** 3 credits  
Prerequisite: 605. Construction. Breach and associated remedies. Resolution of disputes. Discharge. Third party interests.
- 9200:607 CRIMINAL LAW** 3 credits  
Nature and source of criminal liability studied in light of modern developments. The act. Mental conditions requisite to criminal responsibility. Specific crimes and defense thereto.
- 9200:608 EVIDENCE** 3 credits  
Covers basic evidence law with emphasis on the Federal Rules of Evidence and state rules patterned thereon.
- 9200:612 LEGAL PROFESSION** 2 credits  
Legal profession as an institution. Responsibilities of lawyers. Duties and privileges. Professional qualifications.
- 9200:614 PROPERTY I** 3 credits  
Possession, means by which title may be obtained; fixtures; emblements; estates in land; concurrent ownership; the deed; the mortgage; the land contract.
- 9200:615 PROPERTY II** 3 credits  
Prerequisite: 614. History of land law; Statute of Frauds; recording; title; registration; covenants for title; adverse possession; landlord-tenant relationship; legislation restricting land use; easements; licences; private restrictions; water rights.
- 9200:616 TORTS I** 3 credits  
Survey of basic tort law and its function; impact of insurance and notions of allocating cost of unintentionally caused harm on tort doctrines keyed to negligence.
- 9200:617 TORTS II** 3 credits  
Prerequisite: 616. Continuation of 616.
- 9200:618 LEGAL RESEARCH** 1 credit  
Familiarization with basic legal publications and computer assisted legal research necessary to perform legal research.
- 9200:619 BASIC LEGAL COMMUNICATIONS** 1 credit  
Introduction to basic skills in written exposition in a legal context through preparation of an office memorandum and other assignments.
- 9200:620 INTERMEDIATE LEGAL COMMUNICATION** 1 credit  
Enhancement of legal writing skills through preparation of an argumentative brief and other writings; development of oral advocacy skills through presentation of an argument based on a brief.
- 9200:621 ACCOUNTING FOR LAWYERS** 3 credits  
A study of the underlying assumptions and principles of financial information prepared in accordance with generally accepted accounting principles and the evaluation of such information in terms of its significance to users of such information.
- 9200:622 ADMINISTRATION OF CRIMINAL JUSTICE** 3 credits  
Administration of criminal justice relating processes of criminal law to objectives of criminal correction. Effects of federal constitutional provisions on criminal procedure.
- 9200:623 ADMINISTRATIVE PROCESS** 3 credits  
Prerequisite: 604. Traditional politico-legal theories of separation of powers and the administrative process; procedure for rule-making and adjudication; conclusiveness of administrative determination.
- 9200:624 AIR LAW** 3 credits  
Law of modern air transportation in international and domestic flight and emerging area of outer space.
- 9200:625 ANTITRUST LAW** 3 credits  
Fundamentals of antitrust; questions of evidence in price fixing and boycotts under the Sherman Act, resale restrictions and tie-ins, scope of antitrust law and certain exemptions.
- 9200:626 BASIC BUSINESS ASSOCIATIONS** 3 credits  
Vicarious liability. Employment relationships and scope. Authority and apparent authority. Misrepresentation by an agent. Undisclosed principal. Ratification. Elements of partnership and other unincorporated business associations.
- 9200:627 COMMERCIAL LAW I** 3 credits  
This course focuses on the Uniform Commercial Code with emphasis on Articles 2, 3, 4 and 9 together with the appropriate cognate areas such as the Bankruptcy Act, the Uniform Fraudulent Conveyance Act, the Tax Lien Act and the FTC Holder Rule.
- 9200:628 COMMERCIAL TRANSACTIONS: SALES** 2 credits  
Law of sales of personal property under Article 2 of Uniform Commercial Code and under prior uniform acts relevant to the modern law of sales.
- 9200:629 COMMERCIAL LAW II** 3 credits  
Prerequisite: 627. Continuation of 627.
- 9200:630 ADMIRALTY** 3 credits  
History and jurisdiction of and practice in admiralty; carriage of goods by water and combined transport, collision, salvage and insurance; claims for personal injury and death claims; maritime lien.
- 9200:631 CONFLICT OF LAWS** 3 credits  
Problems of application of private law in jural relations containing one or more foreign law elements. Jurisdiction and enforcement.
- 9200:633 CORPORATIONS** 4 credits  
An introduction to the law relating to the typical American enterprise. Principal emphasis is on financing, control, management and regulation of corporations, both publicly owned and closely held.
- 9200:635 CREDITORS' RIGHTS** 3 credits  
Recommended: 629. Provisional remedies and enforcement of judgments. Fraudulent conveyances. General assignments for benefit of creditors. Creditors' agreements. Bankruptcy.
- 9200:636 DEVELOPMENT OF LAW AND LEGAL INSTITUTIONS** 2 credits  
Historical introduction to Anglo-American legal system.
- 9200:637 EQUAL OPPORTUNITY LAW** 3 credits  
Legal developments, primarily federal, affecting discrimination in employment, housing and public accommodations. The major emphasis of the course will be on equal employment opportunity law.
- 9200:638 FAMILY LAW** 3 credits  
Major areas of family law; theories that have influenced its development. Functions performed by various agencies which seek to effect a non-judicial settlement of domestic problems. Adoption.
- 9200:639 FEDERAL ESTATE AND GIFT TAXATION** 3 credits  
Federal estate and gift taxation; relation between federal income tax and federal taxes on gratuitous transfers; place of federal taxes in estate planning.
- 9200:640 SEMINAR IN ADVANCED CORPORATE TAXATION** 3 credits  
Prerequisite: 642. An analysis of federal corporate taxation problems.

**9200:641 FEDERAL INCOME TAXATION I** 3 credits

Survey of federal income tax law with primary emphasis on individual income. May be taken independently of 642.

**9200:642 FEDERAL INCOME TAXATION II** 3 credits

Prerequisite: 641. Survey of federal income tax law applicable to corporations.

**9200:643 FEDERAL JURISDICTION AND PROCEDURE** 3 credits

Prerequisite: 602. Congress, the federal courts and the Constitution; appellate and collateral review; federal question, diversity and admiralty cases; sovereign immunity, abstention and enjoining state actions; choice of law; federal common law.

**9200:644 FINANCING STATE AND LOCAL GOVERNMENT** 2 credits

Planning, programming and budgeting; state and federal programs; local taxes; use of public authorities and special districts; property tax limits; debt limits; state supervision of local finance.

**9200:645 GOVERNMENT CONTRACTS** 3 credits

Prerequisite: 606. Contracting with governmental units, primarily federal, including sovereign power to contract and limitations thereon; contract formation and performance clauses and litigation, considering applicable statutes, regulations and executive orders.

**9200:646 INJURIES TO RELATIONS** 2 credits

Prerequisites: 606 and 617. Theories of liability for invasion of nonpersonal and nonproperty interests arising in three-party situations. Tort remedies available for physical, appropriational and defamatory harms to trade, family, community and political relations.

**9200:647 JUVENILE LAW** 3 credits

Study of laws relating to juveniles (neglect, dependency, delinquency).

**9200:648 INSURANCE LAW** 3 credits

Legal principles of insurance of person and property, including insurable interest, measure of recovery, subrogation, rights of assignees and beneficiaries, warranty, concealment, representation and fraud. Adjustment of claims. Regulation.

**9200:649 INTERNATIONAL LAW** 3 credits

Nature and breadth of international law; sources and subjects; relation to municipal law, individuals and international organizations.

**9200:650 LABOR LAW** 3 credits

Collective bargaining process. Representation procedures. Duty to bargain. Unfair labor practices of labor and management, strikes, picketing, boycotts, lockouts. Jurisdictional disputes.

**9200:651 LABOR ARBITRATION AND COLLECTIVE BARGAINING** 3 credits

Prerequisite: 650. Law and practice of labor arbitration and collective bargaining, including study of grievance arbitration process pursuant to collective bargaining agreements.

**9200:652 LAND USE PLANNING** 3 credits

Prerequisite: 615. Assumptions, doctrines and implications of planning law; zoning; legal and administrative problems involved in allocating and developing land located in metropolitan area.

**9200:653 LAW AND SOCIAL CHANGE** 2 credits

Examination and study of influence of law on society and society on law to illuminate contemporary developments in law and social institutions.

**9200:654 LAW OF CONSUMER CREDIT** 2 credits

Recommended: 627 and 628. Consumer sale and credit transactions and their regulation, including specific statutory and administrative approaches dealing with problems of individual consumers and classes of consumers.

**9200:656 LAW REVIEW INTERNSHIP** 1 credit (credit/noncredit)

Prerequisite: completion of first year and invitation predicated upon scholarship or demonstrated writing skills. Citations; preparation of casenote of recent cases; recent case analyses and criticism; correction of casenotes or comments of others (spading). Credit for 656,7,8, 696, 698 not to exceed ten.

**9200:657 LAW REVIEW STAFF** 1 credit (credit/noncredit)

(May be repeated twice)  
Prerequisite: 656. Preparation of comment or article of publishable quality. Credit for 656,7,8, 66, 96, 98 not to exceed ten.

**9200:658 LAW REVIEW EDITORIAL BOARD** 1 credit (credit/noncredit)

Prerequisites: 657 and election to Editorial Board. One credit per term for

service on Akron Law Review Editorial Board; total credits for 656, 657 and 658 not to exceed four. Credit for 656,7,8, 66, 96, 98 not to exceed ten.

**9200:659 LAWYER AS NEGOTIATOR** 2 credits

Prerequisite: 602. Planning negotiations and determination of strategies to effect object, weighing legal, economic, behavioristic, ethical and social factors that condition outcomes.

**9200:660 LABOR RELATIONS LAW IN THE PUBLIC SECTOR** 3 credits

Collective bargaining in public (governmental) sector; forming and joining unions; establishing bargaining relationship; duty to bargain; union security arrangements; collective action, impasse resolution and enforcement of collective agreements.

**9200:661 LEGAL CONTROL OF THE ENVIRONMENT** 3 credits

Substantive and procedural problems in legal control of air and water pollution, common law precedents, federal and state statutory law, federal administrative agencies, civil actions, constitutional consideration; federal tax incentives.

**9200:662 LEGAL REGULATION OF COMPETITION** 3 credits

Study of law as it relates to regulation of derivative process in the publicly regulated and private unregulated sectors of the economy.

**9200:663 LEGISLATION** 2 credits

Process in context of legislative organization, policy formulation, drafting, statutory construction, constitutional limitations on subject matter and form and judicial interpretation; illustrative drafting problems.

**9200:664 LOCAL GOVERNMENT LAW** 3 credits

Nature of municipal corporations. Creation, annexation, and dissolution. Home rule. Police powers. Financing. Federal-state-local relationships. Staffing. Contractual and delictual liability.

**9200:665 MODERN REAL ESTATE TRANSACTIONS** 3 credits

Prerequisite: 615. Real estate transactions such as condominiums, cooperatives, sale and leasebacks, high credit leases, lease-hold mortgage, construction lending and syndication, with major emphasis on financing and related tax considerations.

**9200:666 MOOT COURT** 1 credit (credit/noncredit)

(May be repeated once)  
Credit for participation by brief writing or written argumentation in intramural National Moot Court, Jessup International or other approved moot court competitions. Not open to first-year student. Total credits for courses designated Moot Court (666, 694 and 695) not to exceed four. Credit for 656,7,8, 66, 94,5,6,7,8 not to exceed ten.

**9200:667 PATENT, TRADEMARK AND COPYRIGHT LAW** 2 credits

Federal protection of patents, trademarks and copyrights, registrar procedures, appeals from administrative actions, right of patentees, trademark owners and copyright holders, grants, licenses and assignments, infringement, plagiarism and unfair competition.

**9200:668 REMEDIES I** 3 credits

Equitable remedies, unjust enrichment and restitution; remedies for injuries to tangible property, and economic, dignitary and personal interests including wrongful death. May be taken independently of 669.

**9200:669 REMEDIES II** 3 credits

Prerequisite: 668. Disaffirmance and remedies for deception, duress, undue influence, hardship, unconscionability, mistake, breach of contract and nominally unenforceable transactions. 668 may be taken independently of 669.

**9200:670 SEMINAR IN CRIMINAL PROCESS** 3 credits

Prerequisite: 622. Study of criminal process including decision to prosecute, grand jury, preliminary hearing, joinder and severance, discovery, plea bargaining, jury trials and double jeopardy.

**9200:671 SECURITIES REGULATION** 3 credits

Prerequisite: 634. State and federal law and rules of Securities and Exchange Commission in issuance and trading of securities; legal and self-regulatory aspects of securities industry.

**9200:672 SEMINAR IN BUSINESS PLANNING** 3 credits

Prerequisite: 634 or permission of instructor. Advanced course using the problem approach in planning business transactions in light of applicable corporate, tax and securities law.

**9200:673 SEMINAR IN COMPARATIVE LEGAL SYSTEMS** 3 credits

Study of contemporary foreign legal systems by discussion of basic problems in specific areas on comparative basis.

**9200:674 SEMINAR IN CORRECTIONS AND PRISONERS' REMEDIES** 3 credits

Study of theoretical and practical aspects of sentencing, punishment, treatment, release and alternatives thereto; developments in field of prisoners' rights and remedies.

**9200:675 SEMINAR IN ESTATE PLANNING** 3 credits

Prerequisites: 641, 686, or permission of instructor. Relevant tax and nontax problems in planning of estates and examination of dispositive devices in accomplishing objectives of estate planning.

**9200:676 SEMINAR IN INTERNATIONAL TRANSACTIONS AND RELATIONS** 3 credits

Legal problems in doing business abroad. Entry, holding, property, economic activity and choice of incorporated form; restrictive practices, currency and exchange. European Common Market. Relations being developed and developing countries.

**9200:677 SEMINAR IN JUDICIAL ADMINISTRATION** 2 credits

Problems and practices in selection, tenure and removal of judges, selection and responsibilities of court administrators, the effect of devices and procedures used to expedite movement of cases through litigation process; analysis of suggested reforms.

**9200:678 SEMINAR IN JURISPRUDENCE** 3 credits

Examination and evaluation of principal theories of legal philosophy. Theories are frequently considered in connection with concrete problems and are evaluated in light of various goal values.

**9200:679 SEMINAR IN LABOR LAW** 2 credits

Prerequisite: 650. Selected issues in labor law and labor relations such as internal union affairs, union democracy, bargaining in public sector, discrimination in employment and topical affairs.

**9200:680 DEFERRED COMPENSATION AND EMPLOYEE BENEFIT PLANS** 3 credits

Recommended: 633, 642. Employee benefit plans; qualified pension and profit-sharing plans under Internal Revenue Code. Non-qualified contracts involving individual employees.

**9200:681 SEMINAR IN LEGAL PROBLEMS OF THE DISADVANTAGED** 2 credits

Selected legal problems of persons disadvantaged by such factors as age, illness, mental incompetency and poverty.

**9200:682 SEMINAR IN POLITICAL AND CIVIL RIGHTS** 2 credits

Prerequisite: 604. Study of some basic problems in relationship of individual to government and in protection of rights of minority groups.

**9200:683 SEMINAR IN PRODUCT LIABILITY** 3 credits

Prerequisite: 617; recommended: 628. Liability for defective products and developing legal theories and remedies. Examination of government regulation of dangerous and defective products.

**9200:684 SEMINAR IN SELECTED LEGAL PROBLEMS** 1-3 credits  
(May be repeated)

Analysis of special or current legal problems offering opportunities for legal research, effective integration of legal and relevant nonlegal materials, and expository legal writing.

**9200:685 WILLS, TRUSTS AND ESTATES I** 3 credits

Interstate succession; execution, revocation and revalidation of wills; creation and termination of trusts; gifts to charity; will substitutes; future interests; powers of appointment; class gifts.

**9200:686 WILLS, TRUSTS AND ESTATES II** 3 credits

Prerequisite: 685. Continuation of 685.

**9200:687 SEMINAR IN SELECTED PROBLEMS IN EVIDENCE** 3 credits

Prerequisite: 608. Designed to give the student extensive practice in solving

difficult evidence problems in order to supplement the instructions given in the basic Evidence course.

**9200:688 ADVANCED LEGAL COMMUNICATIONS** 1 credit

Prerequisites: 619, 20. Refinement of skills in written legal analysis through performance of drafting assignments, including preparation of a written exposition on a proposed solution to a drafting problem. Required course for all students.

**9200:689 APPELLATE ADVOCACY** 1 credit

Prerequisites: 619, 20, 88. Development of skills in written and oral advocacy through handling an appellate case from receipt of trial record through oral argument.

**9200:690 FUNDAMENTALS OF TRIAL TECHNIQUES** 3 credits

Prerequisite: 608. Fundamental techniques of trial preparation, direct examination, cross examination, introduction of exhibits, objections, opening statements and closing arguments.

**9200:691 SELECTED PROBLEMS, INTERNATIONAL LAW** 2 credits

Prerequisite: 649. Topical international problems and use of international law research materials in dealing with concrete international legal problems; analysis and preparation of short legal opinions.

**9200:692 PROBLEMS IN TRIAL ADVOCACY** 3 credits

Prerequisite: 690. Preparation and actual trial of two civil cases and two criminal cases; jury selection; ethical and political considerations of trial advocacy.

**9200:693 PROBATE PRACTICE** 2 credits

Prerequisites: 685,86. Interstate and testamentary administration, including the probating of a will, presentation of claims, the inventory, settlement and distribution and will contests. The Ohio Probate Code will be the model.

**9200:694 REGIONAL MOOT COURT** 1 credit (credit/noncredit)

Prerequisite: open only to members of the National Moot Court Team competing or alternates in the National Appellate Advocacy Competition (NAAC) Spring Regional Competition. Each person enrolled for credit will be required to: (1) do substantial research on the brief problem; (2) prepare preliminary drafts of arguments; (3) participate in practice rounds for oral presentations. Total credits for courses designated Moot Court (666, 694 and 695) not to exceed four. Credit for 656,7,8, 666, 694,5,6,7,8 not to exceed ten.

**9200:695 NATIONAL MOOT COURT** 2 credits (credit/noncredit)

Prerequisite: open only to National Moot Court Team members or alternates in the National Moot Court Competition. Each person enrolled for credit will be required to: (1) read and grade all intramural competition briefs; (2) listen to and judge oral arguments in intramural competition; (3) do substantial research on current National Moot Court problem; (4) prepare drafts of brief; (5) write a final brief; (6) practice oral arguments. Total credits for courses designated Moot Court (666, 694, and 695) not to exceed four. Credit for 656,7,8, 66, 94,5,6,7,8 not to exceed ten.

**9200:696 CLINICAL SEMINAR I** 2-3 credits (credit/noncredit)

Prerequisites: successful completion of 28 credit hours and permission of clinical director. Application of legal knowledge to practical problems in supervised public law office contexts. May be taken independently of 697. Credit for 656,7,8, 66, 96,7,8 not to exceed ten. Credit for 9200:696 and 697 not to exceed six credits.

**9200:697 CLINICAL SEMINAR II** 2-3 credits

Prerequisite: 696. Continuation of 696.

**9200:698 INDIVIDUAL STUDIES AND RESEARCH** 2 credits

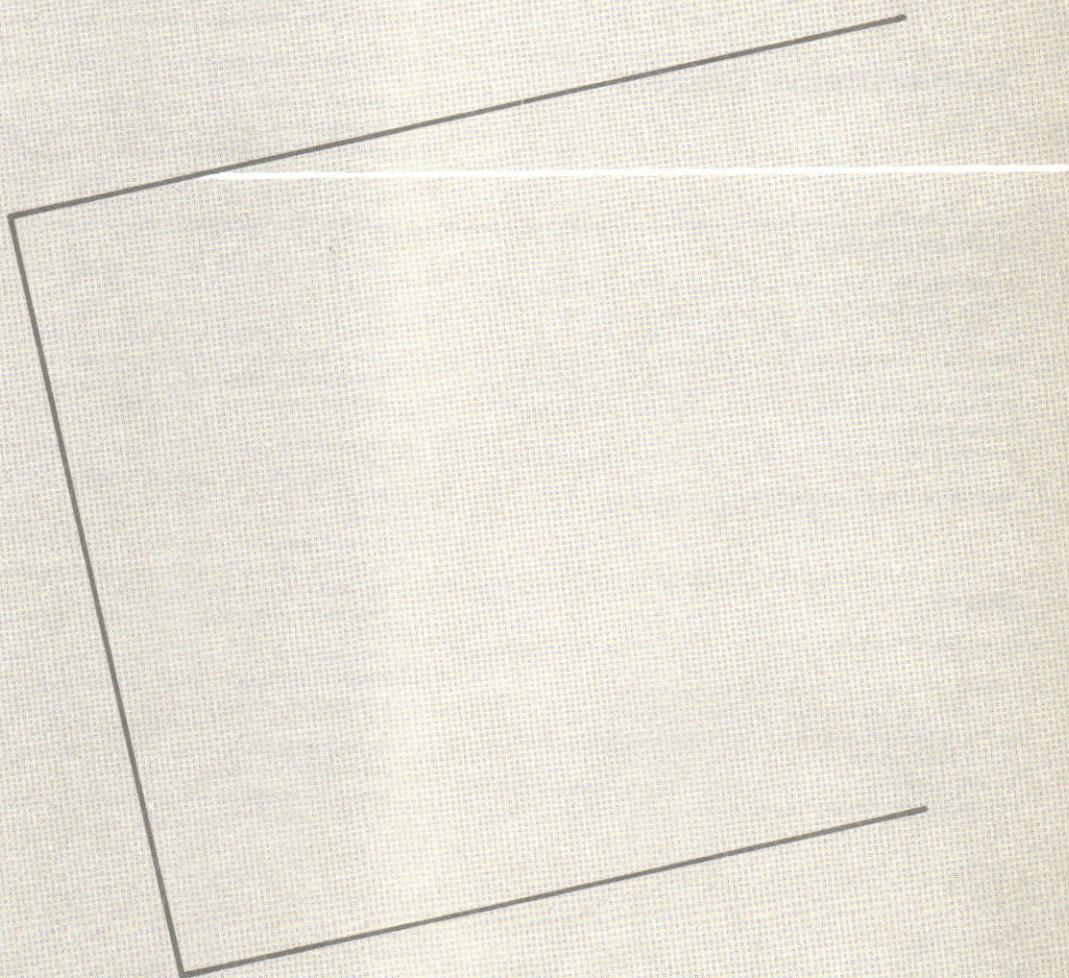
(May be repeated for a total of four credits)  
With permission of dean, special problems, projects or research may be taken for credit under supervision of member of faculty. Credit for 656,7,8, 666, 696, 698 not to exceed ten.

**9200:899 NORMALIZED STATUTORY DRAFTING** 1 credit

This course studies a technique of drafting which was first developed for computer use but which has been found to be of great value for drafting generally.



# Directory



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## Board of Trustees

### July 1983

- MR. ROY E. BROWNE**; 1900 First National Tower, Akron, Ohio 44308 (Term expires 1984).
- MR. MARIO DI FEDERICO**; 2490 Brice Road, Akron, Ohio 44313 (Term expires 1986).
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- MR. JOHN S. STEINHAUER**; 1100 First National Tower, Akron, Ohio 44308 (Term expires 1988).
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## Administrative Officers

### July 1983

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### Administration

- D. J. GUZZETTA**; *President of the University*, Ed.D., LL.D., D.S.Sc., L.H.D.
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- FOSTER S. BUCHTEL**, *Executive Assistant to the President. Secretary to the Board of Trustees*, M.B.A.
- WILLIAM D. JONES**, *Executive Director of Personnel*, M.A.

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- GERARD L. KNIETER**, *Dean of the College of Fine and Applied Arts*, Ed.D.
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- TYRONE M. TURNING**, *Dean of Wayne General and Technical College*, Ed.D.

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### Other Officials

- GLENN A. ATWOOD**, *Assistant Dean of the College of Engineering*, Ph.D.
- HOWARD R. BALDWIN**, *Registrar*, M.Ed.
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- DON BIRDSELL**, *Assistant Dean of the College of Education*, Ph.D.
- RICHARD K. BONNELL**, *Assistant to the Provost*, M.A.
- ROBERT BOSSAR**, *Director of Staff Personnel Services*, B.A.
- THOMAS O. BROWN**, *Director of Counseling and Testing Center*, Ph.D.
- MARILYN J. CARRELL**, *Director of Career Planning and Placement*, M.S.Ed.
- KELVIE C. COMER**, *Assistant Dean, College of Fine and Applied Arts*, Ed.D.
- J. DALE FOSTER**, *Assistant to the Executive Director of Personnel*, B.S.
- WILLIAM A. FRANCIS**, *Assistant Dean of the Buchtel College of Arts & Sciences*, Ph.D.
- THOMAS E. GETZINGER**, *University Auditor and Assistant to the Vice President for Business and Finance*, M.B.A.
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- ROBERT D. HAHN**, *Director of Student Financial Aids*, M.Ed.
- FAITH I. HELMICK**, *Director of Academic Personnel Services*, Ph.D.
- ALBERTA R. HENSLEY**, *Director of Special Projects*, B.S.
- JAY R. HERSHEY**, *Director of Residence Halls*, M.Ed.
- GEORGE V. HODOWANEC**, *Director of the University Library and Learning Resources*, Ed.D.
- DUDLEY C. JOHNSON, JR.**, *Associate Dean for Academic Advising Services in the University College*, M.S.Ed.
- LYNN G. JOHNSON**, *Assistant Provost*, Ph.D.
- JOHN A. LaGUARDIA**, *Director of Alumni Relations*, M.A.
- TED A. MALLO**, *Director, Office of Legal Affairs*, J.D.
- SPENCER MARSTON**, *Director of Gardner Student Center*, M.S.
- ROBERT L. McELWEE**, *Assistant Dean of Wayne General and Technical College*, M.A.
- THOMAS T. MILES**, *Director of Instructional Media*, Ph.D.
- RICHARD NEAL**, *Equal Employment Opportunity Officer*, B.S.
- HENRY NETTLING**, *Controller*, B.S.B.A.
- JAMES O. OSWALD**, *Director of University Publications*, B.S.Ed., B.A.
- JOHN W. OWEN**, *Director of Admissions*, M.A.
- ALBERT S. RAKAS**, *Associate Dean of the School of Law*, J.D.
- DONALD E. SABATINO**, *Director of Auxiliary Services and Programs*, M.A.Ed.
- FREDERICK J. STURM**, *Assistant Dean of the Community and Technical College*, Ed.D.
- RICHARD R. TEAFF**, *Director of Special Programs*, Ph.D.
- FRANK B. THOMAS**, *Director of Computer Services*, Ph.D.
- KATHRYN VEGSO**, *Associate Dean of Continuing Education and Public Services, Director of the Adult Resource Center*, M.S.Ed.
- JOSEPH M. WALTON**, *Associate Dean of Graduate Studies and Research*, Ph.D.
- JOHN S. WATT**, *Associate Provost*, Ph.D.
- PAUL S. WINGARD**, *Associate Dean of the Buchtel College of Arts and Sciences*, Ph.D.

# Emeritus Faculty

## July 1983

- NORMAN P. AUBURN**, *President Emeritus of the University, Professor Emeritus of Political Science and Consultant* (1951) (Ret. as President 1971; Consultant 1971-) B.A., University of Cincinnati, 1927; LL.D., Parsons College, 1945; LL.D., University of Cincinnati, 1952; D.Sc., University of Tulsa, 1957; LL.D., University of Liberia (West Africa), 1959; Litt.D., Washburn University of Topeka, 1961; L.H.D., College of Wooster, 1963; LL.D., The University of Akron, 1971; D.C.L., Union College, 1979.
- DAVID E. ANDERSON**, *Associate Professor Emeritus of Engineering Materials* (1923) (Ret. 1962) B.A., Augustana College, M.S., University of Chicago, 1923.
- JOHN ARENDT**, *Instructor Emeritus in Surveying and Construction Technology* (1967) (Ret. 1980) B.S.M.E., Cleveland State University, 1944.
- HELEN MAE ARNETT**, *Associate Professor Emeritus of Bibliography* (1953) (Ret. 1972) B.A., The University of Akron; B.S.L.S., Case Western Reserve University; M.A., San Jose State College (California), Ph.D., Case Western Reserve University, 1965.
- GERTRUDE BADGER**, *Associate Professor Emeritus of Education* (1965) (Ret. 1977) B.S.Ed., B.A., The Ohio State University; M.Ed., Kent State University, 1960.
- EVELYN BAER**, *Associate Professor Emeritus of Speech* (1966) (Ret. 1974) B.A., University of Chicago; M.A., The University of Akron, 1948.
- FRANK V. BALDO**, *Professor Emeritus of Marketing* (1969) (Ret. 1979) B.B.A., Fenn College; M.B.A., Case Western Reserve University; Ph.D., Pennsylvania State University, 1968.
- MARIAN L. BAUER**, *Associate Professor Emeritus of Nursing* (1969) (Ret. 1982) B.A., Maryville College; M.N., Western Reserve University, 1941; R.N.
- IRENE C. BEAR**, *Professor Emeritus of Home Economics* (1944) (Ret. 1968) B.S., Illinois Wesleyan University; M.A., Texas State College for Women, 1937.
- CLARE BEDILLION**, *Associate Professor Emeritus* (1968) (Ret. 1975) B.A., Woman's College of Georgia; M.A., New York University; Ph.D., University of Michigan, 1974.
- EUGENE M. BENEDICT**, *Assistant Professor Emeritus in the Community & Technical College* (January 1969) (Ret. 1982) M.Div., Boston University School of Theology; B.A.Ed., M.A., The University of Akron, 1964.
- ROBERT C. BERRY**, *Director of Placement Emeritus*, (1946) (Ret. 1976) B.S.B.A., The University of Akron, 1942.
- MICHAEL BEZBATCHENKO**, *Professor Emeritus of Mechanical Engineering* (June 1949) (Ret. 1979) B.M.E., The University of Akron; M.S., Case Western Reserve University, 1954; P.E., Ohio.
- VINCENT J. BIONDO**, *Assistant Professor Emeritus of Education* (1968) (Ret. 1976) B.A., M.A., M.A.Ed., The University of Akron, 1957.
- ROBERT R. BLACK**, *Associate Professor Emeritus of Economics* (1958) (Ret. 1983) B.A., Carleton College; M.B.A., University of Chicago; Ph.D., University of California at Berkeley, 1963.
- C. ROBERT BLANKENSHIP**, *Instructor Emeritus in Education* (1952) (1956) (Ret. 1982) B.S.B.A., The University of Akron; M.S.Ed., Indiana University, 1963.
- ALLEN M. BOYER**, *Member of the General Faculty Emeritus* (November 1966) (Ret. 1982) B.A., The University of Akron, 1942.
- MARKO BRDAR**, *Associate Professor Emeritus of Chemical Engineering* (1967) (Ret. 1982) B.A., M.A., Case Western Reserve University, 1954.
- RENA NANCY CABLE**, *Associate Professor Emeritus of Art* (1927) (Ret. 1953) B.F., M.Ed., The University of Akron, 1931.
- MARY CAPOTOSTO**, *Assistant Professor Emeritus of Communicative Disorders* (1968) (Ret. 1983) B.A., The University of Akron; M.A., DePaul University, 1967.
- FRANCES A. CLARK**, *Associate Professor Emeritus of Accounting* (1946) (Ret. 1974) B.S., The University of Akron; M.Ed., University of Pittsburgh, 1946.
- KENNETH COCHRANE**, *Professor Emeritus of Physical Education* (1948) (Ret. 1973) B.E., The University of Akron; M.Ed., University of Pittsburgh, 1941.
- DONALD M. DAVIS**, *Associate Professor Emeritus of Transportation* (1966) (Ret. 1977) B.S.B.A., University of Dayton; M.S., University of North Carolina, 1952.
- JAMES F. DUNLAP**, *Professor Emeritus of Theatre Arts* (1955) (Ret. December 1978) B.S.Ed., Wilmington College; M.A. Ph.D., The Ohio State University, 1954.
- CHARLOTTE L. ESSNER**, *Associate Professor Emeritus of Communicative Disorders* (1965) (Ret. 1982) B.A., Hunter College; M.A., The University of Akron, 1964.
- ALICE M. FLAKSMAN**, *Associate Professor Emeritus of Music* (1965) (Ret. 1978) B.A., Hunter College; M.A., Columbia University; Teachers College; Ph.D., The University of Akron, 1972.
- VAUGHN W. FLOUTZ**, *Professor Emeritus of Chemistry*, (1941) (Ret. 1970) B.A., Olivet College; M.A., Ph.D., University of Colorado, 1932.
- OMER R. FOUTS**, *Associate Professor Emeritus of Physics* (1926) (Ret. 1965) B.A., Wittenberg University; M.A., The Ohio State University, 1925.
- DENNIS GORDON**, *Professor Emeritus of Accounting* (1946) (Ret. 1981) A.B., M.B.A., University of Chicago, 1938; C.P.A., Ohio.
- EMILE GRUNBERG**, *Professor Emeritus of Economics* (1946) (1956) (Ret. 1970) A.M., M.A., Ph.D., University of Frankfurt, 1930.
- GORDAN A. HAGERMAN**, *Member of the General Faculty Emeritus* (July 1941) (Ret. 1981) B.A., The University of Akron, 1941.
- DOROTHY HAMLIN**, *Professor Emeritus of Bibliography* (February 1937) (Ret. 1972) B.A., The University of Akron; B.S.L.S., Case Western Reserve University, 1942.
- LOUIS F. HAMPPEL**, *Associate Professor Emeritus of Finance* (1933) (1968) (Ret. 1974) B.S., The University of Akron; M.B.A., Northwestern University, 1931.
- CHARLOTTE M. HANTEN**, *Associate Professor Emeritus of Art* (1969) (Ret. 1982) B.A., Earlham College; M.Ed., Pennsylvania State University, 1954.
- EDWARD W. HANTEN**, *Professor Emeritus of Urban Studies; Professor Emeritus of Geography* (1963) (Ret. 1982) B.A., Earlham College; M.A., Ph.D., University of Pittsburgh, 1962.
- PHYLLIS M. HARDENSTEIN**, *Associate Professor Emeritus of Theatre Arts* (1947) (1956) (Ret. 1980) B.A., The University of Akron; M.A., University of Wisconsin, 1951.
- LESLIE P. HARDY**, *Financial Vice President Emeritus* (1934) (Ret. 1964) B.S.Ed., Kent State University; M.S.Ed., L.H.D., The University of Akron, 1935.
- MARY GRACE HARRINGTON**, *Associate Professor Emeritus of Bibliography* (1960) (Ret. 1976) B.S., The University of Akron; B.A.L.S., University of Michigan, 1939.
- ELIZABETH J. HITTLE**, *Professor Emeritus of Speech* (1950) (Ret. December, 1978) B.S.Ed., The University of Akron; M.A., Kent State University; Ed.D., Case Western Reserve University, 1963.
- IRENE HORNING**, *Assistant Professor Emeritus of Biology* (1946) (Ret. 1970) St. John's Hospital School of Nursing, R.N., 1928; B.S.N., Western Reserve University, 1934.
- MARTHA HOSFELT**, *Instructor Emeritus in English* (1961) (Ret. 1977) B.A., The University of Akron, 1959.
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- FARLEY K. HUTCHINS**, *Professor Emeritus of Music* (1957) (Ret. 1983) M.B., Lawrence Conservatory of Music; S.M.M., S.M.D., School of Sacred Music, Union Theological Seminary, 1951.
- DONATO INTERNOSCIA**, *Professor Emeritus of Modern Languages* (1938) (Ret. 1963) B.A., Broadview College; M.A., Ph.D., Northwestern University, 1938.
- ALFRED H. JOHNSON**, *Associate Professor Emeritus of Education* (1956) (Ret. 1969) B.S., College of Wooster; M.S., Ph.D., University of Wisconsin, 1956.
- DON A. KEISTER**, *Distinguished Professor Emeritus of English* (1931) (Ret. 1971) B.A., M.A., The University of Akron; Ph.D., Case Western Reserve University, 1947.
- ROGER F. KELLER**, *Professor Emeritus of Biology; Professor Emeritus in the Community & Technical College* (1954) (Ret. 1982) B.S., University of New Hampshire; Ph.D., Michigan State University, 1953.
- ALBERT J. KORSOK**, *Associate Professor Emeritus of Geography* (1968) (Ret. 1983) B.S., Case Western Reserve University; M.A., Northwestern University; Ph.D., University of Illinois, 1960.
- MILTON L. KULT**, *Professor Emeritus of Electrical Engineering* (January 1954) (Ret. 1983) B.S.E.E., M.S., University of Illinois, 1952; P.E., Illinois, Ohio.
- R. D. LANDON**, *Professor Emeritus of Civil Engineering* (February 1946) (Ret. 1963) C.E., M.S., University of Cincinnati, 1927; P.E., Ohio.
- DOROTHY LAUBACHER**, *Professor Emeritus of Home Economics* (1950) (Ret. 1977) B.S., M.A., The Ohio State University; M.L.S., Kent State University, 1967.
- WILL LIPSCOMBE**, *Associate Professor Emeritus of Mathematics* (1921) (Ret. 1962) B.S., Florida State College; M.S., The Ohio State University, 1926.
- EDWIN L. LIVELY**, *Professor Emeritus of Sociology* (1963) (Ret. 1978) B.A.Ed., Fairmont State College (W.Va.); M.A., Ph.D., The Ohio State University, 1959.
- IAN R. MacGREGOR**, *Vice President Emeritus for Planning; Professor Emeritus of Chemistry* (1961) (Ret. 1982) B.A., M.S., Ph.D., University of Cincinnati, 1945.
- COLEMAN J. MAJOR**, *Dean Emeritus of the College of Engineering; Professor Emeritus of Chemical Engineering* (1964) (Ret. December 1979) B.S., University of Illinois; Ph.D., Cornell University, 1941.
- ANDREW W. MALUKE**, *Professor Emeritus of Physical Education* (February 1946) (Ret. 1982) B.S., The University of Akron; M.A., Kent State University, 1949.
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- MARGARET EVELYN MAUCH**, *Professor Emeritus of Mathematics* (1945) (Ret. 1963) B.S., Huron College; M.S., Ph.D., University of Chicago, 1938.
- JAMES MCLAIN**, *Professor Emeritus of Economics* (1946) (Ret. 1978) B.A., The University of Akron; M.A., Western Reserve University; Ph.D., The Ohio State University, 1959.
- RUTH MESSENGER**, *Assistant Professor Emeritus of English* (1968) (Ret. 1982) B.A., Wellesley College; M.A., The University of Akron; M.A.Ed., Ph.D., Case Western Reserve University, 1976.
- MAURICE MORTON**, *Regents, Professor Emeritus of Polymer Chemistry* (October 1948) (Ret. August 1978) B.S., Ph.D., McGill University (Canada), 1945.
- FREDERICK W. MOYER**, *Professor Emeritus of Finance* (March 1970) (Ret. 1982) B.S., M.A., Ph.D., The Ohio State University, 1949.
- ESTELLE B. NAES**, *Dean Emeritus of the College of Nursing; Professor Emeritus of Nursing* (1966) (Ret. 1975) B.S.N., M.S.N.E., Ph.D., Saint Louis University, 1922; R.N.

- SAMUEL C. NEWMAN**, *Professor Emeritus of Sociology* (1951) (Ret. 1973) B.A., University of Pittsburgh; M.A., Oberlin College; Ph.D., The Ohio State University, 1939.
- OLIVER OCASEK**, *Professor Emeritus of Education* (January 1961) (Ret. December 1978) B.S.Ed., M.A., Kent State University, 1950; L.L.D., Kent State University, 1975; Litt. D., The University of Akron, 1978.
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- SARAH ORLINOFF**, *Associate Professor Emeritus of Education* (1963) (Ret. 1978) B.A., M.A.Ed., The University of Akron; Ph.D., Case Western Reserve University, 1963.
- ISOBEL L. PFEIFFER**, *Professor Emeritus of Education* (1966) (Ret. 1982) A.B., Manchester College; M.S., Indiana University; Ph.D., Kent State University, 1966.
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- ROY V. SHERMAN**, *Professor Emeritus of Political Science* (1929) (Ret. 1967) B.A., M.A., Ph.D., State University of Iowa, 1927.
- KENNETH F. SIBILA**, *Professor Emeritus of Electrical Engineering* (February 1940) (Ret. 1977) B.S.E.E., M.S.E.E., Case Institute of Technology, 1937; P.E., Ohio.
- FRANK L. SIMONETTI**, *Professor Emeritus of Management* (1942-1943), (1945) (Ret. 1981) B.S., The University of Akron; M.B.A., Boston University; D.B.A., Indiana University, 1954.
- MARY VERNON SLUSHER**, *Associate Professor Emeritus of Accounting* (1947) (1954) (Ret. 1971) B.S., M.A., Virginia Polytechnic Institute, 1931; C.P.A. Virginia
- HENRY P. SMITH**, *Associate Professor Emeritus of Music* (1947) (Ret. 1978) B.M., Illinois Wesleyan University; M.A., Carnegie Institute of Technology; Ed.D., Columbia University, Teachers College, 1949.
- SAMUEL SPINAK**, *Assistant Professor Emeritus of Music* (1968) (Ret. 1978) Licentiate, King's College in Sussex (England); 1929; Fellowship, Trinity College in London.
- JANE M. STEINER**, *Associate Professor Emeritus in the Community and Technical College* (1968) (Ret. July 1978) B.A., The University of Akron; M.A., Western Reserve University, 1945.
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- ERNEST R. THACKERAY**, *Distinguished Professor Emeritus of Physics* (1949) (Ret. 1972) B.A., M.A., University of Saskatchewan (Canada); Ph.D., University of Wisconsin, 1948.
- EVELYN M. TOVEY**, *Professor Emeritus of Nursing* (1950) (Ret. 1975) B.S.N., M.S.N., Case Western Reserve University, 1950; R.N., City Hospital of Akron.
- AUDRA TUCKER**, *Associate Professor Emeritus of Secretarial Science* (1926) (Ret. 1970) B.A., The University of Akron; M.A., New York University, 1936.
- PAUL E. TWINING**, *Professor Emeritus of Psychology* (November 1941) (Ret. 1969) B.S., Ottawa University; M.A., University of Kansas; Ph.D., University of Chicago, 1938.
- PAUL UHLINGER**, *Professor Emeritus of Philosophy* (1968) (Ret. 1979) B.A., Youngstown University; B.D., Oberlin College; Ph.D., Boston University, 1953.
- DONALD S. VARIAN**, *Associate Professor Emeritus of Speech* (1934) (Ret. 1972) B.A., M.A., University of Wisconsin, 1934.
- MILTON WALES**, *Assistant Professor Emeritus of Mechanical Technology* (1966) (Ret. 1977) B.S., Louisiana State University; M.Ed., Pennsylvania State University, 1966.
- FRANCIS WERNER**, *Instructor Emeritus of Psychology* (June 1951) (Ret. August 1978) B.A., M.A., The University of Akron, 1952.
- MARY H. WILSON**, *Assistant Professor Emeritus of Home Economics* (April 1943) (Ret. 1972) B.S., Iowa State College, 1932.

# Full-Time Faculty and Administration\* July 1983

**D. J. GUZZETTA**, *President of the University; Professor of Higher Education* (1954 - March 1968). (August 1971) B.A., Ed.M., Ed.D., University of Buffalo, 1953; LL.D., The University of Akron, 1968; D.S.Sc., Marian College, 1971; LL.D., Kent State University, 1971; L.H.D., Walsh College (Canton, O.); LL.D., Bellevue College, 1978.

**NORMAN P. AUBURN**, *Consultant, President Emeritus of the University; Professor Emeritus of Political Science* (1951) (retired as President 1971; Consultant 1971-). B.A., University of Cincinnati, 1927; LL.D., Parsons College, 1945; LL.D., University of Cincinnati, 1952; D.Sc., University of Tulsa, 1957; LL.D., University of Liberia (West Africa), 1959; Litt.D., Washburn University of Topeka, 1961; L.H.D., College of Wooster, 1963; LL.D., The University of Akron, 1971; D.C.L., Union College, 1979.

**IRVING ACHORN**, *Professor of Art* (1965) B.S., M.A., Kent State University, 1956.

**ALEXANDER L. ADAMS**, *Assistant Professor of Physical Education* (1970) B.S.Ed., M.S.Ed., The University of Akron, 1970.

**HOBERT W. ADAMS**, *Professor of Accounting* (1969) B.S.Ed., Kent State University; M.B.A., D.B.A., Indiana University, 1967.

**RONNIE G. ADAMS**, *Professor of Surveying and Construction Technology* (1969) B.C.E., Cleveland State University; M.S.C.E., Lehigh University, 1963.

**PEARL ADELSON**, *Assistant Professor of Nursing* (November 1979) B.A., Hunter College; M.S.N., Adelphi University, 1969; R.N.

**J. THOMAS ADOLPH**, *Professor of Physical Education* (1969) B.A., The University of Akron; M.Ed., Ohio University; Ph.D., The Ohio State University, 1969.

**STANLEY W. AKERS**, *Head, Faculty Media Development Office; Head of Audio-Visual Services* (1967) B.S.Ed., M.S., The University of Akron, 1980.

**CAROLYN A. ALBANESE**, *Assistant Professor of Home Economics* (1978) B.S., Southern Illinois University; M.S., The Ohio State University, 1969.

**M. KAY ALDERMAN**, *Assistant Professor of Education* (1979) B.S., University of Southern Mississippi; M.Ed., University of Texas-Austin; Ed.D., University of Houston, 1976.

**DORIS ALDRICH**, *Associate Professor of Home Economics* (1973) B.S., M.Ed., Kent State University, 1972.

**RALPH A. ALEXANDER**, *Associate Professor of Psychology* (1973) B.A., Arizona State University; M.A., Ph.D., University of Rochester, 1974.

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**VIRGINIA L. ALLANSON**, *Associate Professor of Bibliography; Research Librarian* (October 1968) B.S., Purdue University; M.L.S., Kent State University, 1966.

**ABDUL AMIR AL-RUBAIY**, *Associate Professor of Education* (1972) B.S., M.A., E.D.S., Eastern Michigan University; Ph.D., Kent State University, 1972.

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**JAMES C. ANDERSON**, *Assistant Professor of Philosophy* (1979) B.A., State University of New York at Geneseo; M.A., Ph.D., Syracuse University, 1975.

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**JAMES L. ANSON**, *Assistant Professor of Military Science* (June 1983) B.S., West Virginia University, 1969; Major, Infantry.

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**BRUCE R. ARMSTRONG**, *Associate Professor of Art* (1971) B.F.A., California Institute of the Arts; M.F.A., Washington State University, 1968.

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**MICHAEL J. ASKEW**, *Research Assistant Professor of Civil Engineering* (March 1983) B.Sc., University of Calgary, Canada; M.S., Ph.D., Rensselaer Polytechnic Institute, 1976.

**JOHN H. ASHLEY**, *Producer/Director for Television Productions* (1973) B.S., Southern Illinois University; M.S., Indiana University, 1973.

**GLENN A. ATWOOD**, *Professor of Chemical Engineering; Assistant Dean of the College of Engineering* (1965) B.S., M.S., Iowa State University; Ph.D., University of Washington, 1963; P.E., Ohio.

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**J. WAYNE BAKER**, *Associate Professor of History* (1968) B.A., Western Baptist Bible College; B.D., Talbot Theological Seminary; B.A., Pepperdine College; M.A., Ph.D., University of Iowa, 1970.

**HOWARD R. BALDWIN**, *University Registrar* (July 1967) B.P.S.M., Mount Union College; M.Ed., Kent State University, 1960.

**GEORGE W. BALL**, *Assistant to the President* (1957) B.A., Mount Union College, 1943.

**JOHN S. BALLARD**, *Adjunct Associate Professor of Urban Studies* (January 1980) B.A., The University of Akron; LL.B., The University of Michigan Law School, 1948.

**ARPAD FREDERIC BANDA**, *Professor of Finance* (1968) B.S., City College of New York; M.B.A., Ph.D., New York University, 1964.

**JAMES P. BANKS**, *Development Officer* (May 1974) B.S., Ohio University, 1950.

**H. KENNETH BARKER**, *Dean of the College of Education; Professor of Education* (1966) A.B., M.A., University of Louisville; Ph.D., University of Michigan, 1959.

**STEPHANIE C. BARNES**, *Assistant Director of Admissions* (January 1980) B.A., The University of Akron, 1980.

**ANNA MARIA BARNUM**, *Assistant Professor in the Community and Technical College* (1970) A.B., Middlebury College; M.A., University of Vermont; J.D., The University of Akron, 1977.

**DAVID G. BARR**, *Associate Professor of Education* (1967) B.S., M.A., Kent State University, 1966.

**CHARLES M. BARRESI**, *Professor of Sociology* (1966) B.A., M.A., University of Buffalo; Ph.D., State University of New York at Buffalo, 1965.

**GERALD V. BARRETT**, *Professor of Psychology* (1973) B.A., Wittenberg University; M.S., Ph.D., Case Western Reserve University, 1962.

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**WALTER BARZDITIS, JR.**, *Manager of Parking Systems* (April 1970) B.A., Ripon College, 1950.

**CELAL BATUR**, *Associate Professor of Mechanical Engineering* (February 1980) B.Sc., M.Sc., The Technical University of Istanbul; Ph.D., The University of Leicester, 1976.

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\*The dates in parentheses indicate the beginning of service at The University of Akron, unless otherwise stated, service began in the month of September.

- DAVID S. BERNSTEIN**, *Associate Professor of Music* (1972) B.M., M.M., Florida State University; D.M., Indiana University, 1974.
- DONALD A. BERQUIST**, *Associate Professor of Accounting* (1968) B.S.B.A., Youngstown State University; M.Acc., The Ohio State University, 1964; C.P.A., Ohio.
- CAROLYN R. BENZ**, *Coordinator of the Educational Evaluation Program* (August 1981) A.B., M.A., Indiana University; Ed.D., The University of Akron, 1980.
- CARL A. BERSANI**, *Professor of Sociology* (1965) B.A., Eastern Michigan University; M.A., University of Michigan; Ph.D., Iowa State University, 1965.
- JOZSEF M. BERTY**, *Professor of Chemical Engineering* (1982) D.Sc., *Technical University of Budapest*, 1950.
- FRANK P. BEVILACQUA**, *Assistant Professor of Military Science* (October 1980) B.S., M.B.A., The University of Akron; CPA, 1980. Captain, Finance Corps.
- WILLIAM H. BEYER**, *Professor of Mathematics* (1961) B.S., The University of Akron; M.S., Ph.D., Virginia Polytechnic Institute, 1961.
- CHARLENE K. BICKEL**, *Editor-Publications* (October 1982) B.A., The University of Akron, 1982.
- CLARK E. BIGGINS**, *Director of Purchasing* (April 1967) B.S.C., Ohio University, 1957.
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- BORIS BLICK**, *Associate Professor of History* (1964) B.A., Brooklyn College; M.A., Ph.D., University of Wisconsin, 1958.
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- BRENT L. BOLYARD**, *Research Associate of Biomedical Engineering* (1982) B.S., Kent State University; M.S., The Ohio State University, 1982.
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- MARtha A. BOOTH**, *Associate Director of Admissions* (June 1971) B.S.Ed., M.D.Ed. The University of Akron, 1979.
- DALE BOROWIAK**, *Assistant Professor of Mathematics* (1980) B.S., M.S., The University of Akron; Ph.D., Bowling Green State University, 1980.
- ROBERT BOSSAR**, *Director of Staff Personnel Services* (October 1974) B.A., Kent State University, 1970.
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- EDITH K. WEINSTEIN**, *Associate Professor in the Community and Technical College* (1969) B.A., M.A.Ed., The University of Akron, 1968.
- DAVID M. WEIS**, *Professor of Education* (1967) B.A., Lorain College; M.Ed., Ohio University; Ph.D., The Ohio State University, 1967.
- JOHN T. WELCH, JR.**, *Associate Professor of Electrical Engineering* (1973) B.S., M.S., Ph.D., North Carolina State University, 1964.
- ARTHUR G. WENTZ**, *Associate Professor of Finance* (1982) B.S.B.A., Duquesne University; M.B.A., University of Pittsburgh; Ph.D., The Ohio State University, 1969.
- ANNE H. WEST**, *Associate Professor of Secretarial Science* (1971) B.S., Salem College; M.S.Ed., Madison College, 1965.

**ROBERT C. WEYRICK**, *Dean of the Community and Technical College; Professor in the Community and Technical College* (February 1965) B.E.E., The University of Akron; M.S., Case Institute of Technology, 1965; P.E., Ohio

**JAMES L. WHITE**, *Professor of Polymer Engineering; Director of the Center of Polymer Engineering* (July 1983) B.S.Ch.E., Polytechnic Institute of Brooklyn, M.S.Ch.E., Ph.D., University of Delaware, 1965

**CHERYL L. WHITMORE**, *Assistant Professor of Data Processing* (1982) B.A., M.S., The University of Akron, 1977.

**JOHN WIANDT**, *Assistant Controller* (July 1967) B.S. Bus. Ed., Kent State University, 1965.

**JEAN R. WILLIAMS**, *Associate Professor of Home Economics; Assistant Director-Curriculum, University Nursery Center* (January 1973) B.S., Iowa State University; M.S., The University of Akron, 1972.

**JOHN D. WILLIAMS**, *Professor of Finance; Editor of "Akron Business and Economic Review"* (1969) B.S., Westminster College; M.B.A., D.B.A., Kent State University, 1971.

**MAURICE WILLIAMS**, *Professor of Education* (1966) B.A., The University of Akron; M.E., Kent State University; Ed.D., Case Western Reserve University, 1962.

**MICHAEL M. WILLIAMS**, *Assistant Professor of General Technology* (1982) B.S., Bowling Green State University; M.S., University of Wisconsin, 1973.

**RICHARD A. WILLIAMS**, *Associate Professor of Electrical Engineering* (1968) B.S., M.S., Ph.D., The Ohio State University, 1965; P.E., Ohio.

**SUE W. WILLIAMS**, *Assistant Professor of Home Economics* (1981) A.A., Connors State College; B.S., M.S., Ed.D., Oklahoma State University, 1980.

**MAX S. WILLIS, JR.**, *Professor of Chemical Engineering* (1968) B.S., Ch.E., Pennsylvania State University; M.S.Ch.E., Ph.D., Iowa State University of Science and Technology, 1962.

**RICHARD A. WILLIS**, *Instructional Programmer, Computer Based Education Center* (January 1980) B.S.Ed., The Ohio State University; M.M., The University of Akron, 1980.

**CHARLES W. WILSON III**, *Professor of Physics; Professor of Polymer Science; Research Associate, Institute of Polymer Science* (1965) B.S.E., M.S., University of Michigan; Ph.D., Washington University, 1952.

**ERNEST LEE WILSON**, *Assistant to the Dean, College of Business Administration; Assistant Professor of Accounting; Director of College Internships* (1972), (1974), (1976) B.S.B.A., The Ohio State University; M.B.A., The University of Akron, 1969; C.M.A.

**JOHN WESLEY WILSON**, *Director of Black Cultural Center; Director of Afro-American Studies* (July 1970) B.S., Albany State College; M.S.Ed., Ed.D., The University of Akron, 1983.

**PAUL S. WINGARD**, *Associate Dean of Buchtel College of Arts and Sciences; Professor of Geology* (February 1966) B.A., M.S., Miami University; Ph.D., University of Illinois, 1960.

**BERNARD S. WINICK**, *Assistant Professor of Business Law* (1979) B.S.B.A., The Ohio State University; J.D., The University of Akron, 1964.

**DAVID S. WINKLER**, *Research Associate, Institute of Polymer Science and Manager of Applied Research, Institute of Polymer Science* (October 1969) B.S., Ashland College; M.S., The University of Akron, 1972.

**JAMES L. WITHEROW**, *Assistant Professor of Physical Education* (1972) B.S., M.Ed., Kent State University, 1956.

**DAVID D. WITT**, *Assistant Professor of Home Economics* (1983) B.A., M.A., Ph.D., Texas Tech University, 1983.

**MARY O. WITWER**, *Associate Professor of Secretarial Science* (1971) (1972) B.S., The University of Akron, M.E., Ohio University, 1951.

**CHARLES L. WOOD**, *Associate Professor of Education* (1966) B.A., Simpson College; M.A., Ph.D., University of Iowa, 1966.

**JOHN W. WORKS**, *Associate Professor of Finance* (1981) B.A., Brown University; J.D., Ohio Northern University; M.B.A., Ph.D., Northwestern University, 1968.

**DENISE F. WRAY**, *Instructor in Communicative Disorders* (1980) B.A., M.A., The University of Akron, 1977.

**BRIAN YEAGER**, *Professor of Military Science* (July 1982) B.S., University of Scranton; M.B.A., The Ohio State University; Graduate of U.S. Army Command and General Staff College; Lieutenant Colonel, Infantry.

**ISAAC YETIV**, *Professor of Modern Languages* (1975) B.A., Hebrew University of Jerusalem; Ph.D., University of Wisconsin, 1970.

**WALTER H. YODER, JR.**, *Assistant to the Dean, College of Education; Professor of Education; Director of Educational Field Experience* (1971) B.A., Tufts University; M.A., New York University; Ed.D., Indiana University, 1971.

**LAVERNE C. YOUSEY**, *Assistant Professor of Respiratory Therapy Technology* (1976) B.A., Goshen College; M.S.Tech.Ed., The University of Akron, 1979.

**EDWARD A. ZADROZNY, JR.**, *Assistant Professor of Music* (1977) B.M.E., The Ohio State University; M.M., University of Illinois, 1975.

**INGRID E. ZADROZNY**, *CBE Liaison* (March 1980) B.S.Ed., University of Wisconsin-Madison, 1975.

**ROBERT L. ZANGRANDO**, *Professor of History* (1971) B.A., Union College; M.A., Ph.D., University of Pennsylvania, 1963.

**PAUL H. ZAREFSKY**, *Assistant Professor of Law* (1982) B.A., Oberlin College; J.D., University of Pennsylvania; L.L.M., Georgetown University, 1982.

**BERNARD F. ZAUCHA**, *Assistant Professor of Accounting* (1981) B.S., M.B.A., The University of Akron, 1972; C.P.A., Ohio.

**HANS O. ZBINDEN**, *Assistant Professor of Modern Languages* (1965) B.A., Wittenberg University; M.A., University of Pennsylvania, Ph.D., Pennsylvania State University, 1971.

**DONALD A. ZIMMERMAN**, *Assistant Professor of Marketing and Sales Technology* (1973) B.S.B.A., Defiance College; M.B.A., University of Pennsylvania, 1968.

**LEE J. ZOOK**, *Assistant Professor of Social Services Technology; Coordinator in Social Services Technology (Wayne General and Technical College)* (January 1978) B.A., Eastern Mennonite College; M.S.W., University of Michigan, 1973.

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## Full-Time Teaching Faculty

(by College, School and Department and the University Library)

July 1983

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### University College

#### General Studies

**HEAD:** David C. Reide.

**COURSE DIRECTORS:** John D. Bee, Robert H. Holland, Robert N. Gande, Jim L. Jackson, James F. Richardson.

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### Community and Technical College

#### Division of Allied Health Technology

**ACTING CHAIRMAN:** Assistant Professor Laverne C. Yousey.

**ASSISTANT PROFESSORS:** Raymond Sibberson, Genevieve H. Turlik.

**INSTRUCTORS:** Jean M. Farona, Dorothy C. Moses.

#### Division of Associate Studies

**CHAIRMAN:** Professor Blin B. Scatterday.

**PROFESSORS:** William S. Fleming, Dennis A. Kleidon, John B. Monroe, Arthur R. Pollock, Jr.

**ASSOCIATE PROFESSORS:** Richard M. Fawcett, Frank J. Gruccio, Jr., Wendell A. Johnson, Jack F. Mercer, Beverly J. Mugrage, Michael T. Oravec, Jon R. Peske, Charles T. Salem, James D. Switzer, Edith K. Weinstein.

**ASSISTANT PROFESSORS:** Anna P. Barnum, Michael S. Bennett, Stanley R. Bruns, Leonard M. Calabrese, George L. Disabato, John G. Hedrick, Walter M. Herip, Michael J. Jalbert, Laura J. Johnson, Rose A. Kleidon, Velma E. Pomrenke, Stanley B. Silverman, Frederick J. Sturm, William V. Webb.

**INSTRUCTORS:** Holly C. Slack, Deborah J. Weber.

#### Division of Business and Office Technology

**CHAIRMAN:** James W. Taggart.

**PROFESSORS:** David T. Dolan, Mary Jean Johnston, George J. Makar, Aloysius E. Misko.

**ASSOCIATE PROFESSORS:** Gerald R. Camp, Robert E. Collins, Russell K. Davis, III, Mary H. Dee, Lawrence G. Golden, Jack D. Harpool, Jack D. Huggins, James W. Nolte, John C. Pizer, Linda J. Rodda, Joan E. Warner, Virginia J. Watkins, Anne H. West, Mary O. Witwer.

**ASSISTANT PROFESSORS:** John R. Cole, Janice L. Eley, Arthur V. George, Joyce E. Mirman, Ralph J. Prall, Darius Rastomji, Isabel E. Rush, Martin H. Siegel, Jack E. Thompson, Martha W. Vye, Cheryl L. Whitmore, Donald A. Zimmerman.

**INSTRUCTORS:** Darice A. Angwin, Lloyd L. Close, Christine R. Gerbig, Carol C. Giogliotti, Rebecca S. Marsh, Philip E. Phillips.

#### Division of Engineering and Science Technology

**CHAIRMAN:** Professor Thomas P. Herbert.

**PROFESSORS:** Ronnie G. Adams, Thomas M. Brittain, Nathan F. Cardarelli, Milan F. Dubravcic, William M. Glazier, Sebastian V. Kanakkanatt, Robert C. Weyrick.

**ASSOCIATE PROFESSORS:** Albert C. Buxton, Paul H. Dunham, Richard L. Henry, Fred L. Mullen, David J. Robinson, Joseph A. Takacs, Melvin C. Vye.

**ASSISTANT PROFESSORS:** Thomas R. Connell, Richard J. DiRienzo, Edward E. McDonald, Minnie C. Pritchard, Dennis K. Sullivan, Janet B. Van Doren, Michael M. Williams.

**INSTRUCTORS:** Clare F. Cook, Barbara A. Gsellman, Michel S. Haddad, Paul R. John.

## Division of Public Service Technology

**CHAIRMAN:** Professor Joseph R. Lentini

**ASSOCIATE PROFESSORS:** Robert W. Higham, Kenneth L. McCormick

**ASSISTANT PROFESSORS:** Carole G. Garrison, Harriet K. Herskowitz, Joseph C. Mullin, Sr., John Mumper, Glenn H. Snyder, Karen B. Turner.

**INSTRUCTOR:** David H. Hoover.

---

## Buchtel College of Arts and Sciences

### Biology

**HEAD:** Professor Dale L. Jackson

**PROFESSORS:** Nada Ledinko, Lazarus Macior, Richard A. Mostardi, John H. Olive, Walter A. Sheppe, Warren P. Stoutamire.

**ASSOCIATE PROFESSORS:** Helmar H. E. Dollwet, Daniel L. Ely, Eugene Flaumenhaft, John L. Frola, John G. Gwinn, Dorothy Nunn, F. Scott Orcutt, Jr., Donald W. Ott

**ASSISTANT PROFESSORS:** Edwin C. Rowland, Ronald L. Salisbury, Daniel B. Sheffer, Jerry N. Sinner, Monte E. Turner.

**INSTRUCTORS:** Wei Jen Chang, Dorothy Moses.

### Chemistry

**HEAD:** Professor Michael F. Faron

**DISTINGUISHED PROFESSOR:** Joseph P. Kennedy.

**PROFESSORS:** Stephen D. Darling, Lewis J. Fetters, Paul D. Garn, Claibourne E. Griffin, H. James Harwood, John J. Houser, William G. Kofron, Gerald F. Koser, Donald McIntyre.

**ASSOCIATE PROFESSORS:** John E. Frederick, Alan F. Krivis, Henry A. Kuska, William D. Lyon, Daniel J. Smith

**ASSISTANT PROFESSORS:** James K. Hardy, David H. O'Keefe, Peter C. Preusch, Michael J. Taschner.

### Classics

**HEAD:** Assistant Professor Jacqueline Hegbar.

**ASSOCIATE PROFESSOR:** Robert E. Gaebel.

**ASSISTANT PROFESSOR:** Gary H. Oller.

**INSTRUCTOR:** Constantin Dimitriu.

### Economics

**HEAD:** Associate Professor Randall H. King.

**PROFESSORS:** William S. Hendon, Manoucher Parvin.

**ASSOCIATE PROFESSORS:** Robert R. Black, Dennis M. Byrne, Elizabeth B. Erickson, Lung-Ho Lin, Gary E. Sellers, Richard W. Stratton.

**ASSISTANT PROFESSORS:** Devinder M. Malhotra, Steven C. Myers.

**INSTRUCTOR:** Haider A. Khan.

### English

**HEAD:** Professor R. Paul Merrix.

**PROFESSORS:** Gerald H. Levin, D'Orsay W. Pearson, John S. Phillipson, Frederick N. Smith, Gerard M. Sweeney.

**ASSOCIATE PROFESSORS:** Joseph F. Ceccio, Robert L. Dial, James J. Egan, William A. Francis, Elton A. Glaser, Bruce Holland, Robert M. Holland, David L. Jones, Walter D. Lehrman, Lawrence T. Martin, Arthur L. Palacas, Robert F. Pope, Jr., Sally K. Slocum.

**ASSISTANT PROFESSORS:** Robin R. Fast, Julia A. Hull, Martin H. McKoski, Kenneth J. Pakenham, David N. Ranson, Diana C. Reep, Dawn Trouard.

**INSTRUCTORS:** Jutta T. Bendremer, Alice MacDonald, Arlene A. Toth.

### Geography

**HEAD:** Professor Allen G. Noble

**PROFESSORS:** Frank J. Costa, Ashok K. Dutt, Laurence J. Ma, Thomas L. Nash.

**ASSOCIATE PROFESSORS:** Lathardus Goggins, Vern R. Harnapp, John E. Mulhauser.

**ASSISTANT PROFESSORS:** Robert B. Kent, Charles B. Monroe

### Geology

**HEAD:** Professor Robert G. Corbett

**PROFESSORS:** Arthur E. Burford, James W. Teeter, Paul S. Wingard

**ASSOCIATE PROFESSORS:** Roger J. Bain, William W. Black, Charles H. Carter, Lindgren L. Chyi, Laverne M. Friberg, Jim L. Jackson, A. W. Kunze, John P. Szabo.

### History

**HEAD:** Professor Robert H. Jones

**PROFESSORS:** Vincent H. Cassidy, Don R. Gerlach, H. Roger Grant, George W. Knepper, Warren F. Kuehl, Noel L. Leathers, Sheldon B. Liss, William McGucken, Jerome Mushkat, Daniel Nelson, James F. Richardson, David C. Riede, Robert L. Zangrando

**ASSOCIATE PROFESSORS:** J. Wayne Baker, Boris Blick, June K. Burton, Barbara E. Clements, David E. Kyvig, Howard S. Reinmuth, Jr.

**ASSISTANT PROFESSOR:** Mark B. Tausig.

### Mathematical Sciences

**HEAD:** Professor William H. Beyer.

**PROFESSORS:** Douglas E. Cameron, Leonard Sweet

**ASSOCIATE PROFESSORS:** David C. Buchthal, Robert C. Carson, John L. Donaldson, Peter J. Gingo, William W. Hokman, Ernest A. Kuehls, Judith A. Palagallo, Wolfgang Peiz, Thomas E. Price, Jr., Neal C. Raber, Phillip H. Schmidt, Johanna S. Schruben, Donald P. Story, George L. Szoke

**ASSISTANT PROFESSORS:** Dale S. Borowiak, Patrick J. Fitzsimmons, Lala B. Krishna, M. Martha Lierhaus, Timothy S. Margush, Chand Midha, Timothy S. Norfolk, James F. Reed, III, S. Srinivasan, David B. Stark, Stephen P. Stehie, Richard P. Steiner.

**INSTRUCTOR:** Mary E. Maxwell.

### Modern Languages

**HEAD (ACTING):** Professor Hugo Lijeron.

**PROFESSORS:** Arno K. Lepke, Theodore Mackiw, Eugene A. Maio, Allan J. McIntyre, Claude Y. Meade, Herbert W. Smith, Jr., Isaac Yetiv.

**ASSOCIATE PROFESSORS:** Jolita Kavaliunas, Phillip W. Stuyvesant, Russell Weingartner.

**ASSISTANT PROFESSORS:** William I. Miller, Helen L. Ryan, Janet Waisbrot, Hans O. Zbinden.

**INSTRUCTORS:** Joseph J. Donatelli, Stephen A. Faria, Janice Houser, Sys Inman, Kriemhilde Livingston, Susan Schunk.

### Philosophy

**HEAD:** Associate Professor Alan Hart.

**PROFESSOR:** William E. McMahon.

**ASSOCIATE PROFESSORS:** David F. Cox, James H. Buchanan.

**ASSISTANT PROFESSORS:** James C. Anderson.

### Physics

**HEAD:** Professor Charles W. Wilson III.

**PROFESSORS:** Harry T. Chu, Roger B. Creel, Alan N. Gent, C. Frank Griffin, Ernest D. von Meerwall.

**ASSOCIATE PROFESSORS:** Peter N. Henriksen II, Harry T. Pinnick, Ronald E. Schneider.

**ASSISTANT PROFESSOR:** Purushottam Das Gujrati.

### Political Science

**HEAD:** Professor Jesse F. Marquette.

**PROFESSORS:** Yong H. Cho, Yogendra Malik, Paul A. Weidner.

**ASSOCIATE PROFESSORS:** Vernon F. Cook, Katherine Hickey, Frank J. Kendrick, Carl Lieberman, David J. Louscher.

**ASSISTANT PROFESSORS:** Stephen C. Brooks, Richard Franklin, Bette H. Hughes.

### Polymer Science

**HEAD:** Professor Inja Pirra.

**DISTINGUISHED PROFESSOR:** Joseph P. Kennedy

**PROFESSORS:** Lewis J. Fetters, Alan N. Gent, H. James Harwood, Frank N. Kelley, Donald McIntyre, Eberhard A. Meinecke, Charles W. Wilson III.

**ASSOCIATE PROFESSOR:** John E. Frederick

**ASSISTANT PROFESSORS:** Purushottam Das Gujrati, Gary R. Hamed

### Psychology

**HEAD:** Professor Gerald V. Barrett.

**PROFESSORS:** Alexis M. Anikeeff, John A. Popplestone, Edwin E. Wagner.

**ASSOCIATE PROFESSORS:** Ralph Alexander, Faye H. Dambrot, Stephen S. Fugita, Richard H. Haude, Robert G. Lord, Marlin D. Murphy, Marion W. McPherson, Henry Rosenquist, Raymond Sanders, Harvey L. Sterns

**ASSISTANT PROFESSORS:** Susan I. Hardin, Gary J. Sipps, Jonathan E. Smith, Linda M. Subich.

### Sociology

**HEAD:** Associate Professor Richard J. Gigliotti.

**PROFESSORS:** Charles M. Barresi, Carl A. Bersani, Irwin Deutscher, Lloyd B. Lueptow, David J. O'Brien, Margaret M. Poloma, Robert M. Terry.

**ASSOCIATE PROFESSORS:** Rudy Fenwick, T. Neal Garland, John P. Marwitt, McKee J. McClendon, Donald J. Metzger, Samuel A. Mueller, Brian F. Pendleton.

**ASSISTANT PROFESSORS:** Paul B. Colomy, Marnie L. Sayles, Mark B. Tausig.

### Urban Studies

**HEAD:** Professor James F. Richardson.

**PROFESSORS:** Yong H. Cho, Frank Costa, Ashok Dutt, Gary M. Gappert, William S. Hendon.

**ASSOCIATE PROFESSORS:** David F. Cox, Frank J. Kendrick, Richard E. Klosterman, James L. Shanahan, Douglas V. Shaw.

**ASSISTANT PROFESSORS:** Nancy K. Grant, Peter J. Leahy.

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## College of Engineering

### Chemical Engineering

**HEAD:** Professor Howard L. Greene.

**PROFESSORS:** Glenn A. Atwood, Jozsef M. Berty, Robert W. Roberts, Max S. Willis, Jr.

**ASSOCIATE PROFESSORS:** Lawrence G. Focht, Robert F. Savinell.

**ASSISTANT PROFESSORS:** Sunggyu Lee, Dale L. Schruben.

### Civil Engineering

**HEAD:** Professor Andrew L. Simon.

**PROFESSORS:** Tse-Yung Chang, D. G. Fertis, Louis A. Hill, Jr., Alvin M. Richards, Jr., David M. Robinson, Simsek Sarikelle.

**ASSOCIATE PROFESSORS:** William B. Arbuckle, Clarence B. Drennon, David M. Timmerman.

**ASSISTANT PROFESSORS:** Atef F. Saleb, Paul D. Simpson.

**INSTRUCTOR:** Kenneth L. Kluka.

### Electrical Engineering

**HEAD (ACTING):** Professor Chiou-Shiun Chen.

**PROFESSORS:** Chun-Fu Chen, Joseph Edminister, Louis E. Roemer, Donald C. Thorn.

**ASSOCIATE PROFESSORS:** Victor B. Burke, Robert S. Grumback, Chaman N. Kashkari, Karen M. Mudry, Malcolm R. Railey, John T. Welch, Jr., Richard A. Williams.

**ASSISTANT PROFESSOR:** James Grover.

### Mechanical Engineering

**HEAD:** Professor Rudolph Scavuzzo, Jr.

**PROFESSORS:** Thomas M. Brittain, Mamerto L. Chu, Jr., Benjamin T. Chung, Phillip M. Gerhart, Azmi Kaya, Eberhard A. Meinecke, Joseph Padovan.

**ASSOCIATE PROFESSORS:** Celal Batur, Donald R. Burrowbridge, Richard J. Gross, Michael Savage, John S. Serafini.

**ASSISTANT PROFESSORS:** Minel J. Braun, Fred K. Choy, Jerry E. Drummond, Samuel G. Kelly, Paul C. Lam.

### Polymer Engineering

**HEAD:** Professor James L. White.

**ASSOCIATE PROFESSOR:** Avram I. Isayev.

---

## College of Education

### Counseling and Special Education

**HEAD (ACTING):** Associate Professor Theodore L. Gloeckler.

**PROFESSORS:** William J. Arn, John R. Cochran, Dale Coons, James E. Doverspike, Kenneth C. Hoedt, Janko P. Kovacevich, Robert H. Myers, Joseph M. Walton, David M. Weis.

**ASSOCIATE PROFESSORS:** Fred W. Fanning, Gary W. Kane, William E. Nemeck, Ruth Roberts, Michael Ross.

**ASSISTANT PROFESSORS:** Alice E. Christie, Steven E. Perkins.

### Educational Administration

**HEAD:** Professor John Andrew Blough.

**PROFESSORS:** Don Birdsell, James C. King, Marvin H. Maire, Richard F. Viering.

**ASSOCIATE PROFESSORS:** W. Henry Cone, William A. Rogers, Charles L. Wood.

### Educational Foundations

**HEAD:** Professor Gerald J. Blumenfeld.

**PROFESSORS:** H. Kenneth Barker, Ralph O. Blackwood, Walden B. Crabtree, Ralph Darr, Jr., Charles M. Dye, D. J. Guzzetta, Isadore Newman, Frederick M. Schultz, John S. Watt.

**ASSOCIATE PROFESSORS:** Abdul Amir Al-Rubay, John J. Hirschbuhl, Edward B. Lasher, Rita Saslaw.

**ASSISTANT PROFESSORS:** M. K. Alderman, William A. Mavrides.

### Elementary Education

**HEAD:** Professor Bernard L. Esporite.

**PROFESSORS:** Caesar A. Carrino, Hugh G. Christman, Robert E. Ferguson, Loren L. Hoch, LaVerne J. Meconi, Judith A. Noble, Ramon F. Steinen, Maurice G. Williams.

**ASSOCIATE PROFESSORS:** Walter E. Arms, David G. Barr, Angela R. Bruno, Blanche Clegg, Susan J. Daniels, Martha C. Leyden, Regis Q. McKnight, Janet R. Reuter, Joan C. Seifert, Robert Sovchik, Norma L. Spencer.

**ASSISTANT PROFESSOR:** Mary Ellen Atwood.

**INSTRUCTOR:** Jackie M. Vernon.

### Physical Education

**HEAD:** Associate Professor Robert N. Gandee.

**PROFESSOR:** J. Thomas Adolph.

**ASSOCIATE PROFESSORS:** Bruce L. Hotterling, Gordon Larson, Robert J. Mravetz, Wyatt M. Webb.

**ASSISTANT PROFESSORS:** Alexander L. Adams, T. Allen Campbell, James L. Dennison, Mary J. MacCracken, Judith E. Maffett, Patricia J. Taylor, Mary A. Tripodi, James L. Witherow.

**INSTRUCTORS:** Charles J. Durbin, Thomas M. Fiaherly, Jr., Terrence J. Forbes, David L. Newell, Stephen J. Parker, Wade Rollinson, III, Robert L. Rupert, Sr., John M. Street.

**LECTURER:** Douglas W. Trautman.

### Secondary Education

**HEAD:** Professor Larry G. Bradley.

**PROFESSOR:** Joseph P. Arnold, Joy S. Lindbeck, Marion A. Ruebel.

**ASSOCIATE PROFESSORS:** Robert K. Eley, Harold M. Foster, Bill J. Frye, Lillian M. King, Michael T. Oravecz, Michael N. Sugarman, Stephen J. Thompson, Walter H. Yoder.

**ASSISTANT PROFESSOR:** Fred M. Carr.

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## College of Business Administration

### Accounting

**HEAD:** Professor Richard S. Roberts.

**DISTINGUISHED PROFESSOR:** Orville R. Keister.

**PROFESSORS:** Hobart W. Adams, Arthur D. Karlin, Dennis L. Kimmell, Charles K. Moore, Jr., Arjan T. Sadhwani.

**ASSOCIATE PROFESSORS:** Donald K. Berquist, Allen M. Cabral, James L. Cress, Darlene R. Kausch, Vincent P. Kopy, Alvin H. Lieberman, Roberta P. Marquette, David L. Nichols.

**ASSISTANT PROFESSORS:** Lee Daniel, James R. Emore, Myron J. Hubler, Jr., Franklin L. Jennings, Sharon L. Kimmell, Dayal Kiringoda, David T. Meeting, John A. Rude, Mostafa H. Sarhan, Linda Sugarman, Barbara A. Vinson, E. Lee Wilson, Bernard F. Zaucha.

**INSTRUCTOR:** Peter Dorff.

### Finance

**HEAD:** Associate Professor Arthur G. Wentz.

**PROFESSORS:** Arpad F. Banda, James W. Dunlap, David R. Durst, James E. Inman, Michael P. Litka, John D. Williams.

**ASSOCIATE PROFESSORS:** David Hawk, Robert J. Shedlarz, James R. Webb, John W. Works.

**ASSISTANT PROFESSORS:** David A. Redle, Bernard S. Winnick.

**INSTRUCTOR:** Anita M. Moore.

### Management

**HEAD:** Professor Howard L. Taylor.

**PROFESSORS:** N. F. Davis, Bernard A. Deitzer, Kenneth A. Dunning, Keith A. Klafehn, Joseph C. Latona, Richard C. Lutz, Gary E. Meek, Jonathon S. Rakich, Karl A. Shilliff.

**ASSOCIATE PROFESSORS:** Donald E. Becker, Roy E. Burkey, John E. Hebert, Alan G. Krigline, Jayprakash G. Patankar.

**ASSISTANT PROFESSORS:** James J. Divoky, Kenneth D. Gartrell, Avis L. Johnson, Deane V. Pham, Franklin B. Simmons, III.

### Marketing

**HEAD:** Professor Dale M. Lewison.

**PROFESSORS:** Michael F. d'Amico, Donald M. Jackson.

**ASSOCIATE PROFESSORS:** David P. Loyd, Kenneth E. Mast, George E. Prough.

**ASSISTANT PROFESSORS:** Jeffrey C. Dilts, Jon M. Hawes, John Thanopoulos, Nancy E. Uhring.

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## College of Fine and Applied Arts

### Art

**HEAD:** Professor Earl L. Ertman.

**PROFESSORS:** Irving A. Achorn, Dennis A. Kleidon, William A. Neumann, Ronald D. Taylor.

**ASSOCIATE PROFESSORS:** Bruce R. Armstrong, George Danhires, Donald E. Harvey, Lorena M. Holshoy, James V. Lenavitt, Christopher P. Meyer, Dennis A. Meyer, Thomas D. Webb.

**ASSISTANT PROFESSORS:** Nancy M. Fleischer-Hoffman, Gale Golembeski, Walter M. Herip, Robert J. Huff, Susan E. McKiernan, Harry Murutes, Penny Rakoff, Mark E. Soppeland, Donna S. Webb, Vlada Vukadinovic.

### Communication

**HEAD:** Associate Professor David L. Jamison.

**PROFESSORS:** John D. Bee, James V. Fee, Ruth B. Lewis.

**ASSOCIATE PROFESSORS:** Dennis Lynch, Thomas T. Miles, Linda L. Moore, Nancy M. Somerick.

**ASSISTANT PROFESSORS:** Richard E. Caplan, Thomas M. Ditzel, William D. Harpine, William Parmenter.

### Communicative Disorders

**HEAD:** Professor George D. Davis.

**ASSOCIATE PROFESSORS:** Roberta DePompei, Donald E. Hall, John M. Panagos, Kenneth T. Siloac.

**ASSISTANT PROFESSORS:** Jean L. Blosser, Karyn Bobkoff, Carol A. Flexer, Sharon A. Lesner, James M. Lynn, Karen B. Turner, Winifred Watson-Florence.

**INSTRUCTORS:** Thomas S. Black, Denise Wray.

### Home Economics and Family Ecology

**HEAD:** Professor Mary C. Rainey.

**PROFESSORS:** Barbara N. Armstrong, Virginia Tappenden.

**ASSOCIATE PROFESSORS:** Doris J. Aldrich, Tomasita Chandler, Helen K. Clemshaw, Donna Gaboury, Virginia L. Gunn, Janice L. Heckroth, Barbara Heinzerling, Kathryn E. Koch, Jean R. Williams.

**ASSISTANT PROFESSORS:** Carolyn Albanese, Harriet K. Herskowitz, Sue W. Williams, David D. Witt.

**INSTRUCTORS:** Dana L. Chapman, Elise Krigline, Patricia M. Kuhn, Pamela T. Price.

### Music

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July 1983

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**JAMES L. ANSON**, *Assistant Professor of Military Science* (June 1983) B.S., West Virginia University. 1969, Major, (USAR), Infantry.

**LEONARD N. LEFFNER**, *Assistant Professor of Military Science* (June 1983) B.A., Loyola University; M.A., Chapman College, 1978, Captain, Military Intelligence

**RICHARD C. DERBIS**, *Assistant Professor of Military Science* (June 1981) B.A., Indiana University of Pennsylvania. 1975, Captain, Infantry.

**JEARELL K. BENNETT**, *Sergeant Major* (June 1982).

**PHILLIP A. URBANSKY**, *Operations NCO* (February 1982) Sergeant First Class.

**FAUSTO E. CASTILLO**, *Supply Sergeant* (August 1982) Staff Sergeant.

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**JOSEPH P. KENNEDY**, *Distinguished Professor of Polymer Science; Professor of Chemistry* (1970) B.Sc., University of Budapest; M.B.A., General Business, Rutgers University; Ph.D., University of Vienna, 1961.

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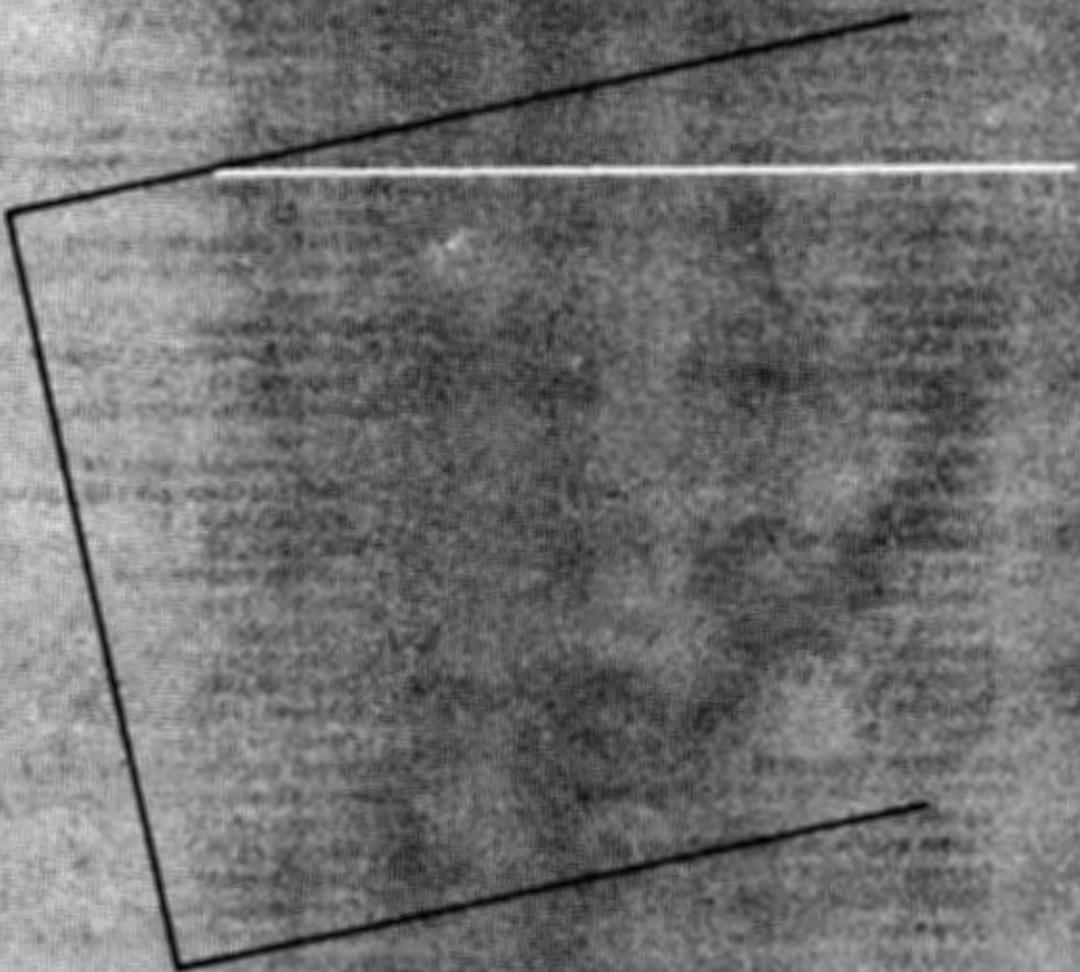
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