School

The University of Akron

General Bulletin

1986-87

Calendar 1986-87

Fall Semester 1986

*Labor Day	Mon., Sept. 1
Day and Evening Classes Begin	Tues., Sept. 2
Veterans Day (classes held)	Tues., Nov. 11
**Thanksgiving Recess	Thurs.-Sat., Nov. 27-29
Classes Resume	Mon., Dec. 1
Final Instructional Day	Sat., Dec. 13
Final Examination Period	Mon.-Sat., Dec. 15-20

Spring Semester 1987

Day and Evening Classes Begin	Tues., Jan. 20
Founders Day (classes held)	Tues., Feb. 10
Spring Recess	Mon.-Sat., March 23-28
†May Day	Fri., May 1
Final Instructional Day	Sat., May 9
Final Examination Period	Mon.-Sat., May 11-16
Commencement	Sun., May 24

Summer Session I

First 5- and 8-Week Sessions Begin	Mon., June 15
*Independence Day	Fri., July 3
First 5-Week Session Ends	Fri., July 17

Summer Session II

Second 5-Week Session Begins	Mon., July 20
Eight-Week Session Ends	Fri., Aug. 7
Second 5-Week Session Ends	Fri., Aug. 21

Fall Semester 1987

Classes Begin	Mon., Aug. 31

*University Closed

**University closed from Wednesday, November 26 at 5 p.m. until Monday, December 1 at 7 a.m.

†Classes suspended noon to 5 p.m. at the discretion of the instructors.

Inquiries

Address inquiries concerning:

Admissions information, campus tours and housing, transfer of credits to the Office of Admissions, 166 Fir Hill (216) 375-7100.

Financial aids, scholarships, loans and student employment to the Office of Student Financial Aid and Employment, Spicer Hall, (216) 375-7032.

Athletics to the Athletic Director, James A. Rhodes Health and Physical Education Building, (216) 375-7080.

Registration, scheduling, residency requirements and veteran's affairs to the Office of the Registrar, Spicer Hall, (216) 375-7844.

Continuing education and noncredit programs to Buckingham Center for Continuing Education, (216) 375-7826.

Graduate study to the Graduate School, Buchtel Hall, (216) 375-7663.

The University switchboard number is (216) 375-7111.
The University of Akron
Akron, OH 44325

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Background

HISTORY

The self-conscious connection between The University of Akron and its surrounding community has been a recurring theme from the institution's founding as a small denominational college in 1870 to its current standing as a major metropolitan state university. It is significant that the efforts, energy and financial support of an Akron manufacturer of farm equipment, John R. Buchtel, were instrumental in persuading the Ohio Universalist Convention to build its college on a hill overlooking the town stretched along the Ohio Canal. The grateful trustees responded by naming the school Buchtel College. It is also significant that during its first four decades, the struggling institution was repeatedly aided in its efforts to survive by various local entrepreneurs who pioneered and prospered in such industries as cereals, clay products, matches and rubber. Buchtel College's emphasis on local rather than denominational interests became increasingly clear, and by 1913 those strong ties and the school's financial situation caused its trustees to transfer the institution and its assets to the city. For the next 50 years, the Municipal University of Akron received its principle support from city tax funds and swelled from an enrollment of 198 to nearly 10,000.

The growth of the college paralleled the remarkable expansion of the community itself. From 1910 to 1920 Akron was the fastest-growing city in the country, evolving from a thriving canal town of 70,000 to a major manufacturing center of 208,000, thanks in large part to a boom in local factories that bore names such as Goodyear, Firestone, Goodrich and others. The age of the automobile — and the demand for inflatable rubber tires — changed the complexion of Akron forever.

And changes within the Municipal University's curriculum reflected the strong interrelationship of town and gown. In 1914 a College of Engineering began instruction, and other professional schools followed: education (1921), business administration (1953), law (1959), the Community and Technical College (1964), fine and applied arts (1967) and nursing (1967). Still another response to the community's needs was a comprehensive evening session, initiated in 1915 to make courses available to a broad cross-section of citizens; currently almost 8,000 Evening College students pursue undergraduate and graduate degrees in all majors offered by the University.

Considering the institution's location in the heart of the burgeoning rubber industry, it seemed only appropriate that the world's first courses in rubber chemistry would be offered at Buchtel College in 1909. From those first classes in Professor Charles W. Knight's laboratory would evolve the prestigious Institute of Polymer Science, a world leader in polymer research. In the 1930s and 1940s, with the establishment in Akron of the Guggenheim Airship Institute, UA scientists studied the structure and design of zeppelins, and during World War II University of Akron researchers helped fill a critical need in the U.S. war effort by contributing to the development of synthetic rubber.

But research, innovation and creative activity take many forms at the University, in the sciences and in the arts and humanities as well. Today UA faculty members study ways of matching workers with jobs to maximize performance; they devise more effective methods of extracting oil from shale; they write and produce plays, pen poetry, choreograph dance works; they design valves for artificial hearts and explore improved methods of tumor detection; they evaluate the quality of water in northeast Ohio; they draft new maps to meet specialized needs of local businesses and industries, and they study laws of taxation and their effects on commerce. UA's continuing and central commitment to the liberal arts is signified by the perpetuation of the institution's original name in the Buchtel College of Arts and Sciences.

And the University has maintained an openness to innovation in other ways. As early as the 1880s Buchtel College was liberalizing its curriculum by allowing students to choose free electives within their courses of study. The University later adopted and developed the general education concept, which represents an attempt to prepare students for both their personal and their professional lives by providing a balance between courses that teach them how to make a living and courses that teach them about life as we know it in Western civilization.

The University's first doctoral degree was, appropriately enough, awarded in polymer chemistry in 1959, but master's degrees were granted as early as 1882. Doctoral work has now expanded to programs leading to the highest academic degree in 14 different fields of study.

In 1963 the receipt of state tax monies made UA a state-assisted municipal university, and on July 1, 1967, The University of Akron officially became a state university. Today some 26,500 students from 34 states and 83 foreign countries are enrolled in its nine colleges, making it the third largest university in Ohio, and 52nd largest in the nation. Its 50,000 alumni are worldwide. The 150-acre campus with its 70 modern buildings is within walking distance of downtown Akron and its shopping, restaurants, entertainment and cultural centers. The northeast Ohio metropolitan area, with its 1.5 million population, provides numerous opportunities in recreation, major collegiate, amateur and professional sports, concerts, cultural events and commerce, all within easy driving distance and many accessible via public transportation.

For over a century, the college on the hill has been an integral part of the city whose name it bears, an active participant in Akron's renaissance of commercial and artistic endeavor, a leader in the city's intellectual and professional advancement, a center for internationally lauded research efforts, a source of enrichment, education and vitality both for itself and for its community. Our history is a long and proud one — but at The University of Akron, our eyes are on the future, for our students, our faculty and staff, our community, our world.

MISSION AND GOALS

The University of Akron's mission is influenced by its location, its heritage, its teaching and research objectives and its responsibility to serve the local, national and international communities.

These influences, combined with the University's commitment to provide the highest quality educational opportunity possible to each person regardless of race, creed, color, sex, age, national origin or handicapping condition, shape this institution's distinctive character.

The foremost goals of The University of Akron are to create and maintain the highest standards of excellence in its curriculum, its teaching/learning process, its development of students, its research and its service to the public. Existing and proposed programs alike are evaluated in terms of their contributions to these goals.

The historically strong interrelationship between The University of Akron and the surrounding community confirms UA's responsibility to serve the community in ways that will reflect the needs of both the institution and the region of which it is a part. The University will continue to serve those pursuing a traditional educational program as well as those seeking a nontraditional program for a career change, for professional development or for self-enrichment.

Mission

The University of Akron maintains a commitment to:

- Provide learning opportunities for the full spectrum of students.
- Create and discover knowledge through basic and applied research.
- Create a learning environment that emphasizes a full collegiate experience for each student, leading to opportunities for cognitive, social and personal development.
- Provide a forum for the examination of ideas and concepts and the generation of scholarly dialogue within the established principles of academic freedom.

- Encourage opportunities for interdisciplinary study and research.
- Strive 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.
- Offer appropriate educational and professional services to its various publics within available resources and established continuing education and outreach philosophies.
- Maintain its firmly established tradition of concern for the higher educational and cultural needs of our area.

Goals

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

GOAL I
The University will plan, develop, implement and evaluate its efforts in light of its major goal of teaching, and will provide optimal learning opportunities for students of various ages, diverse backgrounds and different needs.

GOAL II
The University will promote the discovery and creation of new knowledge through continued support of faculty in their research, publication and creative activities by providing ample resources for basic and applied research and by encouraging professional and intellectual development.

GOAL III
The University will enhance students' abilities to participate effectively in a complex society by designing programs that will not only fulfill educational needs but will also provide opportunities for intellectual, personal, cultural and social development.

GOAL IV
The University will provide public service through its traditional and continuing education programs, its faculty, its students and its facilities, and it will encourage the development of outreach and cooperative education efforts in all colleges, departments and service units.

GOAL V
The University will coordinate the growth and emphasis of its programs with the long-range plans and needs of the local area, the region, nation and, where appropriate, the international community.

GOAL VI
The University will contribute, in cooperation with local and regional institutions, to the development of improved quality of life for the future of the region, the nation and the world.

ACCREDITATION

Accreditation assures that degrees are recognized and approved by select regional and national education associations, 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 and assures a student taking pre-professional courses leading to advanced study in such fields as medicine, dentistry, law and theology that he is receiving sound preparation for acceptance at other graduate and professional schools. Accreditation also provides the security of 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
American Speech-Language-Hearing Association
Committee on Allied Health Education and Accreditation of American Medical Association
Council for the Accreditation of Counseling and Related Educational Programs (provisional)
Council for Professional Development of the American Home Economics Association
Council on Social Work Education
National Accrediting Agency for Clinical Laboratory Sciences
National Association of Schools of Art and Design
National Association of Schools of Music
National Council for Accreditation of Teacher Education
National League for Nursing
North Central Association of Colleges and Schools
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 academic spectrum. Programs are available leading to the associate (two-year), bachelor's (four-year), master's (graduate) and doctoral (graduate or professional) degrees. A student may 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.

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 associate degree programs.

- Arts
- Business Management Technology
  - *Accounting*
  - *Banking*
  - *Credit Union*
  - *Data Administration*
  - *Small Business Management*
- Chemical Technology
  - *Environmental*
  - *Forensic*
  - *Geology*
  - *Industrial*
  - *Rubber and Plastic*
- Commercial Art
- Community Services Technology
  - *Alcohol*
  - *Gerontology*
  - *Social Services*
  - *Volunteer Programming*
- Criminal Justice Technology
  - *Corrections*
  - *Security Administration*
- Data Processing (2 + 2)
- Drafting Technology
- Educational Technology
  - *Child Development*
  - *Elementary Aide*
  - *Library Technician*
- Electronic Technology (2 + 2)
- Fire Protection Technology
- Handicapped Services
  - (Interpreting for the Deaf)
- Histologic Technology
- Hospitality Management
  - *Culinary Arts*
  - *Hotel/Motel Management*
  - *Marketing and Sales*
- Individualized Study
- Labor Studies
- Manufacturing Technology
  - *Industrial Supervision*
- Marketing and Sales Technology
  - *Fashion*
  - *Industrial*
  - *Retailing*
- Mechanical Technology (2 + 2)
- Medical Assisting Technology
- Office Administration
  - *Executive*
  - *International*
  - *Legal*
  - *Office Information Management*
  - *Word Processing*
- Office Services Technology
- Radiologic Technology
- Real Estate
- Respiratory Therapy Technology
- Surgical Assisting Technology
  - *Surgeon's Assistant*
  - *Surgical Technologist*
- Surveying and Construction Technology
  - *Construction*
  - *Surveying*
- Transportation
  - *Airline/Travel Industry*
  - *Commercial Aviation*

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. Study in the University College develops the student's ability to understand and express ideas effectively and to comprehend the processes involved in accurate thinking. After completing the general studies phase, the student is admitted to a degree-granting college, where he then concentrates courses in his specific academic interest.

Programs are offered in:

- Accounting
- Art
  - *Art History*
  - *Ceramics*
  - *Crafts*
  - *Drawing*
  - *Graphic Design*
  - *Metalsmithing*
  - *Painting*
  - *Photography*
  - *Printmaking*
  - *Sculpture*
  - *Studio Art*
- Biology
  - *Botany*
  - *Cytotechnology*
  - *Ecology*
  - *Medical Technology*
  - *Microbiology*
  - *Physiology*
  - *Pre-Professional*
    - *Pre-Dental*
    - *Pre-Medicinal*
    - *Pre-Pharmacy*
    - *Pre-Veterinary*
  - *Zoology*
- Business Administration
  - *Accounting*
  - *Finance*
  - *Management*
  - *Marketing*
- Chemical Engineering
- Chemistry
- Civil Engineering
- Classics
  - *Greek*
  - *Latin*
  - *Classical Civilization*
- Communication
  - *Business and Organizational*
  - *Communication and Rhetoric*
  - *Mass Media*
- Communicative Disorders
  - (Speech Pathology and Audiology)
- Computer Science
  - *Business*
  - *Mathematics*
- Construction Technology (2 + 3)
- Cytotechnology
- Dance
- 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
  - *Geography/Cartography*
- Geology
  - *Geophysics*
- History
- Home Economics and Family Ecology
  - *Dietetics*
    - *CUP*
    - *Traditional*
  - *Family and Child Development*
    - *Child Development*
    - *Child-Life Specialist*
    - *Family Development*
  - *Foods and Nutrition*
    - *Business*
    - *Food Science/Product Development*
  - *Home Economics Education*
  - *Textiles and Clothing*
    - *Business*
    - *Communication*
    - *Theatre Costume*
- 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
  - *Outdoor Education*
  - *Athletic Training for Sports Medicine*

Physics
Applied Physics/Engineering
Biophysics
Chemical
Computer
Geophysics
Physics/Astrophysics/Astronomy
Polymer
Political Science
Criminal Justice
Government Service
International Service
Pre-Law
Public Policy Management
Psychology
Secondary Education (all fields)
Social Sciences
Social Work
Sociology
Anthropology
Corrections
Law Enforcement
Special Education
ER and OH
ER and MSPR
LD and ER
Speech Pathology and Audiology
(see Communicative Disorders)
Technical Education
Theatre
Acting
Design/Technology
Musical Theatre
Theatre Arts

University Honors Program

The University of Akron's Honors Program has been designed to recognize and support highly motivated and achievement-oriented students in any major program. Participants are eligible for substantial honors scholarships. Honors students complete all requirements for a departmental or divisional major and attend interdisciplinary colloquia in the humanities, social sciences and natural sciences. These colloquia examine the interrelations of academic studies while exploring significant contemporary issues. During the senior year, all honors students write a senior honors thesis that focuses on a topic of interest in the major area of study. Study abroad or field experience may count as part of the project.

Distinguished Student Program

The Distinguished Student Program for associate degree students in the Community and Technical College encourages and assists exceptionally talented students to achieve academic excellence. It supports the college's attempt to provide worthwhile career programs that enable students to prepare for their occupational goals and also exposes these students to the total offerings of the University.

The program of study consists, for the most part, of courses within the major. The Distinguished Student Colloquium (taken the first semester of the second year) and the Honors Colloquium (taken the second semester of the second year) provide an opportunity for these students to meet to explore the breadth and interrelationships of various academic disciplines.

Cooperative Education Program

This program combines classroom learning with paid work experience. Qualified students are placed in career-related pre-professional work assignments in industrial, commercial, professional, governmental or service organizations. The program can enhance a student's education and career preparation by: integrating classroom theory with on-the-job performance; providing 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

A student may add a dimension of depth to his education beyond his chosen major by pursuing one of the University's interdisciplinary or interdepartmental programs, which provide concentrated work in the following areas.

Afro-American Studies
Aging Services
Alcohol Services Aide
Cartographic Specialization
Child-Care Worker
Composition
Computer Physics
Computer Science
Criminal Justice
Criminal Justice/Security Emphasis
Environmental Health
Environmental Studies
Fire Protection Technology
Higher Education
Hospitality Management
Interior Design
Latin American Studies
Life-Span Development: Adulthood and Aging
Life-Span Development: Women's Studies
Linguistic Studies
Manual Communication
Mid-Careers in Urban Studies
Office Administration
Peace Studies
Planning
Professional Communication
Public Policy
Real Estate
Small Business Management
Soviet Area Studies
Teaching English as a Second Language
Volunteer Program Management

GRADUATE SCHOOL

The Graduate School offers advanced study to students who wish further education beyond the baccalaureate degree. Graduate degree programs are listed below; a dagger (†) indicates programs that offer doctorates only; an asterisk (*) signifies programs that offer both master's and doctoral degrees; the remaining disciplines offer master's degrees only.

Accounting
Biomedical Engineering
Biology
Business/Law Joint Program
*Chemical Engineering
*Chemistry
*Civil Engineering
Communication
Communicative Disorders
†Counseling Psychology
Economics
Labor and Industrial Relations
*Educational Administration and Supervision
†Higher Education
*Electrical Engineering
*Elementary Education
Reading Specialist or Consultant
Engineering
Biomedical Engineering
Polymer Engineering
English
Family Ecology
Child Development
Family and Child Development
Finance
Geography
Geology
Geology
Earth Science
Geophysics
Engineering Geology
Environmental Geology
*Guidance and Counseling
*History
Home Economics and Family Ecology
International Business
Management
Marketing
Mass Media-Communication
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
Athletic Training for Sports Medicine
Outdoor Education
Physics
Polymer Engineering
Political Science
*Polymer Science
*Psychology
School Psychology
*Secondary Education
Teaching Culturally Disadvantaged
*Sociology
Special Education
Taxation
Technical and Vocational Education
Theatre Arts
Arts Management
*Urban Studies
Public Administration
Urban Planning

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.

EVENING COLLEGE AND SUMMER SESSIONS

The University Evening College and Summer Sessions provides educational opportunities for the student who wishes to attend college classes during the evening or over the summer. The Evening College and Summer Sessions includes work toward associate, baccalaureate and advanced degrees as well as additional education in students' chosen professions. Courses in the evening program are fully accredited and are conducted throughout the year.

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, through continuing education and through Developmental Programs.

WAYNE GENERAL AND TECHNICAL COLLEGE

To 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, 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 only 10 buildings. Currently, the campus covers 160 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 situated in a large metropolitan area. The campus, although centrally located within the city, is set apart from the downtown area. Students have easy access to retail outlets, transportation and churches. Akron is easily reached by automobile from major national east-west routes (Interstates 80, 90, 76 and the Ohio Turnpike), and north-south routes (Interstates 71 and 77), all of which link Akron to the surrounding states and regions. The University itself is located between East Buchtel Avenue and Carroll Street in the downtown area. For bus travelers, the Greyhound station is a short walk from the campus. For airline passengers, limousine service from the Cleveland-Hopkins International Airport and the Akron-Canton Airport, south of Akron, is available.

BUILDINGS

Many of the buildings on campus bear the names of prominent persons who are recognized for their contributions in administration, education, business, science or University service. Major buildings include:

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, transient, transfer, auditing or special student status.

Art Building. This recently remodeled building at 150 East Exchange Street provides modern, well-equipped art facilities in one location. Studios are available for graphic arts, photography, drawing, painting, metalsmithing, ceramics and weaving. The Davis Art Gallery is also located in the facility.

Auburn Science and Engineering Center. Named for Norman P. Auburn, 10th president of the University, this complex is one of the largest academic buildings in the state. The center houses the College of Engineering, the Department of Biology, the Institute of Polymer Science (research activities), 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, studios and offices for the Ohio Ballet and the Dance Institute.

Bierce Library. Named for Gen. Lucius V. Bierce, an 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 more than 1.8 million items. The facility also houses the University Archives, Media Services, Instructional Media Distribution Center, a microfilm department, a map room 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 link with Buchtel College. It provides office space for numerous administrative officials of the University.

Buckingham Center for Continuing Education. The 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, the Adult Resource Center, the Office of Cooperative Education, the Office for Noncredit Courses, the Nursing Home Training Center, the Law School Clinical Program, as well as a lecture hall and general classrooms.

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 media services, electronic systems and the Learning Resources Center.

Central Services Building. This building, 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 $1.3 million, this building at 185 Carroll Street houses the University's computer center offices, main computer and workrooms, as well as student and faculty keypunch areas and time-sharing terminals.

Crouse Hall. Crouse Hall houses the Department of Geology, Center for Environmental Studies, classrooms and some offices for the College of Education.

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

Exchange Building. This recently acquired building at 222 East Exchange Street houses the Center for Fire and Hazardous Materials Research as well as the Department of Social Work and the Outreach/Human Services offices.

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

Gallucci Hall. This building at 200 East Exchange Street, formerly a Holiday Inn, is 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.

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 bowling alleys, meeting rooms, lounges, student activity and publication offices and workrooms, a game and billiard room, a bookstore, bank facilities, the Perkins Art Gallery, cooperative education offices, the Gardner Theatre, a cafeteria and other dining facilities.

Gladwin Hall. Housing the College of Nursing, allied health and biology laboratories, this 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 multipurpose nursing laboratory, a simulated six-bed hospital containing surgical-labor delivery suite, a 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 office of the dean of the College of Fine and Applied Arts, and the departments of communication, and music, theatre and dance. In addition to providing more than 40 student practice rooms, the complex houses radio and television studios, WAUP-FM, a small experimental theatre and a 300-seat recital hall.

James A. Rhodes Health and Physical Education Building (JAR). This recently completed structure on Carroll Street is connected to Memorial Hall by a pedestrian bridge over Brown Street and contains an intercollegiate basketball facility seating 7,000, an indoor jogging track, physical education laboratories, classrooms, the athletic director's office, the sports information office, athletic offices and a ticket office.

Hower House. Located on Fir Hill, the century-old mansion has been designated as a 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 1909. 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. Identified 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, the Center for Community and Public Television, the office of the dean of the College of Business Administration as well as classrooms and offices for the College of Business Administration.

Leigh Hall. Named in honor of Warren W. Leigh, first dean of the College of Business Administration, the facility 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 160,000-volume law library, classrooms, moot courtroom, appellate-review office, seminar rooms and faculty offices. A planned $3.5 million expansion will provide additional library and support space. The center stands 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 companion building to the recently completed Health and Physical Education Building. It contains offices of the Department of Physical Education, a large gymnasium, a swimming pool, intramural sports office and classrooms. A current remodeling project will provide physiology, bio-mechanics and rehabilitation laboratories.

North Hall. Located on South Forge Street, this facility houses the administrative service departments of University communications, purchasing, staff personnel and benefits office.

Ocasek Natatorium. The six-million dollar natatorium, currently under construction, is scheduled for completion in fall 1987. The 64,000 gross square foot structure will house an Olympic-size swimming pool with adjacent spectator seating area, and will have locker rooms and showers. The center will also house nine racquetball courts as well as weight room facilities. The natatorium is named for Ohio State Senator Oliver Ocasek.

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 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 cultural center, which cost more than $13.9 million, was formally opened in 1973. Designed to accommodate concerts, opera, ballet and theatre productions, the hall is a masterpiece in architecture, acoustics and creative mechanisms. It stands at the corner of East Center and Hill Streets.

Physical Plant Operations Center. This building at 146 Hill Street is 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.

Research Center. This remodeled warehouse on Forge Street houses the Department and Institute of Biomedical Engineering and the Department of Polymer Engineering.

Robertson Dining Hall. This building, located at 248 James Street, has 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 at 800 George Washington Boulevard, just four miles from the campus, features an artificial turf playing field, seating for 35,000, locker rooms, concessions and a press box.

Schrank Hall. Named for Harry P. Schrank, long-time member and chairman of UA's 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* contains offices and classroom space. *Schrank Hall South* provides facilities for the Department of Home Economics and Family Ecology, the divisions of Engineering and Science Technology and Associate Studies, and the Army and Air Force ROTC units.

Simmons Hall. Named for Hezzleton Simmons, University president from 1933 to 1951, this hall houses the University Counseling and Testing Center, the Department of Psychology 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 in this facility.

Spicer Hall. This major student contact building, renovated in 1975, 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 Mailroom. Located on central campus, adjacent to the Gardner Student Center, this building contains mailboxes for all students.

The University Club of Akron. 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 as well as offices for the division of Institutional Advancement are located on the upper floors of the building.

West Hall. This renovated structure 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, the Center for Economic Education and the Student Teaching Office.

FACILITIES AND EQUIPMENT

The University's addition of modern teaching aids demonstrates its recognition of the need, in this technological age, of up-to-date facilities and equipment. Some of these facilities are as follows.

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 English** shares with the humanities and social sciences departments a bank of 19 IBM computer terminals in Olin Hall. This facilitiy is used extensively for courses in creative, expository and professional writing. Additionally, these terminals, along with terminals linked to the University mainframe, are used in computerized analysis of style.

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 transferscope, overhead map enlarger, field plotters, three-dimensional Perspektomat, headliner and varityper, industrial camera, vacuum frame and map scale changers. 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 modern instrumentation for field and laboratory studies. Among the equipment are an automated electron microprobe, automated x-ray diffraction system, atomic absorption spectrometer, ion chromatograph, coal and sulfur analyzers, oxygen bomb calorimeter, gravimeter, resistivity gear, refraction seismograph, magnetometers, image analyzer, cathodoluminoscope, microcomputer laboratory with printers, plotters, and a digitizer, core laboratory, research microscopes, a well-equipped darkroom, rock saws, thin section equipment, portable rock corer and three four-wheel-drive vehicles.

The **Department of History** in Olin Hall is housed in a modern office suite with space for graduate assistants as well as professors. The Clara G. Roe Seminar Room is used for graduate seminars. The history department shares its office space with the Department of General Studies and the Center for Peace Studies.

The **Department of Mathematical Sciences** is located in Ayer Hall adjacent to the Science and Technology Library. Students often make use of closed-circuit television located throughout the campus, and the Learning Resource Center which is housed in Carroll Hall.

The University has a sophisticated Computer Center which is equipped with a number of computers. Computers available to the entire University community are an IBM 3033U and an IBM 370/156. A Prime 650 computer is dedicated to the Engineering College for support of computer graphics. There is also an IBM 4361 dedicated to class instruction and faculty research by the Department of Mathematical Sciences. Access to these facilities is available at various locations on campus via remote computer terminals. Off-campus access via phone connections is also available on selected equipment. The University is connected electronically to other sites worldwide via BITNET.

Housed in the Department of Mathematical Sciences are 25 IBM PCs acting as independent work stations or as terminals tied to the IBM 4361. The department also has a laboratory equipped with Apple II microcomputers. Microcomputer laboratories at various locations on campus are also available for student use. All the popular computer programming languages are supported on one or more machines; examples include FORTRAN, Pascal, COBOL, PL/1, RPG, BAL, C, BASIC, SPSS, SAS, GPSS, APL and LISP, as well as some lesser known languages. Many software packages that run on mainframe, minis or micros are also supported. Plans for the immediate future include the establishment of another laboratory in Ayer Hall connected to a VAX 11/785.

A most important resource of The **Department of Modern Languages** is the language laboratory in Olin Hall. The language laboratory schedules working sessions for all beginning and some advanced language courses

as an integral part of the course, as well as for individual and voluntary student study time.

The **Department of Physics** is housed in Ayer Hall with space and facilities for research and instruction. The laboratories include experimental facilities for electron tunneling spectroscopy, pulsed, continuous wave and high resolution NMR, and Mossbauer spectroscopy; magnetic susceptibility and Shubnikhov-deHaas measurements. The experimental projects in progress include studies in surface physics and thin films, diffusion measurements and high resolution NMR in polymers, molecular spectroscopy, solid state physics and computer-assisted instruction. Theoretical projects in progress include critical phenomena and phase transitions, renormalization group, supersymmetry, polymer physics and solid state physics. Studies of physical properties of polymeric materials utilize the extensive facilities of the Department of Polymer Science and the Institute of Polymer Science.

The **Department of Political Science** supervises a computer-assisted telephone interviewing laboratory available to the campus research community. The laboratory consists of 18 IBM PC microcomputers connected via a network to two IBM PC/AT system servers. Each interviewer station is acoustically insulated from other stations and has specialized telephone and automatic dialing equipment. The survey facility is used for grant and contract research covering both the local community and the state. When not required for survey projects, the computer network is used for a variety of classroom exercises and student research projects.

The **Department of Polymer Science** and the Institute of Polymer Science have extensive facilities for synthesizing, characterizing and investigating the physical properties of polymers. In addition, excellent facilities for studies on polymer processing are available. The total value of major instrumentation and equipment housed in the department and institute laboratories exceeds $3.5 million.

The **Department of Psychology** laboratory resources include undergraduate laboratories and advanced computer controlled laboratories for the study of human information processing (e.g., 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 for the study of counseling process and outcome are also available. The department owns several IBM-XT PCs for on-line collection of data and control of experiments; the perceptual laboratory includes a G & W eye scan and eye track apparatus. The department is associated with the Institute for Life-Span Development and Gerontology, including emphasis in adult development, gerontology and women's studies.

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. In addition, a computer-assisted telephone interviewing (CATI) system laboratory is used for student training in an annual Akron area survey. The anthropology laboratories contain hominid fossil casts, archaeological collections and a variety of equipment used in archaeological research.

The **Department of Urban Studies** has a microcomputer laboratory equipped with five IBM personal computers networked to a central PC equipped with a 30 megabyte hard disk. Both color graphics and letter-quality printers are available. Students are trained in software useful for public administration and urban planning administration, as well as statistical software packages such as SPSS-X PC. The statistics laboratory is housed with the microcomputer lab. Modems connect with the PCs to the IBM mainframe providing a full range of mainframe computer applications.

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, an information management laboratory and a word processing laboratory in the **Office Administration** program. A new computer laboratory with an IBM System I computer with 16 terminals is maintained for the **Data Processing** program. All business technologies are served with a 32-unit IBM PC laboratory.

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

The **Engineering and Science Technologies** are served with a Hewlitt-Packard laboratory to provide hands-on programming and computer-assisted drafting experiences.The **Drafting Technology** program maintains a technical computation laboratory which provides all students in the Engineering and Science technologies the opportunity to develop basic computer programming skills.

The **Electronic Technology** program provides a circuits laboratory, electronics laboratory, control system laboratory, digital circuits and system laboratory equipped with IBM personal computers 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.

College of Education

The offices, laboratories and other facilities of the College of Education are located in Zook Hall, Carroll Hall, Crouse Hall, the James A. Rhodes Health and Physical Education Building, Memorial Hall and East Hall.

The **Department of Educational Foundations** is responsible for the core curriculum of social, philosophical and historical foundations of both the undergraduate and the graduate education programs of all departments. Within this department is the Educational Media Laboratory, which serves as a resource in teaching education students the selection, production, use and evaluation of audiovisual materials, media and microcomputer technology.

The **Department of Health and Physical Education** prepares students for careers in teaching, coaching, related recreational fields and related health fields. Within the department, the Human Performance Laboratory is equipped as a teaching and learning center for preservice personnel studying areas such as cardiovascular functions, stress, nutrition and sports medicine. The James A. Rhodes Health and Physical Education Building and Memorial Hall house a gymnasium, weightlifting room and several laboratories for education in physical skills.

The **Department of Secondary Education** houses the Microteaching Laboratory, which is managed by department faculty. The laboratory offers several rooms for simulated teaching with videotaping and feedback to facilitate students' self-assessment of teaching behaviors. The facility serves all departments in the college.

The **Center for Economic Education** serves as an instructional site for preservice teachers, college faculty and area schools. Workshops, seminars, materials, and visiting experts provide in-service training in economic issues. An extensive inventory of educational media includes

books, periodicals, lesson outlines, games, films, videotapes, and computer software which address economic education.

The **Department of Counseling and Special Education** operates the Materials Resources Center, which serves as a repository of curricular aids for both the preservice teacher and those in the classrooms. Kvam's Kinder Camp, located several miles from the campus, provides an instructional opportunity for teacher education students while serving the needs of handicapped children in the Akron area during the summer. The Clinic for Child Study and Family Therapy, housed in this department, offers support and therapy for the public while providing a clinical teaching and research setting for University students and faculty. Several therapy and counseling rooms offer viewing from an adjoining room for practicum students' supervision and feedback.

The **Department of Educational Administration** operates the Center for the Study of Higher Education, which provides support for those seeking advanced study. The department hosts biannual conferences for northeast Ohio educational administrators and houses the regional office for the Ohio School Boards Association.

The **Department of Elementary Education** uses those strategies appropriate for the K-8 child in the teaching-learning situation as the basis for its broad offering of courses in the disciplines of reading, mathematics, social studies, science and art. A reading center, mathematics lab and art lab facilitate the instruction of preservice teachers. The University Nursery Center, directed by department faculty, provides day care for children while serving as an experiential learning site for teacher education students.

College of Engineering

The **Department of Chemical Engineering** possesses a variety of modern research equipment. The Particle and Catalyst Characterization Laboratory has a Micromeritics surface area analyzer, a flow BET unit, a temperature programmed chemisorption and desorption unit, and a mercury intrusion porosimeter. There is also a particle shape and image analyzer by Shape Technology.

The Chemical Reaction Engineering laboratories have a continuous high pressure catalytic reactor which is controlled by an on-line computer working in a real-time, multitasking mode to evaluate results. A slurry-reactor, micro-pilot plant operates in a three-phase catalytic mode and is ideal for carrying out various fundamental and engineering studies on three-phase catalytic reactions. A gas chromatograph/mass spectrometer is available for product stream analysis.

The Applied Colloid and Surface Science Laboratory has a state-of-the-art laser light scattering facility including a Lexel argon-ion laser, a vibration isolated optical bench, a Brookhaven correlation and probability analyzer, and an IBM PC-based data acquisition system.

The focal point of the undergraduate laboratories is the Corning Glass-plant six-inch distillation unit which includes a 12-plate bubble-cap column and an eight-foot high packed-bed column. The unit is 24 feet high. There is also a pilot plant with a five-gallon agitated reactor and a packed-column stripping facility.

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. 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, 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.

In the soil mechanics and foundation engineering lab, a student learns how to analyze soil by triaxial cells, direct shear machines and compression machines to determine shear strength characteristics, 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 100,000 pounds and two Instron dynamic testing machines which can be used in either uniaxial or torsional loading.

The **Department of Electrical Engineering** maintains a broad range of measurement, electronics, control/robotics computer, digital electronics, signal processing, microwave/transmission line, optics and machinery laboratories.

Measurement and Electronics Laboratories: Students learn to do basic electrical measurement and to design simple electronic circuits and instruments. The equipment includes oscilloscopes, transistor curve tracers, and an assortment of voltmeters, ammeters and wattmeters.

Control/Robotics Laboratories: There are analog computers for control system simulation and programming, and digital computers for interfacing with the controlled systems. A variety of robotic devices and systems are also available for robotic control and robotic vision study.

Computer Laboratory: A number of personal computers are available for instructional and research purposes.

Digital Electronics Laboratory: We have several Intel and Hewlett-Packard microcomputer development systems for digital prototype design, emulation and debugging work.

Signal Processing Laboratory: There are computer systems with digitizing, computing and signal reconstruction capabilities. An anechoic chamber and a key digital sonograph are also available for signal recording and analysis.

Microwave/Transmission Line Laboratory: Students perform the experiments on the basics of wave guide, transmission line property and wave progagation.

Optics Laboratory: There is an optics table, laser and holograph apparatus.

Machine Laboratory: Students learn the operating principles of generator and motors, and perform motion control experiments; the laboratory is equipped with an assortment of motors, generators and motor starters.

The **Department of Mechanical Engineering** maintains laboratories in the Auburn Science and Engineering Center and in Simmons Hall for both undergraduate and graduate instruction and research. These laboratories include a thermal and fluid science laboratory with internal combustion and gas turbine engines, a supersonic wind tunnel and a subsonic wind tunnel; a heat transfer laboratory with thermal conductivity, radiation and temperature measurement systems, a gas laser and various heat exchangers; a measurements laboratory with a full complement of transducers, calibration standards, signal conditioners, analog recording devices and microprocess-based digital data aquisition systems; a mechanical laboratory with a new Instron uniaxial testing machine with computer control, several hardness testers, photoelastic strain measuring equipment and a full range of strain gage instrumentation for static and dynamic measurements; a mechanical design laboratory with major software packages for computer-aided design and with computer graphics terminals connected to the College's Prime 850 computer; a systems and controls laboratory with microprocessor, analog computers, and digital control equipment for process control and robotics; and a vibration and acoustics laboratory with electro-mechanical shakers, sound pressure level instrumentation and frequency spectrum analyzers for modal analysis.

The **Department of Polymer Engineering** laboratories maintain a broad-based range of processing, structural and rheological characterization facilities. These include apparatus for mixing, extrusion and fabrication of fiber, film and (screw injection) molded products. Characterization facilities include (Fourier Transform) infrared, small angle light scattering, polarized light microscopy, optical benches and a refractometer. Rheo-

logical/mechanical testing facilities include capillary, elongational and sandwich rheometers, mechanical testing machines and an oscillating disk rheometer.

College of Fine and Applied Arts

The **Department of Art** provides students with a solid background in art history supported by a collection of over 60,000 slides and an auditorium classroom setting. The department's studios and classrooms are housed in a contemporary 67,000 square foot building which features a ceramics studio with pottery wheels and kilns; a metalsmithing/jewelry laboratory offering casting and fabricating equipment; photographic tools and darkrooms; 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 program has student labs complete with traditional metal type, state-of-the-art computer typesetting systems, Art-O-Graph enlargers, typositors, plate makers, black-and-white and color stat cameras, advertising photo studio and laboratories, color proof systems and two offset lithography presses. The computer graphics area utilizes two turn-key graphic systems with video input and still film recorders plus Apple II computers set up for graphic use to keep current with new trends in the art field. Emily Davis Gallery, Perkins Gallery and the Guzzetta Hall Atrium Gallery display staff-curated national and regional exhibitions, as well as student and faculty work, on a continuous basis. On occasion, the galleries also host traveling exhibitions. The art gallery maintains a program of catalog publications.

The **Department of Communication** features a television classroom/studio equipped with color cameras, lights, audio and video control boards, slide and film chain, video and audio tape recorders and character/title generator. Portable video and audio equipment is available for location use. A multitrack audio recording facility is located in Guzzetta Recital Hall. Radio facilities, located in WAUP-FM, include control boards, turntables, tape machines, mikes, studios and newsrooms. A multimedia production/editing laboratory-classroom supports class instruction. News and other writing classes have access to a typing lab and a computer text editing/VDT system.

The **Department of Communicative Disorders** provides pre-professional and professional training to students who wish to become speech-language pathologists and/or audiologists. The department houses the Speech and Hearing Center, which functions as a practicum training arm as well as a service agency for persons in the Akron community who have speech, language or hearing problems.

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 multipurpose 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, Theatre and Dance** utilizes Guzzetta 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 two harpsichords, a harp, a nine-stop tracker organ, a Mohler practice organ, a computer-based instructional laboratory of 10 Apple computers with sound synthesizers, an electronic piano laboratory and 11 Baldwin concert grand pianos for the recital hall, classrooms, teaching studios and 40 practice rooms (acoustical sound modules).

The areas of theatre and dance utilize three different performing spaces to present their 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 performances, as is the multipurpose E.J. Thomas Performing Arts Hall where two departmental productions are presented each year. The Ballet Center, formerly the Firestone Conservatory, houses extensive studios for the dance program.

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.

College of Nursing

The **College of Nursing**, housed in Mary Gladwin Hall, has a multipurpose Learning Resource Laboratory where nursing practice is simulated through organized and independent activities. Typical equipment found in hospitals, health agencies and the home are available for students to practice simple and complex nursing techniques. The laboratory features a hospital setting, study carrels, computers, a graduate research room and the Center for Nursing, which is the research, education and practice arm for the study of Family-Health Nursing.

Students in the College of Nursing have their clinical experience in hospitals, health departments, visiting nurse services and many local health-care agencies. The entire community thus becomes an interactive learning center for the College of Nursing.

Computer Center

The **Computer Center** is at the west end of 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. The 370/158 is scheduled to be replaced by an IBM 3090/200 computer in January 1987. A variety of peripheral equipment is attached to these computers including magnetic tape drives, disk drives and remote terminals. A DEC VAX 11/785 has recently been installed to aid research conducted in the computer science and engineering fields. An IBM 4361 computer in a VM/CMS environment supports the computer courses. 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 C, 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).

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 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 member 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 prepackaged programs for specific departments.

Student Services

The Office of Student Services exists to provide whatever help a student needs to develop academically, personally and socially. Special services are also available to the nontraditional adult student who wishes to return to or continue studies in higher education. Several facilities provide various forms of help to students.

STUDENT DEVELOPMENT

This office provides a wide range of resources, programs and professional counseling to assist the student with individual growth through involvement in campus organizations. The office provides leadership and skill-building workshops for all students throughout the year. These workshops enhance the student's ability to participate effectively within and accept responsibility for group activities.

The office maintains current information about all campus organizations and their activities and will help a student explore the wide range of opportunities that can enrich both his University experience and his individual development.

STUDENT FINANCIAL AID AND EMPLOYMENT

This office serves students who may need financial assistance to attend the University. Six professional staff members provide information on available aid programs.

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

CAREER PLANNING AND PLACEMENT

Career placement assistance in business, industry, government, private agencies and education is provided to students by this office, located in Simmons Hall.

For the graduating student, on-campus interviews with representatives of businesses, industries, branches of the government and military services, and elementary and secondary education can be scheduled through this office. Information on administration or teaching careers in higher education is also available. Other services to registrants include direct job referrals, the maintenance and distribution of students' credential files, the availability of company literature, and counseling in career planning.

Both students and alumni may take advantage of the facilities and services of this office, and more than 400 interviewers come to the University each fall and spring to interview degree candidates.

Additionally, the Career Planning and Placement Office is part of a cooperative effort with the Counseling and Testing Center to provide for the comprehensive career development needs of students. These programs and services are described below under Career Development Service.

Career Development Service

The Career Development Service is a cooperative effort of the Counseling and Testing Center and the Career Planning and Placement Office.

Major Objectives

- To provide specialized services for students to help them:
  - explore, clarify and assess their interests, values, needs, abilities and personality characteristics;
  - understand broad career areas and specific occupations;
  - decide on a career direction and an appropriate educational program; and,
  - develop lifelong decision-making skills.
- To provide services to students who have made a tentative decision regarding their career direction to help them:
  - reassess their interests, aptitudes, needs, educational and experiential backgrounds as well as their desired life style to clarify, re-evaluate or reinforce their choice;
  - sharpen decision-making skills;
  - apply this knowledge to the realities of the world of work; and,
  - develop lifelong job skills.

Services

- Individual counseling for career and life planning.

  This individualized approach provides a systematic, in-depth exploration of self and the identification of possible career alternatives.
- Interest, aptitude, personality and values testing for career and life planning.

  A wide range of vocational and psychological tests and inventories are available for self-assessment in individual and group counseling.
- Career and life planning groups.

  Groups usually meet for three or four one-hour sessions using the self-assessment career planning approach.
- "Puzzling Your Career" workshops.

  This is a well-developed and flexible approach to career planning especially useful for the nontraditional student.
- SIGI — a computerized system of interactive guidance and information.

  SIGI is a computer program designed specifically to help college students make rational and informed career decisions.
- OCIS — computerized Ohio Career Information System.

  OCIS is a computer-based information system designed to provide remote, instantaneous access to state and national data regarding occupations, educational institutions and financial aid.
- Career library.

  In addition to standard references, general and specific information is available about career opportunities with hundreds of companies, government agencies and school systems in Ohio and throughout the country.
- Career advisement and consultation.

  Information and consultation is available about various career fields and their requirements, as well as about job outlooks, salaries, job hunting skills and University of Akron alumni follow-ups.
- Workshops on interviewing skills, resume writing and job hunting skills.

  These are practical how-to sessions that deal with a topic in a clear, concise, informative manner.

- Interviews with employers.

  Campus interviews with representatives from business, industry, government and private organizations are scheduled throughout the year.
- Contacts.

  Names of people to contact within organizations and addresses and locations for all types of employment are available.
- Current job opportunities.

  Employers regularly notify the Career Planning and Placement Office of current positions available.
- Computerized job matching.

  A computerized system matching jobs to students registered in the CPPO is in operation. This will facilitate information-flow between employers and potential candidates for employment.

You are invited to contact the Career Development Service to take advantage of any of the services described. This contact may be made through the Counseling and Testing Center, Simmons Hall 163, 375-7082 or the Career Planning and Placement Office, Simmons Hall 178, 375-7747.

COUNSELING AND TESTING

In addition to participating with the Career Planning and Placement Office in the Career Development Service, the Counseling and Testing Center, in Simmons Hall, provides a wide range of psychological counseling, therapy, testing and consulting services to the University community.

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, as well as two computerized guidance and information programs.
- *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* concentrate on such areas as increasing self-awareness and personal growth, improving grades, improving relations with others, developing communications and listening skills, adjusting to midlife career change and understanding and accepting an individual's sexuality.
- *Consulting services* deal with concerns of nontraditional 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.

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, mathematics and foreign language placement test, 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).

Individual psychological and vocational testing is offered in conjunction with counseling. Such tests cover such areas as vocational interests, aptitudes, achievement, personality and assessment of learning disabilities.

STUDENT HEALTH SERVICES

Health service facilities are immediately adjacent to the residence halls. 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 requiring extended bed care will be charged the daily rate which is that 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.

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.

UNIVERSITY LIBRARY AND LEARNING RESOURCES

Library

Library facilities are found in three separate locations: the main library in the Bierce Library building on East Buchtel Avenue; the Science and Technology Department in Auburn Science and Engineering Center 104; and the Psychology Archives in Simmons Hall 10.

Library services are grouped into three divisions: Information Services, Access Services and Archival Services. In both the main library and the Science and Technology Department, Information Services provides reference and research assistance, user education and bibliographic instruction, computer-based information searching and library materials and resource development. Access Services operates circulation services for materials that can be borrowed from the main library facility and for interlibrary lending and borrowing from other libraries around the country. This division also functions as the processing unit for ordering, receiving and cataloging all library materials. Archival Services collects and makes available materials such as correspondence, photographs and newspapers which have historical or other research interest and which relate primarily to The University of Akron, to an eight-county region in northeast Ohio or to American psychology.

The University library's collection contains more than 1.8 million items: books, periodicals, government documents, curricular materials, microforms, maps, records, manuscripts and other archival materials. The library receives more than 5,000 magazines, journals, newspapers and other serial publications, such as annual reports, proceedings of conferences and society publications.

Through the library's memberships in the Center for Research Libraries, the Northeast Ohio Major Academic Libraries consortium, the Online Computer Library Center (OCLC) and the Ohio Network of American History Research Centers, access to vast resources is greatly increased for University students, faculty and staff.

University identification cards function as library cards. Photocopy services and equipment for use in making paper copies from microforms are available in the main library and the sciences and technology department. A machine for making a duplicate microfiche copy is available in the main library, where group study rooms and typing facilities are also available.

Learning Resources

Learning Resources Services are grouped into three units: Media Services, the Computer-Based Education Center, and the Center for Community and Public Television (CCPTV). Learning resources facilities have several locations on campus. The media services administrative offices, classroom services unit and film-ordering and scheduling section are in the Bierce Library. The photographic, audio and television production activities, along with the AVS IMAGINE photographic sales store, are in Carroll Hall 50 and 57. Satellite stations for equipment distribution are in Guzzetta Hall 127; Mary Gladwin Hall 207; Olin Hall 116; Schrank Hall South 238; and Gardner Student Center on the second floor. The production center for Community and Public Television is in Kolbe Hall 101. The Computer-Based Education Center, both its administrative unit and terminal site location, is in Carroll Hall 308 and 325B.

Media Services maintains an extensive centralized collection of media hardware and audio-visual resources and materials in the Bierce Library building for student and faculty use. It also has a collection of instructional materials in various media formats (filmstrips, slides, etc.) that can supplement University professors' lectures.

Media Services has a materials production unit which prepares original artwork and photographic materials for use by professors to accent course content and to augment learning principles. This division prepares non-broadcast, educational videotapes that support classroom instruction and provide general information, along with films, slide/sound sequences, audiotapes and multi-image presentations. It also produces campus-wide telecourses and videotapes for individual classes. Annually, an estimated seven thousand students receive part of their instruction by television.

Through use of its broadcast-quality and on-location equipment, the CCPTV produces cultural, public affairs and sports programs. Many of these programs are produced in cooperation with Kent State University and Youngstown State University as part of the consortium, Northeastern Educational Television of Ohio, Inc., which operates television channels 45 and 49. A collection of CCPTV programs is housed in the Kolbe Hall production complex.

The Center for Computer-Based Education serves the University in the design, development, validation and delivery of computer-based education course ware. The division also provides consultation on educational projects. The CBE Center supplies course ware for both on-campus and off-campus users. For over a decade, the center has supported a CBE network that provides course ware to area schools and other local agencies.

The Learning Resources Center (LRC) is in Carroll Hall 200. The LRC is equipped with 36 active learning carrels and 24 table study stations. The center operates for an average of 50 hours weekly. 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; 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.

RESIDENCE HALLS

The Office of Residence Halls has the responsibility for providing comfortable and healthful living accommodations for the non-commuting student. The residence hall program is committed to providing a living experience that 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 on the first floor of Bulger Residence Hall. Currently the dorm system includes 16 facilities housing approximately 2,200 students from 17 states and several foreign countries.

Living in each hall is a trained hall director 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. 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 residence halls have coin-operated washers and dryers as well as lounge and study areas. A resident may 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 $2,652 per year ($1,326 per semester).

Housing is also available during the summer on a limited basis. The charges are: per night, $6.50; per session, $208; and for the entire summer school period, $416. These prices reflect the cost of rooms only. A student is responsible for meals.

In the event surplus space becomes available in University residence halls, the University shall enforce a rule requiring occupancy of facilities by students attending the University.

Residence Hall Program Board (RHPB)

RHPB is a student-operated programming organization that provides 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 an 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 (590 AM) is the residence hall radio station. 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.

University Residence Halls

	Number of Residents
Bulger Hall (men) 265 E. Buchtel Avenue	476
Gallucci Hall (men & women) 200 E. Exchange Street	441
Grant Residence Center Highrise (women) 151 Wheeler Street Townhouses (men and women) Sherman and Grant Streets	413
Orr Hall (women) 188 S. College St.	118
Ritchie Hall (women) 269 E. Buchtel Ave.	92
Sisler-McFawn (women) 211 E. Center St.	122
Spanton Hall (women) 190 S. College St.	306
Torrey Hall (men) 282 Torrey Street	56
Brown Street Hall (men) Brown Street	136

Private Residence Halls

Berns Hall (women) 503-505 Vine Street	106
Concord Hall (women) 389 Sherman Street	35
Glenville House (men) 478 Orchard Street	50
Sherman Hall (men) 417 Sherman Street	50
Sumner Hall (women) 430 Sumner Street	40

HOURLY PRE-SCHOOL

The University of Akron Nursery Center provides a variety of child-care programs, all of them open to the general public as well as to students, faculty and staff. 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 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.

The Nursery Center, which is open between 7:40 a.m. and 6 p.m. Monday through Friday during the fall and spring semesters, offers an hourly pre-school for children three to five years old. The center also offers half-day pre-school sessions, which run from 8 a.m. until noon or from noon until 4 p.m. Full-day sessions are available for up to 45 hours of child care per week during the center's normal operating hours.

A summer program is also offered for school-aged children from three to 12 years old during the center's summer hours, from 6:45 a.m. until 6 p.m. Hourly, half-day and full-day care can be provided.

Fees for the Nursery Center services are the same during both the academic year and the summer session. Hourly pre-school care is $1.90 per hour; for half-day sessions, $35 per week; and for the full-day program, $60 for up to 45 hours of child care. Parents who have enrolled one child in the full-time program may enroll a second child for half the regular fee. Registration is handled on a per-semester basis for all parents, and space is allotted on a "first-come" basis.

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*.

THE BLACK CULTURAL CENTER (BCC)

The Black Cultural Center develops, coordinates and implements non-credit instructional and educational programs and activities on the total black experience for The University of Akron. The center serves as a coordinating agency for all black student groups on campus although each group maintains its autonomy. The BCC sponsors a Black Freshmen/Parent Orientation Week annually and provides other limited auxiliary services to minority students in pursuit of academic and cultural excellence. Also, the center provides limited outreach service to the black community of Greater Akron.

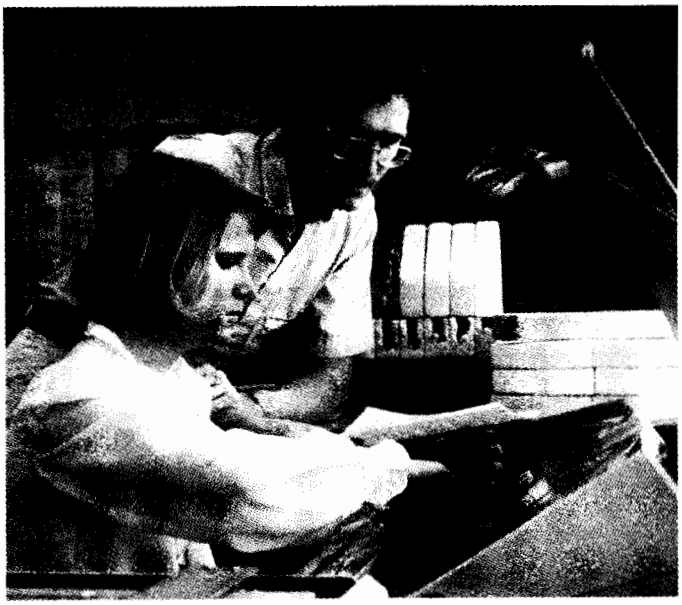
Co-curricular Activities

Experiences obtained through social life and extracurricular activities add an important dimension of learning to formal course work.

Eligibility for participation in an officially registered extracurricular activity is based on the student's eligibility to continue in the University. Participants in certain selected activities, e.g., honor societies, recognition societies, varsity athletics, etc., must also satisfy requirements for eligibility as specified by the national and/or conference organizations governing such activities.

Co-curricular 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. Participation in these activities provides an opportunity to make new acquaintances and contacts with various people in the University and community; they also provide the chance to broaden classroom learning experiences, develop skills that will be marketable in the search for a career position, introduce the student to additional interests and teach him leadership and human relations skills.

Listed here 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 students to develop the ability to face the public through such live audience performances 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 FM). Also available is experience at the residence hall station, WRHA (590 AM). 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 200-piece Marching Band, the Concert Choir, the Vocal Jazz Ensemble, the award-winning Jazz Ensemble, the University Orchestra, the Concert Band, 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, in the form of the Experimental Dance Ensemble, which is intimately associated with the world-renowned Ohio Ballet.

SPORTS

The University aims to provide a diversified program in intramural and intercollegiate club 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 15 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 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.

DEPARTMENTAL ORGANIZATIONS

To enhance and expand classroom learning, many academic departments sponsor organizations that provide social and educational programs in a particular field of study. Guest speakers, mock interviews, community service projects and career nights are a few of the activities offered.

PERSONAL INTEREST ORGANIZATIONS

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

Some of the most prominent, broadly appealing 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, which 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, which schedules entertaining activities such as coffeehouses, dances, films and video entertainment in order to fill resident students' leisure time.

Students at The University of Akron have the opportunity to hold positions on the all-campus activities board, the University Program Board. UPB is open to interested students and is actively involved in the selection, promotion and presentation of concerts, films, evening and afternoon entertainment, dances, lectures, recreational activities, festivals and many other special events for the University community.

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 concerning campus events. Copies of each edition are distributed to students free of charge at various locations 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 that the yearbook summarizes.

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.

DIRECTORY OF STUDENT ORGANIZATIONS

July 1986

Athletics
Cheerleaders
Chinese Martial Arts
Karate Club (Tae Kwon Do)
Ski Club
Ski Team
Table Tennis Club

Communications and Publications
Amateur Radio Club
The Buchtelite (newspaper)
Forensic Union
Tel-Buch (yearbook)
WRHA Radio
Women in Communications

Departmental Organizations
Accounting Association
Administrative Management Society
American Chemical Society
American Institute of Aeronautics and Astronautics
American Institute of Chemical Engineers
American Society of Civil Engineers
American Society of Mechanical Engineers
American Society for Personnel Administration
Biology Club
Collegiate Student Nursing Club
Computer Science Club
Council for Exceptional Children
Data Processing Management Association
Der Deutsche Studentenklub
Economics Association
Electronics Club
Financial Management Association
Fire Protection Society
Geography Club
Geology Club
Hospitality Club
Institute of Electrical and Electronic Engineers
Instrument Society of America
International Business Club
Italian Club
Johnson Club (English)
Le Cercle Francais Universitaire
Math Club
Medical Assisting Club
Medical Technology Club
Philosophy Club
Polymer Science Student Organization
Psychology Club
Slavic Society
Society for Students in Construction
Society of Physics Students
Society of Plastics Engineers
Student Art League
Student Dietetic Association
Student Social Work League

Evening College
Alpha Sigma Lambda
Chi Sigma Nu
Evening Student Council
Gamma Beta

Graduate Student Groups
Association of Chemistry Graduate Students
Chinese Student Association
Chi Sigma Iota
Graduate Student Government
Industrial/Organizational Psychology Graduate Students
International Graduate Students Organization

Association of College Honor Societies
Alpha Alpha Alpha (social work)
Alpha Epsilon Rho (broadcasting)
Alpha Kappa Delta (sociology)
Alpha Lambda Delta (freshmen women)
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 men)
Phi Sigma Alpha (arts and sciences)
Pi Delta Phi (French)
Sigma Delta Pi (Spanish)
Tau Beta Pi (engineering)

Other Honor Societies
Beta Gamma Sigma (business administration)
Delta Phi Alpha (German)
Financial Management Association
Mu Kappa Tau (marketing)
National Honor Society
Phi Theta Kappa (Community and Technical College)
Pi Lambda Theta (education)
Pi Mu Epsilon (mathematics)

Professional Fraternities
Alpha Upsilon (criminal justice)
Beta Alpha Psi (accounting)
Delta Nu Alpha (transportation)
Delta Sigma Pi (business)
Kappa Kappa Psi (music)

Recognition Societies
Gamma Theta Upsilon (geography)
Honors Club
Pi Sigma Epsilon (marketing)
Tau Beta Sigma (band)

Law Groups
ARETE
Black Law Students Association
Bracton's Inn
International Law Society
Law Association for Women's Rights
Phi Alpha Delta
Pre-Law Club
Student Bar Association

Military Recognition Societies
Arnold Air Society — Army ROTC
Pathfinders — Army ROTC
Pershing Rifles — Army ROTC
Program Support Team
Silver Wings Society of Angel Flight

Performing Arts
Choral Ensembles
- Jazz Vocal Ensemble
- Men's Glee Club
- Opera Theatre
- Symphony Chorus
- Concert Choir
- Women's Glee Club

Experimental Dance Ensemble
Instrumental Ensembles
- Brass Choir
- Chamber Orchestra
- Concert Band
- Jazz Ensemble
- Jazz Combo
- Percussion Ensemble
- Marching Band
- University Orchestra
- University Steel Drum Band
- Symphony Band
- Wind Ensemble
- Woodwind Choir

Theatre Guild

Personal Interest
Associated Student Government
Association of Arab Students
Association of College Entrepreneurs
Black Greek Council
Black United Students (BUS)
Chess and Go Club
College Republicans
Contemporary Students Organization
Future Physicians Club
Future Secretaries Association
Gay-Lesbian Task Force
Hellenic Club
Indian Students' Association
International Affairs Society
International Association of Business Communicators
International Students Club
Issues Awareness Association
Korean Student Association
Malaysian Student Association
Minority Business Students Association
Nigerian Students' Union
Office Education Association
Outing Club
Palestine Club
Public Relations Student Society of America (PRSSA)
Rainbow Coalition
Residence Hall Council
Residence Hall Honorary
Residence Hall Program Board
Senior Class Board
Stargate
Student Toastmasters
Turkish-American Students' Association
United for Life
University Gaming Society
University Program Board
Vietnamese Student Association

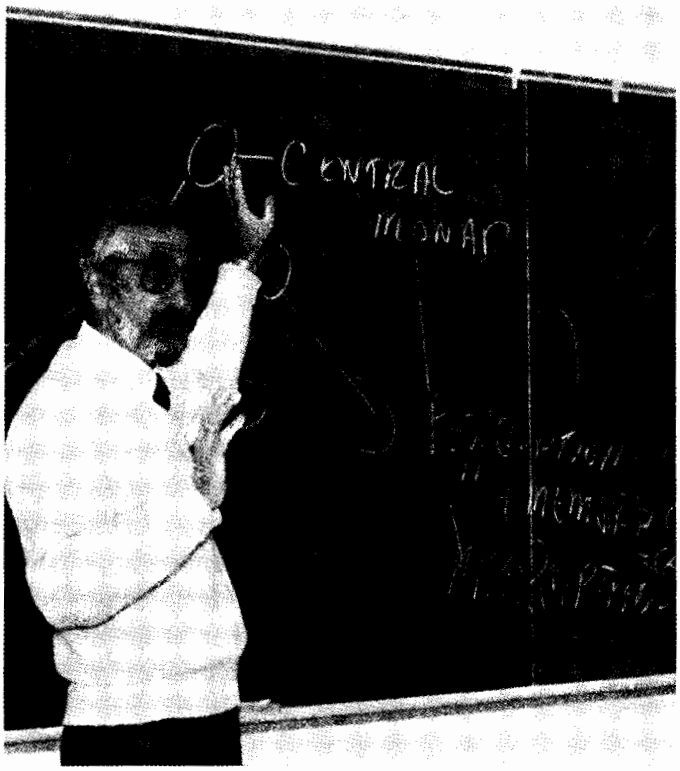
Religious Organizations
Alpha Omega Christian Fraternity
American Friends Service Committee
Baha'I Club
Baptist Student Union
Christian Science Organization
Ecumenical Christian Association
Gospel Chorus
Great Commission Students
Intervarsity Christian Fellowship
Kappa Phi Club
True Vine Campus Ministry
University Christian Outreach (formerly Bread of Life)

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

Social Sororities
Alpha Delta Pi
Alpha Gamma Delta
Alpha Kappa Alpha
Alpha Phi
Chi Omega
Delta Gamma
Delta Sigma Theta
Kappa Kappa Gamma
Theta Phi Alpha
Zeta Phi Beta
Panhellenic Association

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 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
2 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 in mathematics and science.

The high school courses mentioned above are *recommendations,* not requirements. Variations in degree requirements for different majors may cause variations in recommended high school courses. 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 those who show a deficiency in English or mathematics will be required to take developmental courses in those areas. Developmental courses do not count as degree credit; however, they do count toward full-time status.

CLASSIFICATION OF STUDENTS

The University of Akron classifies its 26,000 students according to their needs, goals 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 he 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 course work 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 processed. 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 the Graduate School, see **Section 7** 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, either by calling (216) 375-7100 or writing the Office of Admissions, The University of Akron, Akron, OH 44325. Fill it out and return it as soon as possible with the nonrefundable 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 the payment is being made.
- Send a student transcript to the Office of Admissions at the time of application. This record must be received before any admission action can be taken by the University.
- Take entrance tests. Arrangements may be made through the student's high school to take the ACT or SAT. (The University's Counseling and Testing Center also serves as a testing site for the ACT test.) Test scores must be submitted before an applicant can be formally admitted to 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 En-

glish placement test is deemed necessary to comply with this policy, the student must take the appropriate placement test(s) by the completion of the first term of attendance. 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 advising through Academic Advising Services of the University College. The evening student at the same level will be advised by the Evening College.
- **If the student is under 25** years of age, the student must request a transcript from his 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.

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, either by calling (216) 375-7100 or by writing the Office of Admissions, The University of Akron, Akron, OH 44325. Fill it out and return it as soon as possible with the nonrefundable 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 the payment is being made.
- **If the student is under 25** years of age, the student must request a transcript from his 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 advising 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 can re-enter the institution from which transfer is desired. Also, the student must present 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, either by calling (216) 375-7100 or writing the Office of Admissions, The University of Akron, Akron, OH 44325. Fill it out and return it as soon as possible with the nonrefundable 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 the payment is being made.
- A transfer applicant must request the official transcripts from the records office of all institutions previously attended. They 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 also require the ACT battery. 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 mathematics 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) by the completion of first term of attendance. Arrange for the mathematics test by contacting the Testing Service (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.

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 postbaccalaureate student through the Office of Admissions.

This procedure should be followed:

- Obtain an application form from the Office of Admissions, either by calling (216) 375-7100 or writing the Office of Admissions, The University of Akron, Akron, OH 44325. Fill it out and return it as soon as possible with the nonrefundable 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 the payment is being made.
- A postbaccalaureate student must request the registrar of the institution(s) from which he 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.

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 advising will be forthcoming in the letter of admission to the special student program.

Transient Students (Non-University of Akron 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.

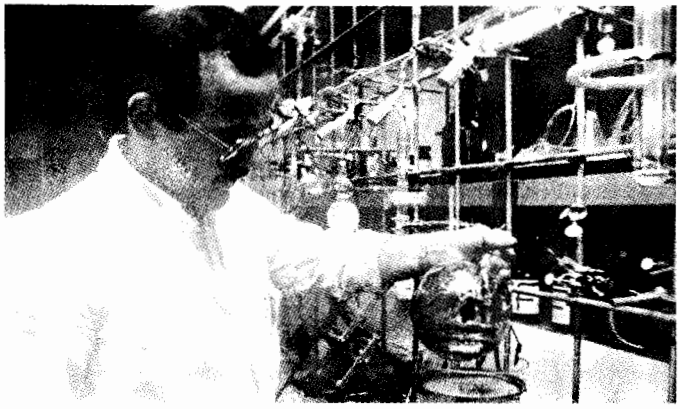
A transient student may not, as a general rule, attempt more than 16 credits in any semester or session and is subject to all rules and regulations of The University of Akron.

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 nonrefundable application fee (a one-time charge).
- Receive advice and written approval by the home institution of the course work for which the student plans to enroll.
- After admittance, information regarding registration will be sent to the student. The admissions officers act as transient student counselors, and one day of open registration is set apart for transient students to register for classes.

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 1985-86 academic year, approximately 700 students with citizenship other than the United States attended the University. These students represent 87 countries and are pursuing studies in a number of major fields.



Admission Procedures

Applicants 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, OH 44325 USA. Fill it out and return it with the nonrefundable 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 include an autobiographical essay 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 application 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 $8,100 per year for undergraduate 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 receive 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.

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 the results of his placement examination warrant such action.

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 course work. 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 he can be admitted.

Special Note

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

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

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

ORIENTATION

The first major contact the newly admitted student has with the University comes during an orientation period, held prior to the beginning of each semester, which provides the student a great deal of information about the University and what is expected from the student. The student will meet many of the University's administrative officers and faculty members and discuss specific problems with an upper-college student. Thus, the student has an opportunity to become acquainted with the University and clear up many of the questions which arise when embarking on a new enterprise.

COUNSELING

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

REGISTRATION

Each term it is necessary for a student to select courses, complete required forms and pay the appropriate fees to register officially for classes.

The student may elect to register by mail or in person. Details about these options are described in the *Schedule of Classes* published every academic period and available upon request from the student's advising agency: the Office of Academic Advising Services, the Evening College or the degree-granting college. A nonrefundable late registration fee is assessed students enrolling after the official open registration period.

CLASS ATTENDANCE

A student is expected to attend all meetings of a class for which he is 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 dean and instructor. A student dropped from a course receives an "F" which counts as work attempted whenever grade-point ratio calculations are made.

STUDENT SCHEDULES

Modification of Student Schedules

A student must register for a course before the end of the first week of the term. Alterations in the student's official schedule may 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.

Withdrawal Policy

A student may withdraw from a course up to the midpoint of the course with the signature of his adviser. After the midpoint of a course, a student must have the written approval of both the course instructor and the adviser. 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.

Transfer Credit

Course work taken at an institution of higher education in the United States 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 course work 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 as well as the time period during which the courses were taken, will be listed on The University of Akron official academic record.

For courses that 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 a 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 — (University of Akron Students)

A University of Akron student may take course work 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 course work listed. The name of the institution will be listed on the University official academic record as well as the date that the course work 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 a 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 this *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*
University College			
	1100:112	1100:111	1100:111
Community & Technical			
Mathematics	2020:132	2020:131	2020:131
Analysis	2020:142	2020:141	2020:141
	2020:233	2020:132	2020:131,2
Office	2540:151	2540:150	2540:150
Administration	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
Buchtel College of Arts and Sciences			
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	3350:310	3350:310
	3350:442	3350:341	3350:341
	3350:444	3350:341	3350:341
	3350:495	3350:310	3350:310
Mathematical	3450:112	3450:111	3450:111
Sciences	3450:121	3450:112	3450:111,2
	3450:211	3450:148 or 149	3450:149
	3450:212	3450:211	3450:211
	3450:215	3450:148 or 149	3450:149
	3450:216	3450:215	3450:215
	3450:221	3450:149	3450:149
	3450:222	3450:221	3450:149,221
	3450:223	3450:222	3450:149,221,2
	3460:210	3460:209	3460:201 or 209
	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	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
College of Engineering			
	4200:200	4200:120	4200:120
Nursing BSN-RN Sequence (Limited to Licensed Registered Nurses)			
	8200:420	8200:100,200, 300,320	8200:320,400

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 noncredit 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.

*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.

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.

Repeating Courses

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

- 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. With the dean's permission, a student may extend this period or substitute another course if the previous course is no longer offered. 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.

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 course work 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 current 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.

Importance of Grades

Grades determine whether a student is either eligible or ineligible to remain at the University. 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 to accelerate academic progress.

A student should transfer from the University College to a degree-granting college upon meeting the grade and credit hour requirements of that 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.

*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.

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 after December 1981 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 after December 1981 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 accomplish its objectives better, 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 if a change in rules affecting degree requirements is unduly hard on 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 Avge. Req.*
Arts and Sciences		
Bachelor of Arts	128	2.00
Bachelor of Science	128	2.00
Bachelor of Science in Cytotechnology	128	2.00
Bachelor of Science in Geography/Cartography	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 Science in Political Science/ Public Policy Management	128	2.00
Bachelor of Science in Medical Technology	128	2.00
Engineering		
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
Education*		
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
Business Administration		
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
Fine and Applied Arts		
Bachelor of Arts	128	2.00
Bachelor of Arts in Business and Organizational Communication	128	2.00
Bachelor of Science in Dietetics	128	2.00
Bachelor of Arts in Foods and Nutrition	128	2.00
Bachelor of Arts in Textiles and Clothing	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
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
Nursing*		
Bachelor of Science in Nursing	131	2.00
Community and Technical		
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 Administration	64	2.00
Office Services Technology	64	2.00
Real Estate	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 Protection Technology	64	2.00
Handicapped Services	71	2.00
Histologic Technology	64	2.00
Manufacturing Technology	67	2.00
Mechanical Technology	69	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	69	2.00
Bachelor of Science in Electronic Technology	135	2.00
Bachelor of Mechanical Technology	135	2.00
Wayne General and Technical College		
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
Office Administration	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 as follows:

	Commuting Residents of Ohio	*Residents of Ohio Living on Campus*	*Non-Ohio Residents*
Undergraduate Tuition and Fees (regular load)	$1,783.60	$1,783.60	$4,364.00
Books (average costs)	300.00	300.00	300.00
Room and Board	—	2,652.00	2,652.00
	$2,083.60	$4,735.60	$7,316.00

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	
1-13 credits	$54.60 per credit
13-16 credits	$709.80 per semester
Over 16 credits	$709.80 + $54.60 per credit
Graduate and Professional (Law)	
One or more credits	$73.60 per credit

- Tuition Surcharge:

(Nonresidents of Ohio pay the surcharge in addition to the instructional fee)

Undergraduate	
One or more credits	$70.40 per credit
Graduate and Professional (Law)	
One or more credits	$59 per credit

- General Fee:

Undergraduate	$14 per credit to a maximum of $182 per semester

(Maximum general fee for two combined summer sessions is $169)

Graduate and Professional (Law)	
1-14 credits	$6.50 per credit
14 credits and over	$84.50 per semester

- Course Fees:

For the following courses, the fee noted will be assessed to cover the cost of instructional materials distributed by the instructor:

Course Number	Course Title	Credits	Course Fee
	COMMUNITY AND TECHNICAL COLLEGE		
2220:250	Criminal Case Management	6	$15
2240:124	Design in Commercial Art	3	$ 5
2240:140	Typography and Lettering	3	$ 5
2240:222	Advertising Photography	3	$15
2240:242	Advertising Layout Design	3	$ 5
2240:243	Publication Design	3	$ 5
2240:245	Designing for Production	3	$ 5
2240:247	Packaging Design	3	$ 5
2280:121	Fundamentals of Food Preparation I	4	$25
2280:122	Fundamentals of Food Preparation II	4	$25
2280:123	Meat Technology	2	$15
2280:233	Restaurant Operations and Management	4	$25
2540:125	Business Machines	2	$ 5
2540:140	Typewriting for Non-Secretarial Majors	2	$ 5
2540:150	Beginning Typewriting	3	$ 5
2540:151	Intermediate Typewriting	3	$ 5
2540:171	Shorthand Principles	4	$ 5
2540:172	Shorthand Refresher and Transcription	4	$ 5
2540:173	Shorthand and Transcription	4	$ 5
2540:241	Information Management	3	$ 5
2540:253	Advanced Typewriting	3	$ 5
2540:254	Legal Typewriting	2	$ 5
2540:274	Advanced Dictation and Transcription	4	$ 5
2540:277	Legal Dictation and Transcription	4	$ 5
2540:279	Legal Office Procedures	4	$ 5
2540:280	Word Processing Concepts	2-3	$ 5
2540:281	Machine Transcription	2	$ 5
2540:286	Keyboarding on Word Processing Equipment	3	$ 5
2540:287	Word Processing Application	3	$ 5
2740:130	Medical Assisting Techniques I	3	$15
2740:231	Medical Assisting Techniques II	2	$ 5
2740:232	Medical Assisting Techniques III	2	$ 5
2770:121	Surgical Assisting Procedures I	2	$ 5
2770:222	Surgical Assisting Procedures II	4	$15
2770:245	Roentgenogram Assessment	1	$ 5
2790:121	Introduction to Respiratory Therapy Technology	3	$ 5
2790:122	Patient Care Respiratory Therapy	3	$ 5
2790:223	Advanced Respiratory Therapy	3	$ 5
2790:224	Pulmonary Rehabilitation and the Respiratory Therapy Department	2	$ 5
2840:100	Basic Chemistry	3	$ 5
2840:101	Introductory Chemistry	3	$ 5
2840:102	Introductory and Analytical Chemistry	3	$ 5
2840:121	Organic Principles	4	$ 5
2840:151	Basic Physics: Mechanics	3	$ 5
2840:152	Basic Physics: Electricity and Magnetism	2	$ 5
2840:153	Basic Physics: Heat, Light and Sound	2	$ 5
2840:201	Quantitative Analysis	4	$ 5
2840:202	Instrumental Methods	4	$ 5
2840:250	Elements of Physical Chemistry	3	$ 5
2840:260	Compounding Methods	2	$ 5
2840:270	Natural and Synthetic Organic Polymers	4	$ 5
2860:123	Electronics I	3	$ 5
2860:225	Electronics II	3	$ 5
2860:227	Measurements	2	$15
2860:237	Digital Circuits I	4	$ 5
2860:238	Digital Circuits II	4	$ 5
2860:242	Machinery and Controls	4	$ 5
2860:251	Communications Circuits	3	$ 5
2860:255	Electronic Design and Construction	2	$15
2860:270	Survey of Electronics I	3	$ 5
2860:271	Survey of Electronics II	3	$ 5
2860:352	Digital Systems	4	$ 5
2860:353	Control Systems	4	$ 5
2860:400	Data Analysis	3	$ 5
2880:130	Work Measurement Procedures I	2	$ 5
2880:241	Quality Control Procedures	3	$ 5
2900:121	Fundamentals of Instrumentation	4	$15
2900:232	Process Control	3	$15
2900:239	Pulse Circuit Testing	3	$15
2920:242	Design Materials	3	$15

2920:245	Mechanical Design I	5	$15
2920:247	Technology of Machine Tools	3	$15
2920:335	Welding: Theory and Practice	3	$15
2920:339	Advanced Technology of Machine Tools	2	$15
2920:348	Introduction to Numerical Control	3	$15
2920:448	Numerical Control Programming	3	$15
2940:151	Technical Computations	1	$ 5
2940:160	Manufacturing and Construction Processes	2	$ 5
2940:170	Surveying Drafting	3	$15
2940:210	Computer Drafting	3	$15
2940:230	Mechanical Systems Drafting	3	$ 5
2940:240	Electrical, Electronic and Instrumentation Drafting	3	$ 5
2940:250	Architectural Drafting	3	$ 5
2980:122	Basic Surveying	3	$ 5
2980:123	Surveying Field Practice	2	$ 5
2980:222	Construction Surveying	3	$ 5
2980:225	Advanced Surveying	4	$ 5
2980:226	Subdivision Design	2	$ 5
2980:237	Materials Testing I	2	$ 5
2980:238	Materials Testing II	2	$ 5
2980:245	Cost Analysis and Estimating	3	$ 5
2980:250	Structural Drafting	2	$ 5

BUCHTEL COLLEGE OF ARTS AND SCIENCES

3100:100	Nature Study Plants	3	$ 5
3100:101	Nature Study Animals	3	$ 5
3100:104	Ecology and Biological Resources Field Laboratory	1	$ 5
3100:111	Principles of Biology	4	$ 5
3100:112	Principles of Biology	4	$ 5
3100:130	Principles of Microbiology	3	$ 5
3100:206	Anatomy and Physiology	4	$ 5
3100:207	Anatomy and Physiology	4	$ 5
3100:212	Genetics Laboratory	1	$ 5
3100:264	Anatomy and Physiology of Speech and Hearing	3	$ 5
3100:265	Introductory Human Physiology	4	$ 5
3100:331	Microbiology	4	$ 5
3100:341	Flora and Taxonomy I	3	$ 5
3100:342	Flora and Taxonomy II	3	$ 5
3100:351	Invertebrate Zoology	4	$ 5
3100:353	General Entomology	4	$ 5
3100:355	Parasitology	4	$ 5
3100:361	Human Anatomy and Physiology	3	$ 5
3100:362	Human Anatomy and Physiology	3	$ 5
3100:365	Histology I	3	$ 5
3100:366	Histology II	3	$ 5
3100:384	Techniques and Instrumentation Laboratory	1	$ 5
3100:422/522	Conservation of Biological Resources	4	$ 5
3100:424/524	Freshwater Ecology	3	$ 5
3100:426/526	Applied Aquatic Ecology	3	$ 5
3100:433/533	Pathogenic Bacteriology	4	$ 5
3100:435/535	Virology	4	$ 5
3100:437/537	Immunology	4	$ 5
3100:440/540	Mycology	4	$ 5
3100:441/541	Plant Development	4	$ 5
3100:442/542	Plant Anatomy	3	$ 5
3100:443/543	Phycology	4	$ 5
3100:445/545	Plant Morphology	4	$ 5
3100:447/547	Plant Physiology	3	$ 5
3100:458/558	Vertebrate Zoology	4	$ 5
3100:461/561	Human Physiology	4	$ 5
3100:462/562	Human Physiology	4	$ 5
3100:464/564	General and Comparative Physiology	4	$ 5
3100:466/566	Developmental Anatomy	4	$ 5
3100:467/567	Developmental Anatomy	4	$ 5
3100:480/580	Radiation Biology	3	$ 5
3150:121	Inorganic Chemistry I	3	$15
3150:122	Inorganic Chemistry II	3	$15
3150:124	Chemistry	3	$15
3150:129	Introduction to General, Organic and Biochemistry I	4	$15
3150:130	Introduction to General, Organic and Biochemistry II	4	$15
3150:132	Principles of Chemistry I	4	$15
3150:133	Principles of Chemistry II	3	$15
3150:134	Qualitative Analysis	2	$15
3150:201	Organic Chemistry and Biochemistry I	4	$15
3150:202	Organic Chemistry and Biochemistry II	4	$15
3150:265	Organic Chemistry Laboratory I	2	$15
3150:266	Organic Chemistry Laboratory II	2	$15
3150:315	Physical Chemistry Laboratory I	2	$15
3150:316	Physical Chemistry Laboratory II	2	$15
3150:335	Analytical Chemistry for Laboratory Technicians I	4	$15
3150:336	Analytical Chemistry for Laboratory Technicians II	4	$15
3150:405/505	Biochemistry Laboratory	1	$15
3150:411/511	Physical Chemistry for Biology Majors	3	$15
3150:415/515	Chemical Instrumentation	3	$15
3150:416/516	Instrumental Methods of Analysis	3	$15
3150:421/521	Qualitative Organic Analysis	4	$15
3150:425	Quantitative Analysis Laboratory	2	$15
3150:428	Analytical Chemistry Laboratory	2	$15
3350:310	Physical and Environmental Geography	3	$ 5
3350:314	Climatology	3	$ 5
3350:340	Cartography	3	$ 5
3350:341	Maps and Map Reading	3	$ 5
3350:436/536	Urban Land Use Analysis	3	$ 5
3350:442/542	Thematic Cartography	3	$ 5
3350:444/544	Map Compilation and Reproduction	3	$ 5
3350:447/547	Introduction to Remote Sensing	3	$ 5
3350:448/548	Automated Computer Mapping	3	$ 5
3350:449/549	Advanced Remote Sensing	3	$ 5
3350:495/595	Soil and Water Field Studies	3	$ 5
3370:101	Introductory Physical Geology	4	$15
3370:102	Introductory Historical Geology	4	$15
3370:210	Geomorphology	3	$15
3370:230	Crystallography and Non-Silicate Mineralogy	3	$15
3370:271	Oceanography	3	$15
3370:324	Sedimentation and Stratigraphy	3	$15
3370:350	Structural Geology	4	$15
3370:360	Introductory Invertebrate Paleontology	4	$15
3370:410/510	Regional Geology of North America	3	$15
3370:411/511	Glacial Geology	3	$15
3370:425/525	Stratigraphy	3	$15
3370:432/532	Optical and X-Ray Methods	3	$15
3370:433/533	Petrography	3	$15
3370:435/535	Petroleum Geology	3	$15
3370:436/536	Coal Geology	3	$15
3370:437/537	Economic Geology	3	$15
3370:446/546	Exploration Geophysics	3	$15
3370:450/550	Advanced Structural Geology	3	$15
3370:463/563	Micropaleontology	3	$15
3370:470/570	Geochemistry	3	$15
3370:474/574	Groundwater Hydrology	3	$15
3650:231	Concepts of Physics I	4	$15
3650:232	Concepts of Physics II	4	$15
3650:261	Physics for Life Sciences I	4	$15
3650:291	Elementary Classical Physics I	4	$15
3650:292	Elementary Classical Physics II	4	$15
3650:451/551	Advanced Laboratory I	2	$15
3650:452/552	Advanced Laboratory II	2	$15
3850:301	Methods of Social Research I	3	$ 5
3850:302	Methods of Social Research II	3	$ 5
3940:301	Introduction to Elastomers	2	$15
3940:302	Introduction to Plastics	3	$15
3940:407	Polymer Science	4	$15
3940:415	Molecular Structure and Physical Properties of Polymers Laboratory	2	$15
3940:416	Extrusion and Molding	3	$15
3940:417	Adhesives and Coatings	2	$15
3940:418	Composites, Cellular Structures and Tire Technology	4	$15

COLLEGE OF ENGINEERING

4200:352	Transport Laboratory	2	$15
4200:435	Process Analysis and Control	3	$15
4200:454	Operations Laboratory	1	$15
4200:466	Digitized Data and Simulation	3	$15
4300:380	Engineering Materials Laboratory	1	$ 5
4300:424	Water-Wastewater Laboratory	1	$ 5
4400:320	Basic Electrical Engineering	4	$15
4400:343	Electrical Measurement	4	$15
4400:359	Transmission Lines and Networks	3	$15
4400:362	Electronic Circuits	4	$15
4400:363	Switching and Logic	4	$15
4400:371	Control Systems I	3	$15
4400:383	Application of Motors	3	$15
4400:387	Advanced Machinery	3	$ 5
4400:455/555	Microwaves	4	$ 5
4400:465/565	Computer Circuits	4	$ 5
4400:467/567	Solid-State Devices	2	$ 5
4400:472/572	Control Systems II	4	$ 5 $15
4600:483	Mechanical Engineering Measurements Laboratory	2	$15
4600:484	Mechanical Engineering Laboratory	2	$ 5

COLLEGE OF EDUCATION

5300:445	Microcomputer Literacy for Secondary Teachers	2	$15
5550:193	Methods of Teaching Physical Education	3	$15
5550:202	Physiology of Exercise	3	$15
5550:340	Care and Prevention of Athletic Injuries	3	$15

COLLEGE OF FINE AND APPLIED ARTS

7100:120	Fundamentals of Sculpture	3	$25
7100:121	Three-Dimensional Design	3	$15
7100:130	Fundamentals of Screen Printing	3	$25
7100:150	Fundamentals of Ceramics	3	$25
7100:160	Fundamentals of Jewelry	3	$25

7100:170	Fundamentals of Photography	3	$25
7100:190	Fundamentals of Off-Loom Weaving	3	$25
7100:213	Introduction to Lithography	3	$25
7100:214	Introduction to Screen Printing	3	$25
7100:215	Introduction to Relief Printing	3	$25
7100:216	Introduction to Intaglio Printing	3	$25
7100:221	Design Applications	3	$25
7100:222	Introduction to Sculpture	3	$25
7100:254	Introduction to Ceramics	3	$25
7100:266	Introduction to Jewelry	3	$25
7100:268	Enameling on Metal	3	$25
7100:275	Introduction to Photography	3	$25
7100:293	Introduction to Weaving	3	$25
7100:317	Printmaking II	3	$25
7100:322	Intermediate Sculpture II	3	$25
7100:354	Ceramics II	3	$25
7100:366	Metalsmithing II	3	$25
7100:368	Advanced Enameling	3	$25
7100:375	Photography II	3	$25
7100:376	Photographics	3	$25
7100:380	Graphic Video	3	$25
7100:393	Weaving II	3	$25
7100:418	Advanced Printmaking	3	$25
7100:422	Advanced Sculpture	3	$25
7100:454	Advanced Ceramics	3	$25
7100:466	Advanced Metalsmithing	3	$25
7100:475	Advanced Photography	3	$25
7400:121	Textiles	3	$ 5
7400:123	Clothing Construction	3	$ 5
7400:133	Nutrition Fundamentals	3	$ 5
7400:141	Food for the Family	3	$ 5
7400:158	Introduction to Interior Design and Furnishings	3	$ 5
7400:245	Basic Food Theory and Applications	5	$15
7400:265	Child Development	3	$ 5
7400:305	Advanced Construction and Tailoring	3	$ 5
7400:311	Contemporary Needle Arts	3	$ 5
7400:317	Historic Costume	3	$ 5
7400:331	History of Textiles and Furnishings	3	$ 5
7400:340	Meal Service	2	$ 5
7400:359	Tailoring for Men	3	$ 5
7400:403/503	Advanced Food Preparation	3	$15
7400:420/520	Experimental Foods	3	$15
7400:433	Interior Design I - Residential	3	$ 5
7400:434	Interior Design II - Contract	3	$ 5
7400:435	Principles and Practices of Interior Design	3	$ 5
7400:447	Critical Issues in Home Economics	1	$ 5
7400:449	Flat Pattern Design	3	$ 5
7400:450	Demonstration Techniques	2	$ 5
7400:459	Machine Stitchery	3	$ 5
7600:280	Media Production Techniques	3	$15
7600:282	Radio Production	3	$15
7600:283	Television Production	3	$25
7600:288	Film Production	3	$25
7600:361	Audio Recording Techniques	3	$15
7600:383	Advanced TV Production	3	$25
7600:488/588	Advanced Film Production	3	$25
	COLLEGE OF NURSING		
8200:300	Nursing: Health	10	$25
8200:320	Nursing: Diminished Health I	12	$25
8200:400	Nursing: Diminished Health II	12	$25
8200:405	Health Maintenance Nursing	6	$25
8200:415	Diminished Health Nursing	5	$25
8200:420	Nursing: Synthesis	10	$25

- Admission Application Fee:

(Nonrefundable)

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
Schedule Adjustment Fee	
Assessed for any schedule change form processed prior to the first day of term.	$ 5
Music Fees	
Private lessons in band instrument, organ, piano, violin and voice (in addition to normal instructional fees):	
One-hour lesson per week (undergraduate and graduate)	$140
One ½-hour lesson per week (undergraduate and graduate)	$70
Thesis and Binding Fees	
Binding (per volume)	$9.50
Microfilming (for Ph.D. degrees only)	$54.50
Copyright	$20
Graduation Fees (nonrefundable)	
Each degree (except law)	$30
Each Juris Doctor degree	$40
Graduate Late Application Fee	$10
Minor Application Fee and/or Second Major Application Fee	$ 5
Department of Special Programs and ICE	
(Course charge based on number of Continuing Education Units.)	
One CEU (10.0 contact hours)	$39
Transcript fee	$ 2

- Miscellaneous Fees:

ACT Test	$15
ACT Special Testing	$25
Education Administration Battery	$15
Miller Analogies Test	$22
Transcripts	
(If more than one copy is ordered at the same time, the fee is $4 for the first transcript and $2 for each additional one)	$ 4
I.D., late or lost	$ 5
Credit by Examination	
(undergraduate and postbaccalaureate) per credit	$21
Student teaching fee	$30
Locker fee ($3 refundable fall-spring semesters)	$ 9
Locker Fee ($3 refundable, spring semester only)	$ 6
Locker fee, physical education and Schrank Hall ($3 refundable) per semester	$ 6
Change of course registration	
(for each schedule change form processed)	$10
Laboratory breakage and late service deposit (refundable)	$15
"Insufficient Funds" or returned check charge	$10
Co-op course fee	$55
Bypassed credit, per credit	$ 5
CLEP, per credit awarded	$ 5
Advanced Placement Credit, per credit awarded	$ 5
Nursery Center	
Registration:	
Semester	$ 0
Academic year	$30
Summer session	$ 8
Both summer sessions	$15
Insurance:	
Child, per year	$20
Child, per summer	$10
Enrollment:	
Three mornings	$ 0
Four afternoons	$ 0
Full time, per week (after 45 hours, charged hourly)	$60
Half time, per week (after 20 hours, charged hourly)	$35
Hourly	$1.90
Dance Institute	
Academic Year (three sessions)	
advanced	$1,176
intermediate II	$1,278
intermediate I	$1,008
advanced beginner	$378
beginner	$378
pre-schooler	$168
pre-schooler II	$168
Summer (four weeks)	
advanced	$408
intermediate II	$360
intermediate I	$288
advanced beginner	$135
beginner	$135
pre-schooler	$48
pre-schooler II	$48
Audition Fee	$12
English Language Institute	
tuition fee	$1,650
(Summer Sessions I and II)	$1,100
Application Fee	$35
Kvam's Kinder Camp	
Enrolled Camper (total five-week fee)	$90
(half-day session, five 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)	$200*
House Guided Tours, adults (students, half-price)	$2

*First three hours; $50 each additional hour.

**The University will provide additional restroom facilities.

- Parking Fees:

Student enrolled for 9 or more credits per semester	$35
Student enrolled for 8½ or fewer credits per semester	$17.50
Summer session student, per session	$12
Workshop participant	$12
Department of Noncredit Courses	
7 weeks	$6 per course
15 weeks	$12 per course
Off-campus Instruction Student	up to $12
Temporary Permit (per week)†	$2.50

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 $1,326 per semester or $2,652 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.

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 nonresident 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.

A. **Intent and Authority**

1. 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.
2. 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. Effective date: September 1, 1984.

B. **Definitions**

For purposes of this rule:

1. 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.
2. "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.
3. 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.
4. For the purpose of determining residency for tuition surcharge purposes at Ohio's state-assisted colleges and universities, "domicile" is a person's permanent place of abode; there must exist a demonstrated intent to live permanently in Ohio, and a legal ability under Federal and state law to reside permanently in the state. For the purpose of this policy, only one (1) domicile may be maintained at a given time.
5. For the purpose of determining residency for tuition surcharge purposes at Ohio's state-assisted colleges and universities, an individual's immigration status will not preclude an individual from obtaining resident status if that individual has the current legal status to remain permanently in the United States.

C. **Residency for subsidy and tuition surcharge purposes**

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

1. A dependent student, at least one of whose parents or legal guardian has been a resident of the state 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.
2. A person who has been a resident of Ohio for the purpose of this section for at least 12 consecutive months immediately preceding his or her enrollment in an institution of higher education and who is not receiving, and has 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.

D. **Additional criteria which may be considered in determining residency for the purpose may include but are not limited to the following:**

1. Criteria evidencing residency:
   a. if a person is subject to tax liability under Section 5747.02 of the Revised Code;
   b. If a person qualifies to vote in Ohio;
   c. if a person is eligible to receive state welfare benefits;
   d. if a person has an Ohio driver's license and/or car registration.
2. Criteria evidencing lack of residency:
   a. if a person is a resident of or intends to be a resident of another state or nation for the purposes of tax liability, voting, receipt of welfare benefits, or student loan benefits (if the loan program is only available to residents of that state or nation);

†$2.50 per week or $.50 per day

b. if a person is a resident or intends to be a resident of another state or nation for any purpose **other** than tax liability, voting, or receipt of welfare benefits.

E. **Exceptions to the general rule of residency for subsidy and tuition purposes.**

1. A person who is living and is gainfully employed on a full-time or part-time and self-sustaining basis in Ohio and who is pursuing a part-time program of instruction at an institution of higher education.
2. 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.
3. 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.
4. A person who is transferred by his employer beyond the territorial limits of the fifty 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 as long as such person has fulfilled his or her tax liability to the state of Ohio for at least the tax year preceding enrollment.
5. 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.

F. **Procedures**

1. A dependent person classified as a resident of Ohio for these purposes and who is enrolled in an institution of higher education when his or her parents or legal guardian removes their residency from the State of Ohio shall continue to be considered a resident during continuous full-time enrollment and until his or her completion of any one academic degree program.
2. In considering residency, removal of the student or 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 paragraphs C. 1. or C. 2. of this rule.
3. Any person once classified as a nonresident, upon the completion of 12 consecutive months of residency, must apply to the institution he or she attends for reclassification as a resident of Ohio for these purposes if such 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 documentation regarding the sources of a student's actual financial support.
4. Any reclassification of a person who was once classified as a nonresident for these purposes shall have prospective application only from the date of such reclassification.
5. Any institution 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 individual students with a fair and adequate opportunity to present proof of his or her Ohio residency for purposes of this rule. Such an 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.

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 nonresident 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 or 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

Courses of 6 to 11 weeks:	
After the first class meeting	60%
After the second class meeting	30%
After the third class meeting	0%
Courses of 12 weeks or more:	
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 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.

*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.

RESIDENCE HALL REFUNDS

Refund/Release and Forfeiture Policy

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

- A full refund of any prepaid fees and release of other financial liability therefore under the following circumstances: graduation of the student from The University of Akron; academic dismissal of the student from The University of Akron; non-attendance or complete withdrawal by the student from The University of Akron prior to the start of the contract term (except the advance rental payment of $100 which shall be forfeited); or, in the event of mandatory or recommended participation in academic programs of The University of Akron requiring the student to commute regularly beyond the Akron metropolitan area (e.g., student teaching or co-op engineering assignments).
- A partial refund of prepaid fees according to the refund schedule below, and release of financial liability for subsequent semesters 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 further forfeiture.
- A partial refund of prepaid fees according to the refund schedule below: First, 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 the health, physical, or emotional safety and well-being of the student, or property of other students, faculty, staff, or University property. In such instances, the student shall not be liable for further forfeitures and shall be released of further financial liability beyond the date of termination. Second, in the event the student breaches the contract for any reason, except when under dismissal or suspension, prior to the end of the terms thereof but continues to be enrolled as a student at The University of Akron. In addition, if the student has contracted for any subsequent semester beyond that semester in which the contract is terminated, the student shall pay as forfeiture for breach of the term of the contract an additional amount of $200. Last, in the event that the student is dismissed or suspended from The University of Akron for disciplinary reasons in accordance with laws 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.

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:

Inclusive Dates	*Refund Applicable*
1-12 calendar days	70%
13-24 calendar days	50%
25-36 calendar days	30%
Thereafter	0%

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.

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 ensure that no one is denied the opportunity of a college education because of financial need.

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 meet college expenses.

Sources of Aid

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.

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 and continuing students must have a 2.00 grade-point average to be eligible for the SEOG.

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 nonprofit 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. Students must have a 2.00 grade-point average to be eligible.

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 and continuing students must have a 2.00 grade-point average to be eligible for the NDSL.

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 eight percent for new borrowers, 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.

Army Reserve Officers' Training Corps Scholarship

The Army Reserve Officers' Training Corps has competitive four-year scholarships available to high school seniors. Additionally, competitive three- and two-year scholarships are available to students who are attending the University, whether or not the student is enrolled in Reserve Officers' Training Corps when applying for the scholarship. These scholarships provide full tuition, laboratory and incidental fees, a flat-rate payment for textbooks, and $100 per month (tax free) allowance for up to 10 months of the school year for each year of the scholarship.

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 a veteran from Ohio and has been disabled or deceased. For information contact the Ohio Board of Regents.

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 1984/85 academic year ranged from $300 to $500.

The **Presidential Scholarship Program** was initiated for the 1975/76 academic year. Currently, approximately 25 to 35 scholarships are awarded each year to new freshmen.

The **Honors Program** at the University awards a number of scholarships each year to new freshmen. An application for the Honors Program must be obtained from the Office of Admissions.

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 Financial Aid and Employment Loan Office (Spicer 115).

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

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.

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 as follows:

- Family income.
- Family assets.
- Family size.
- Number of family members 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.

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 22 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. 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.

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.

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 and Employment 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.

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 and Employment so the aid package may be reviewed.

Eligibility for Aid as it Applies to Certain Classifications of Students

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.

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.

Transient Students

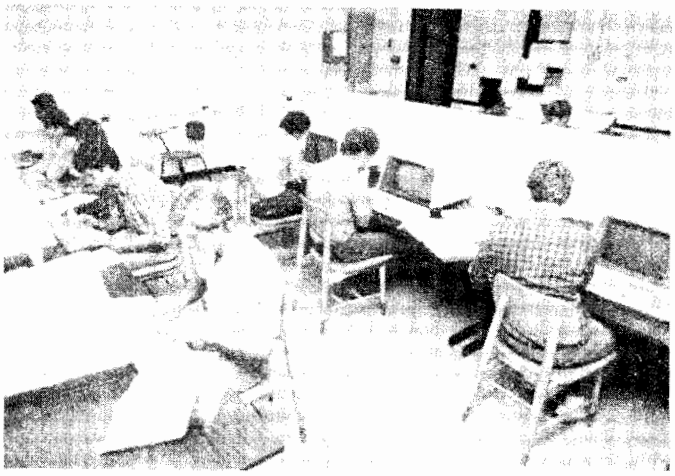
A transient student is not pursuing a degree at The University of Akron, and is not eligible for financial aid through the University.

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.

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.



Student Rights and Responsibilities

A student who applies for student financial aid has the right to expect confidentiality regarding all personal information. After submitting applications, the student should expect to receive a reply in a reasonable amount of time.

It is the student's responsibility to notify the Office of Student Financial Aid of any changes in name, address, graduation plans, etc. A student must also report any outside scholarships received. It is the student's responsibility to be aware of the types and amounts of aid received.

Standards of Satisfactory Progress

To receive or maintain eligibility for federal financial aid, the student must meet the requirements outlined in the "Standards of Satisfactory Progress" policy. The policy states that a student must make progress toward a degree. This rule applies to each potential financial aid recipient, whether a previous aid recipient or not. A copy of this policy is available in the Office of Student Financial Aid.

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

Community and Technical College

Frederick J. Sturm, Ed.D., *Acting Dean*
Rosie C. Mickey, Ed.D., *Assistant to the Dean*
Holly C. Slack, M.Ed., *Assistant to the Dean*

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.

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 as follows:

- 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

(Accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology)

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

Third- and fourth-year requirements:		*Credits*
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
4100:206	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.

Third- and fourth-year requirements:		*Credits*
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
2860:231	Control Principles	3
2860:270	Survey of Electronics I	3
2860:271	Survey of Electronics II	3
2880:241	Quality Control Procedures	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
4100:206	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.

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

Associate Degrees

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

Allied Health Technology
Associate Studies
Business 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 have the following:

- 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 course work and a minimum of 2.00 for all course work applicable to program of study.
- Completion of specific courses and/or credits for a particular program as approved by the college faculty.

Minor Areas of Study

For an explanation of minor areas of study in the Community and Technical College, see **Section 5** of this *Bulletin*.

PROGRAMS OF INSTRUCTION

Allied Health

2730: Histologic Technology*

A histologic technician prepares sections of body tissue for microscopic examination by a pathologist. The technician specializes in techniques involving the use of the electron microscope and special studies which determine a patient's diagnosis.

*Limited enrollment program; contact college for details.

		Credits
1100:—	Physical Education	1
1100:105	Introduction to Public Speaking	3
2020:121	English	4
2020:130	Introduction to Technical Mathematics	4
2020:222	Technical Report Writing	3
2020:240	Human Relations	3
2020:242	American Urban Society	3
2730:225	Histotechnology Practicum	5
2740:120	Medical Terminology	3
2740:130	Medical Assisting Technology I	3
2840:101	Introduction to Chemistry	3
2840:102	Introductory and Analytical Chemistry	3
3100:111	Principles of Biology	4
3100:112	Principles of Biology	4
3100:130	Principles of Microbiology	3
3100:265	Introduction to Human Physiology	4
3100:365	Histology I	2
3100:366	Histology II	3
3100:383	Laboratory Techniques and Instrumentation in Biology	2
3100:384	Techniques and Instrumentation Laboratory in Biology	1
	Electives	3

2740: Medical Assisting Technology

This program provides students with the background 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.

1100:—	Physical Education	1
1100:105	Introduction to Public Speaking	3
	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	4
5550:211	First Aid	2
	General Electives	2

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 as follows:

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
2760:106	Anatomy for Radiologic Technology I	3
	or	
3100:206	Anatomy and Physiology	4
2760:107	Anatomy for Radiologic Technology II	3
	or	
3100:207	Anatomy and Physiology	4
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
	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	2
2770:222	Surgical Assisting Procedures II	4
2770:232	Clinical Application II	5
2770:233	Clinical Application III	5
2770:241	Surgical Anatomy	3
2840:100	Basic Chemistry	3
3100:130	Principles of Microbiology	3
3100:206	Anatomy and Physiology	4
3100:207	Anatomy and Physiology	4
	General Elective	2
	Technical Electives	2

Surgeon's Assistant Option

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	2
2770:131	Clinical Application I	2
2770:222	Surgical Assisting Procedures II	4
2770:232	Clinical Application II	5
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
2770:246	Medical Laboratory Procedures	1
2770:247	Pulmonary Assessment and Electrocardiography	2
2840:100	Basic Chemistry	3
3100:130	Principles of Microbiology	3
3100:206	Anatomy and Physiology	4
3100:207	Anatomy and Physiology	4

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 Appliation 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
3100:130	Principles of Microbiology	3
3100:206	Anatomy and Physiology	4
3100:207	Anatomy and Physiology	4

*Deadline for application to the program is March 15.

Associate Studies

2020: Arts

Through basic course work 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	3
	or	
1100:106	Effective Oral Communication	3
1100:112	English Composition	4
2020:121	English	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

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 course work from various disciplines and focuses on education for individual development.

2240: Commercial Art

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

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
7100:132	Instrument Drawing	3
7100:233	Life Drawing	2
7100:275	Introduction to Photography	3
	Art Electives	10
	General Electives	7

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

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

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 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.

Options

Restaurant Management

1100:——	Physical Education	1
1100:105	Introduction to Public Speaking	3
	or	
1100:106	Effective Oral Communication	3
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

Culinary Arts

1100:——	Physical Education	1
1100:105	Introduction to Public Speaking	3
	or	
1100:106	Effective Oral Communication	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	3
	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

Marketing and Sales Emphasis

2520:202	Retailing Fundamentals	4
2520:212	Principles of Salesmanship	4

*Not required for hospitality marketing and Sales emphasis.

2420: Business Management Technology

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.

Options

General

1100:——	Physical Education	1
1100:105	Introduction to Public Speaking	3
	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
2420:103	Role of Supervision in Management	3
2420:104	Introduction to Business	3
2420:121	Office Management	3
2420:170	Business Mathematics	3
2420:202	Personnel Practices	3
2420:211	Basic Accounting I	3
2420:212	Basic Accounting II	3
2420:243	Survey in Finance	3
2420:280	Essentials of Law	3
2440:120	Introduction to Information Processing	2
2540:119	Business English	3
2540:125	Business Machines	2
2540:263	Business Communications	3
2560:110	Principles of Transportation	3
2880:232	Labor Management Relations	3
	Electives	3

Accounting

1100:——	Physical Education	1
1100:106	Effective Oral Communication	3
2020:121	English	4

2020:240	Human Relations	3
	or	
2020:251	Work Relationships	3
2020:247	Survey of Basic Economics	3
2420:101	Elements of Distribution	3
	or	
2420:202	Personnel Practices	3
2420:103	Role of Supervision in Management	3
2420:104	Introduction to Business	3
2420:170	Business Mathematics	3
2420:211	Basic Accounting I	3
2420:212	Basic Accounting II	3
2420:213	Basic Accounting III	3
2420:214	Essentials of Intermediate Accounting*	3
2420:216	Survey of Cost Accounting*	3
2420:217	Survey of Taxation*	4
2420:243	Survey of Finance	3
2420:280	Essentials of Law	3
2440:130	BASIC Programming for Business	3
2440:250	BASIC Programming Applications in Business	5
2540:119	Business English	3
2540:125	Business Machines	2

Banking

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
2020:247	Survey of Basic Economics	3
2420:101	Elements of Distribution	3
2420:103	Role of Supervision in Management	3
2420:104	Introduction to Business	3
2420:113	Introduction to Banking	2
2420:123	Federal Regulation of Banking	2
2420:170	Business Mathematics	3
2420:202	Personnel Practices	3
2420:211	Basic Accounting I	3
2420:212	Basic Accounting II	3
2420:233	Installment Credit	2
2420:243	Survey in Finance	3
2420:253	Elements of Bank Management	2
2420:273	Monetary Systems and the Payments Mechanism	3
2420:280	Essentials of Law	3
2430:105	Real Estate Principles	2
2430:245	Real Estate Finance	2
2440:120	Introduction to Information Processing	2
2540:119	Business English	3
2540:263	Business Communications	3

Credit Union

1100:——	Physical Education	1
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
2420:103	Role of Supervision in Management	3
2420:104	Introduction to Business	3
2420:105	Introduction to Credit Unions	2
2420:115	Credit Union Operations	2
2420:125	Personal Financial Counseling	3
2420:170	Business Mathematics	3
2420:202	Personnel Practices	3
2420:211	Basic Accounting I	3
2420:212	Basic Accounting II	3
2420:221	Administrative Office Supervision	2
2420:225	Credit Union Lending and Collections	2
2420:243	Survey in Finance	3
2420:245	Credit Union Financial Management	2
2420:280	Essentials of Law	3
2440:120	Introduction to Information Processing	2
2540:119	Business English	3
2540:263	Business Communications	3
	Technical Electives	2

Recommended Electives:

2420:101	Elements of Distribution	3
2420:221	Administrative Office Supervision	2
2440:239	RPG II Programming	1
2880:232	Labor-Management Relations	3
2540:125	Business Machines	2

*Course is not transferable to College of Business Administration.

Data Administration

1100:——	Physical Education	1
1100:106	Effective Oral Communication	3
2020:130	Introduction to Technical Mathematics	3
	or	
2420:101	Elements of Distribution	3
2020:121	English	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
2420:243	Survey in Finance	3
2420:280	Essentials of Law	3
2440:120	Introduction to Information Processing	2
2440:121	Introduction to Programming Logic	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
2540:263	Business Communications	3
	Technical Electives	4

Small Business Management

1100:——	Physical Education	1
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
2420:103	The Role of Supervision in Management	3
2420:104	Introduction to Business	3
2420:117	Small Business Development	3
2420:118	Small Business Management and Operations	3
2420:170	Business Mathematics	3
2420:202	Personnel Practices	3
2420:211	Basic Accounting I	3
2420:212	Basic Accounting II	3
2420:227	Entrepreneurship Projects	4
2420:243	Survey in Finance	3
2420:280	Essentials of Law	3
2440:120	Introduction to Information Processing	2
2450:119	Business English	3
2520:103	Principles of Advertising	3
2540:263	Business Communications	3
	Technical Electives	2

Recommended Electives:

2020:254	The Black American	2
2420:111	Public Relations	2
2520:106	Visual Promotion	4
2520:201	Principles of Wholesaling	2
2520:202	Retailing Fundamentals	3
2520:210	Consumer Service Fundamentals	2
2520:211	Mathematics for Retail Distribution	3
2520:212	Principles of Salesmanship	4
2520:233	Installment Credit	2
2540:125	Business Machines	2
2540:140	Typewriting for Non-Secretarial Majors	2
2880:200	Manufacturing Profitability**	3

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.

1100 ——	Physical Education	1
1100:105	Introduction to Public Speaking	3
	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

**Prerequisites are 2420:104,211

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 as computer programmers or programmer/analysts.

1100:—	Physical Education	1
1100:105	Introduction to Public Speaking	3
	or	
1100:106	Effective Oral Communication	3
2020:121	English	4
2020:141,2	Mathematics for Data Processing I, II	7
2020:222	Technical Report Writing	3
	or	
2540:263	Business Communications	3
2020:240	Human Relations	3
2020:247	Survey of Basic Economics	3
2420:104	Introduction to Business	3
2420:211,12	Basic Accounting I, II	6
2440:120	Introduction to Information Processing	2
2440:121	Programming Logic	2
2440:131	Introduction to Programming	2
2440:132	Assembler Programming	3
2440:133	Structured COBOL Programming	2
2440:234	Advanced COBOL Programming	3
2440:239	RPG II Programming	2
2440:241	Data Processing Systems	3
2440:251	Data Processing Projects	5
2440:252	Job Control Language	1
	Data Processing Electives	6
Data Processing Electives:		
2420:266	BASIC for Programmers	3
2440:235	Current Programming Topics	2
2440:261	CICS	3
2440:262	COBOL Efficiency	2
2440:263	Data Base Concepts	3
2440:264	PL/1 Programming	2
2440:265	Programming Ethics and Security	2

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
2420:170	Business Mathematics	3
2420:211	Basic Accounting I	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 for options	15

Options

Fashion*

7400:121	Textiles	3
7400:317	History of Costumes	3
7400:419	Clothing Communication	3
7400:439	Fashion	3
	Technical Electives	3

*Not required to take 2420:111.

Industrial*

2420:202	Personnel Practices	3
2420:243	Survey of Finance	3
2440:120	Introduction to Information Processing	2
2520:203	Fundamentals of Industrial Distribution	3
	Technical Electives	4

Retailing

2420:202	Personnel Practices	3
2420:243	Survey in Finance	3
2440:120	Introduction to Information Processing	2
	Technical Electives	7

2540: Office Administration

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	27

Options

Executive Secretarial Science

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	4
	Beginning Foreign Language	8
	Intermediate Foreign Language	6
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
2540:281	Machine Transcription	2
2540:286	Keyboarding on Word Processing Equipment	3

Office Information Management

1100:—	Physical Education	1
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

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

2420:211	Basic Accounting I	3
2440:120	Introduction to Information Processing	2
2540:119	Business English	3
2540:121	Office Problems	3
2540:125	Business Machines	2
2540:130	Introduction to Information Management	3
2540:131	Computerized Document Control	4
2540:150	Beginning Typewriting	3
2540:151	Intermediate Typewriting	3
2540:243	Internship	2
2540:247	Automated Office Systems	4
2540:253	Advanced Typewriting	3
2540:263	Business Communications	3
2540:286	Keyboarding on Word Processing Equipment	3

Word Processing

1100:——	Physical Education	1
1100:106	Effective Oral Communication	3
2020:121	English	4
2020:222	Technical Report Writing	3
	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

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	3
	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	3
	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	Principles of Transportation	3
2560:116	Transportation Commercial Air	2
2560:118	Transportation Freight Rates	3
2560:220	Transportation Terminal Management and Safety	2
2560:228	Introduction to Travel	2
2560:229	Passenger Ticketing	2
2560:230	Tour Planning and Packaging	2
	Electives	5

General

1100:——	Physical Education	1
1100:105	Introduction to Public Speaking	3
	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	Principles of Transportation	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
2560:222	Microcomputer Applications in Transportation	3
2560:224	Transportation Regulations	3
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

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
2840:105	Chemical Calculations I	1
2840:106	Chemical Calculations II	1
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 *Applied Aquatic Ecology* recommended)	

Forensic

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

Geology

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

Industrial

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

Rubber and Plastics

2020:132	Mathematical Analysis II	3
2940:151	Technical Computations	1
	Technical Electives	9
	(3940:301 *Introduction to Elastomers* and 3940:302 *Introduction to Plastics* recommended)	

2860: Electronic Technology

(Accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology.)

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 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.

Computer-Aided Manufacturing Option

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
2840:100	Basic Chemistry	3
2840:151	Basic Physics-Mechanics	3
2880:100	Introduction to Manufacturing Management	3
2880:101	Introduction to Computer-Aided Manufacturing	3
2880:130	Work Measurement Procedures I	2
2880:141	Safety Procedures	3
2880:200	Manufacturing Profitability	3
2880:211	Computerized Manufacturing I	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
2940:151	Technical Computations	1
	Electives	9

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 Electives	2
	Technical Electives	2

Technical Electives (two credits required from following):

2020:132	Mathematical Analysis II	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 (two credits required from following):

2020:242	American Urban Society	3
2020:254	The Black American	2
2020:251	Work Relationships	3

2920: Mechanical Technology

(Accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology.)

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, Light and Sound	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
2940:151	Technical Computation	1
2980:125	Statics	3
2980:241	Strength of Materials	3
	Technical Electives	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:		
2020:241	Man and Technology	2
2020:242	American Urban Society	3
2020:247	Survey of Basic Economics	3
2020:251	Work Relationships	3
2020:254	The Black American	2

2980: Surveying and Construction Technology

(Accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology.)

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

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
2940:151	Technical Computations	1
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
2940:151	Technical Computations	1
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

*Faculty may select substitute course for student.

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
2540:140	Typing for Non-Secretarial Majors	2
3450:—	Modern University Mathematics†	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	5
	Option Requirements	26
	Electives	1

Options

Child Development††

1100:—	Physical Education	1
1100:106	Effective Oral Communication	3
2020:121	English	4
2020:130	Introduction to Technical Mathematics and elective (one)	4
	or	
2020:131	Mathematical Analysis I**	4
2020:240	Human Relations	3
2020:242	American Urban Society	3
2200:245	Infant/Toddler Day-Care Programs	3
2200:250	Observing and Recording Children's Behavior	3
2540:140	Typing for Non-Secretarial Majors	2
3750:100	Introduction to Psychology	3
5100:150	Introduction to Professional Education	3
	or	
2020:247	Survey of Basic Economics**	3
5100:250	Human Development and Learning, and Elective (one)	4
	or	
3750:130	Developmental Psychology**	4
5100:310	Educational Media and Technology	3
5200:360	Nursery School Laboratory	3
5550:211	First Aid	2
5850:295	Field Experience	5
7400:132	Early Childhood Nutrition	3
7400:265	Child Development	3

**A "2+2" program is available for students interested in earning an Associate of Applied Science degree, child development option, and the Bachelor of Arts in Child Development. Students must select *Math Analysis I, Survey of Basic Economics,* and *Developmental Psychology* in the associate degree program in order to obtain the bachelor's degree with 132 credits.

†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.

7400:275	Play and Creative Expression Activities	4
7400:290	Administration of Child-Care Centers	3
7400:360	Parent-Child Relations	2

Elementary Aide‡

5200:335	Teaching Language Arts	5
5850:207	Mechanics of Student Appraisal‡‡	3
	Electives	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	3
	Electives	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	Manual Communication I	5
7700:120	Introduction to Audiology/Aural Rehabilitation	3
7700:121	Psycho-Social Aspects of Deafness	3
7700:150	Manual Communication II	4
7700:200	Manual Communication III	4
7700:222	Introduction to Deaf Culture	2
7700:223	Speech and Language of Deaf Child and Adult	4
7700:271	Language of Signs I	3
	General Electives	2

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**	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
2840:100	Basic Chemistry	3
3750:100	Introduction to Psychology	3
3850:100	Introduction to Sociology	4
	General Electives	5
	Technical Electives	3

‡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.

##Must be repeated for a total of eight credits

Options

Security Administration

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
2020:242	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
2230:204	Fire Hazards Recognition	3
2230:250	Hazardous Materials	4
2250:260	Administration and Supervision for Public Services	3
2420:104	Introduction to Business	3
2440:120	Introduction to Information Processing	2
2840:100	Basic Chemistry	3
2882:141	Safety Procedures	3
	Technical Electives	3

Social Work Emphasis

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
2020:242	American Urban Society	3
2220:100	Introduction to Criminal Justice	3
2220:102	Criminal Law for Police	3
2220:104	Evidence and Criminal Legal Process	3
2220:106	Juvenile Justice Process	3
2220:110	Social Values and Criminal Justice Process	3
2220:200	Criminal Justice Theory and Practice	3
2250:260	Administration and Supervision in the Public Service	3
2840:100	Basic Chemistry	3
3850:100	Introduction to Sociology	4
7750:270	Poverty in the United States	3
7750:276	Introduction to Social Welfare	4
	Social Work Electives	6
	General Electives	2

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

2230: Fire Protection 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	Mathematical Analysis I	4
2020:222	Technical Report Writing	3
2020:240	Human Relations	3
2020:242	American Urban Society	3
2230:100	Introduction to Fire Protection	3
2230:102	Fire Safety in Building Design and Construction	3
2230:140	Fire Investigative Methods	2
2230:202	Fire Suppression Methods	3
2230:204	Fire Hazards Recognition	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	Fire Codes and Standards	3
2230:256	Fire Protection for Business and Industry	3
2250:260	Administration and Supervision for Public Services	3
2840:151	Basic Physics: Mechanics	2
5550:211	First Aid	2
	General Electives	2
	Technical Electives	2

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

2260: Community Services Technology

This program prepares individuals for employment supportive of social work or 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	The 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	5
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	4
	Electives	10

Options

Alcohol Services

2260:261	Alcoholism Treatment	3
2260:262	Basic Helping Skills in Alcohol Problems	4
2260:290	Special Topics: Alcohol Services	1-3

Gerontology

2260:251	Community Services for Senior Citizens	3
2260:252	Resident Activity Coordination	3

Volunteer Programming

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
2260:230	Community-Based Residential Services	3
2260:240	Drug Use and Abuse	3
2260:241	Drug Treatment	3
2260:290	Special Topics in Community Services Technology	2-4
2540:140	Typewriting for Non-Secretarial Majors	3

Social Services Emphasis†

1100:—	Physical Education	1
1100:105	Introduction to Public Speaking	3
	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	The 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., *Associate Dean*

HISTORY

The Wayne General and Technical College of The University of Akron is on 163 acres one mile northwest of Orrville, Ohio. The College was founded in 1972, culminating 10 years of effort on the part of 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.

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 life-long learning, and to evaluate fairly and critically 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.

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 current *Wayne College Bulletin*.

University College

Marion A. Ruebel, Ph.D., *Dean*
Thomas Vukovich, Ph.D., *Assistant Dean*
Martin McKoski, Ph.D., *Director, Developmental Programs*
David C. Riede, Ph.D., *Head, Department of General Studies*

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	3
	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 Science†	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 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.

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 devel-

*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 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.
- 3400:261 *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.

†Minimum 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: 1100:221,2,3,4 (three credits each).

opmental 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.

DIPLOMA NURSING PROGRAM

The University, in cooperation with the hospital schools of nursing at Akron City Hospital 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 two schools of nursing differ slightly in regard to courses taken and their sequence.

The following courses are offered:

		Credits
3100:130	Microbiology	3
3100:206	Anatomy and Physiology	4
3100:207	Anatomy and Physiology	4
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 (ROTC)

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 programs are open to the full-time male and female student who will have completed at least one course in mathematical reasoning and a baccalaureate degree at commissioning.

Programs

Four-Year Program

Full-time students 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.

Portions of the GMC may be accredited 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.

GMC cadets who wish to compete for the last two years of the AFROTC program, the Professional Officer Course (POC), must meet the additional qualifications.

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 three semester credits.

Supplemental Courses

All GMC scholarship cadets are required, and nonscholarship cadets encouraged, to demonstrate proficiency or successfully complete a course in English composition. One year of college instruction in a major Indo-European or Asian language is also required for all scholarship cadets. All POC cadets must demonstrate proficiency or complete a course in mathematical reasoning.

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

Pilot-qualified students must either possess a private pilot's license or successfully complete the Flight Screening Program (FSP). The FSP is held in conjunction with field training. In addition to participation in a ground school covering aircraft systems, navigation, and regulations pertaining to flying, cadets will receive flight instruction from qualified civilian or Air Force instructors.

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.

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 (AFOQT).
- 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.

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 four 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.

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 $114 per semester for textbooks. In addition, all scholarship cadets receive $100 monthly non-taxable subsistence allowance.

Four-year scholarships are available for an applicant in scientific/engineering and some nontechnical 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.
- Interview.
- 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.

Financial Allowances

A cadet enrolled in the POC will receive a non-taxable subsistence allowance of $100 per month.

Uniforms and Textbooks

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

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.

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 two credits per semester. MS I and II classes are held three hours each week, to include a mandatory one-hour leadership laboratory, and cover studies in: marksmanship, leadership fundamentals, rappelling, cross-country skiing, small unit operations, Leadership Assessment Program, and Army organization. Enrollment in MS I or MS II constitutes no obligation to military service or continuance into the advanced course and the credits received can be applied toward elective requirements. A student who completes the basic course (MS I and MS II) is eligible for and may apply for enrollment into the advanced course, which may lead to a commission. Advanced course studies are held four hours per week, to include a mandatory one-hour leadership laboratory, for three semester credits. The material includes: advanced leadership, application of tactics, ethics and professionalism, 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 $1,000 per school year. Upon commissioning, the student will serve either with the Reserves, the National Guard or on active duty.

Two-Year Program

A student can also enter the advanced course by attending a basic military skills summer camp at Fort Knox, Kentucky just prior to or after the MS III year, or by having prior military service or training. This equals the basic course of the four-year program, and makes the student eligible to enter the advanced course as described under the four-year program.

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 the following:

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

Requirements for Admission

Basic Course: None.

Advanced Course:

- Completion of basic course, basic summer camp or prior service.
- Qualify on the Army physical evaluation.
- Permission of the professor of military science.
- Be in good academic standing with the University.

Requirements for Commissioning

- Completion of a baccalaurete 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 Advanced Course	Serve as a commissioned officer on active duty, in the Army Reserve or in the Army National Guard.
Basic Course	No obligation.

Scholarships

The Army ROTC has four-year scholarships available to high school seniors. Additionally, there are three- and two-year scholarships available on a competitive basis to students attending the University, whether or not they are enrolled in ROTC when applying for the scholarship. These scholarships provide tuition, fees, a flat rate for texts, and $100 per month allowance to the student for up to 10 months of the school year. Scholarship students must agree to spend two to four years on active duty.

Uniforms 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 all students while enrolled in the program.

Financial Allowances

An advanced course cadet and scholarship students are paid a nontaxable allowance of $100 per month for up to 10 months of the school year. A student attending basic summer camp or advanced camp is paid for travel expenses, meals, housing and a salary.

SPECIAL RESERVE AND NATIONAL GUARD PROGRAMS

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.

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 receives E-5 pay.

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*

OBJECTIVES

The Buchtel College of Arts and Sciences serves the objectives of the University, which states 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 ensure 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 degrees 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.

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.

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.

Social Sciences Division

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

COLLEGE REQUIREMENTS

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.

Degrees Awarded

Humanities Division: Bachelor of Arts.
Natural Sciences Division: Bachelor of Arts, Bachelor of Science, Bachelor of Science in Cytotechnology, 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 Management.

Baccalaureate Degrees

A student transferring into the college must have completed the equivalent of, or taken, 1100:111,2 *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), except General Studies courses.
- 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 attempted in the major field at The University of Akron.
- Attaining a minimum grade-point average of 2.00 in all work in the major field, including transfer credits.
- 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 course work in addition to the 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 or designate 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, natural sciences or social 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 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

Minor Areas of Study

For an explanation of minor areas of study in the Buchtel College of Arts and Sciences, see **Section 5** of this *Bulletin*.

PROGRAMS OF INSTRUCTION

3100: Biology

Bachelor of Science

- 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
3100:217	General Ecology**	3
3100:316	Evolutionary Biology**	3
3100:311	Cell Biology**	3
3100:384	Techniques and Instrumentation Laboratory†	1
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	Modern University 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 have 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	4
	or	
3100:443	Phycology	4
3100:445	Plant Morphology	4
3100:447	Plant Physiology	3
3100:449	Plant Biosystematics	2
Electives:		
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	Freshwater Ecology	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
4100:206	FORTRAN Programming	
	and/either	
3100:331	Microbiology	4
3100:426	Applied Aquatic Ecology	3
3100:440	Mycology	4
	or	
3100:443	Phycology	4
3150:423	Quantitative Analysis	
	and	
3150:427	Analytical Chemistry Lecture	3
	or one course from each group below:	
3100:351	Invertebrate Zoology	
	and	
3100:353	General Entomology	4

*Second year of foreign language and *Eastern Civilizations* not required for B.S. in Medical Technology.

**Not required for B.S. in medical technology.

†Not required for B.S. in biology.

††Required for B.S. in cytotechnology.

3100:456	Ornithology	3
	and	
3100:458	Vertebrate Zoology	4
3100:341	Flora and Taxonomy I	
	and	
3100:342	Flora and Taxonomy II	3

Microbiology

3100:331	Microbiology	4
3100:431	Bacterial Physiology	3
	or	
3100:435	Virology	4
3100:437	Immunology	4
Electives:		
3100:355	Parasitology	4
3100:433	Pathogenic Bacteriology	4
3100:440	Mycology	4
	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
Electives:		
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
3150:401,2	Biochemistry	6

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	4
	or	
3100:443	Phycology	4
3100:445	Plant Morphology	4
Electives:		
3100:353	General Entomology	4
3100:355	Parasitology	4
3100:365,6	Histology	6
3100:422	Conservation of Biological Resources	4
3100:456	Ornithology	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
Electives		
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

Bachelor of Science in Medical Technology

- See Bachelor of Science for additional requirements.

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

3100:206,7	Anatomy and Physiology	8
3100:331,2	Microbiology	8
3100:355	Parasitology	4
3100:383	Laboratory Techniques and Instrumentation	2
3100:384	Techniques and Instrumentation Laboratory	1
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 course work 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, Canton Aultman Hospital, Cleveland Clinic Foundation, Cleveland Metropolitan General 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 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.

Bachelor of Science in Cytotechnology

- See Bachelor of Science for additional requirements.

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:

3100:206,7	Anatomy and Physiology	8
3100:331	Microbiology	4
3100:365,6	Histology I and II	6
3100:383,4	Laboratory Techniques and Instrumentation in Biology	3
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	3
3400:478	Western Science since 1800	3
3400:479	Western Technology	3
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
3100:217	General Ecology	3
3100:311	Cell Biology	3
	or	
3100:130	Principles of Microbiology (with permission)	3
3100:316	Evolutionary Biology	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
3150:405	Biochemistry Laboratory	2
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

- Physics:

3650:291,2	Elementary Classical Physics I and II	8

- Recommended:

4100:206	FORTRAN (Science and Engineering)	2

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	3
	or	
3150:313	Physical Chemistry Lecture I	3
3150:304	Elementary Physical Chemistry II	3
	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
3150:405	Biochemistry Laboratory	2
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
3940:301	Introduction to Elastomers	3
3940:302	Introduction to Plastics	3
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	8
	or	
3650:261,2	Physics for the Life Sciences I and II	8
	or	
3650:231,2	Concepts of Physics I and II	8

- Mathematics:

3450:149	Precalculus Mathematics	4
3450:221,2	Analytic Geometry-Calculus I and II (or equivalent)	8

- Recommended:

4100:206	FORTRAN (Science and Engineering)	2

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 2.00 ("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 course is:

3000:301	Cooperative Education (may be repeated)	0

A certificate is awarded upon completion of the program. Course required for certification is 3000:301 and is optional.

A registration fee for each work period is charged to cover partially 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

Classics

- The General Studies.
- At least 39 departmental credits including four semesters of 3210:303/304 Advanced Greek or four semesters of 3220:303/304 Advanced Latin. 3210:497/498 Greek Reading and Research or 3220:497/498 Latin Reading and Research may be substituted with the approval of the department adviser — 12 credits.

3200:189	Mythology	3
3200:313	Archaeology of Greece	3
3200:314	Archaeology of Rome	3
3200:361	Literature of Greece	3
3200:362	Literature of Rome	3

- Two of the following courses:

3400:304	The Ancient Near East	3
3400:305	Greece	3
3400:306	Rome	3
3400:307	The Eastern Roman Empire (324-1453)	3
	Electives in Classics	6

- Language courses must be above the 200 level in order to be included in the total of 39 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*.

Classical Civilization

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

3200:189	Mythology	3
3200:313	Archaeology of Greece	3
3200:314	Archaeology of Rome	3
3200:361	Literature of Greece	3
3200:362	Literature of Rome	3
3870:151	Physical Anthropology	3
3600:211	History of Ancient Philosophy	3

- Three of the following courses:

3400:304	The Ancient Near East	3
3400:305	Greece	3
3400:306	Rome	3
3400:307	The Eastern Roman Empire (324-1453)	3
	Electives in Classics	6

It is strongly recommended that a major in classical civilization fulfill the foreign language requirement by taking 3210:121/122/223/224 or 3220:121/122/223/224.

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	Macroeconomics	3
3250:410	Microeconomics	3
3250:420	Mathematical Economics I	3

- Electives — 15 credits.
- Mathematics:

3450:149	Precalculus Mathematics	4
	or	
3450:147,8	Elementary Functions I, II or equivalent	6

- 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	Microeconomics	3
3250:420	Mathematical Economics I	3

Two of the following:

3250:333	Labor Economics	3
3250:430	Human Resource Policy	3
3250:431	Labor and the Government	3
3250:432	Collective Bargaining	3

- Electives. 9
- Mathematics:

3450:149	Precalculus Mathematics	4
	or	
3450:147,8	Elementary Functions I, II, or equivalent	6

- 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.

Note: 3250:100 *Introduction to Economics* cannot be used to satisfy the requirements for a major or minor in economics.

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; 3300:301,2, 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.

3350: Geography

Bachelor of Arts

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

- At least 26 departmental credits including the following:

3350:310	Physical and Environmental Geography	3
3350:320	Economic Geography	3
3350:330	Rural and Urban Settlement	3
3350:340	Cartography	3
3350:341	Maps and Map Reading	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 technology or the associate degree program in drafting technology.
- Completion of General Studies requirements.
- Completion of at least 47 credits of 300/400-level courses in addition to the General Studies requirement.
- 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:**

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

Engineering Geology

- The General Studies and the second year of a foreign language.
- At least 39 departmental credits including the following:

3370:101	Introductory Physical Geology	4
3370:102	Introductory Historical Geology	4
3370:230	Crystallography and Non-Silicate Mineralogy	3
3370:231	Silicate Mineralogy and Petrology	3
3370:324	Sedimentation and Stratigraphy	3
3370:350	Structural Geology	4
3370:446	Exploration Geophysics††	3
3370:496	Geology Field Camp	6
	Geology Electives from List	9

- Non-Geology Required Courses:

3150:132,133	Principles of Chemistry I and II	7
3450:221,222, 223	Analytical Geometry and Calculus I, II, and III	12
3450:235	Differential Equations	3
3650:291,292	Elementary Classical Physics I and II	8
4300:201	Statics	3
4300:202	Introduction to Mechanics of Solids	3
4300:313	Soil Mechanics	3
4300:314	Geotechnical Engineering	3
4300:341	Hydraulic Engineering	2
4300:414	Design of Earth Structure	3
4600:310	Fluid Mechanics	3
	Electives, Non-Geology	4

- Geology Elective List:

3370:210	Geomorphology	3
3370:436	Coal Geology	3
3370:437	Economic Geology	3
3370:470	Geochemistry	3
3370:474	Groundwater Hydrology	3
3370:432	Optical and X-ray Methods	3
3370:435	Petroleum Geology	3

- Non-Geology Elective List:

3460:201	Introduction to FORTRAN Programming or equivalent	2
4300:230	Surveying	4
4600:305	Thermal Science	2

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 and Non-Silicate Mineralogy	3
3370:231	Silicate Mineralogy and Petrology	3
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 and X-Ray Methods	3
3370:433	Petrography	3
3370:496	Geology Field Camp	6
	400-level courses	5

- 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
3650:291,2	Elementary Classical Physics I and II†	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 the following:

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

Bachelor of Arts

- The General Studies and the second year of a foreign language.
- At least 44 departmental credits including the following:

3370:101	Introductory Physical Geology	4
3370:102	Introductory Historical Geology	4
3370:231	Silicate Mineralogy and Petrology	3
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)	19

- 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
3650:291,2	Elementary Classical Physics I and II†	4

††May also be satisfied by:
4300:418/518 *Soil and Rock Exploration.*

*Students planning to pursue the Bachelor of Science in Geography/ Cartography should select courses 2020:242 *American Urban Society* and 247 *Survey of Basic Economics* as general electives.

**See department head for possible substitutions.

†Undergraduate geology adviser may approve substitution of 3650:261,2.

3400: History

Bachelor of Arts

- The General Studies and the second year of a foreign language (French, German or Russian suggested).
- A minimum of 32 credits in history, but up to six credits in cognate fields may be substituted with the adviser's approval. These credits must include some distribution of United States and European or non-United States history; and 3400:405, *Historical Methods* (taken in the sophomore or junior year). The minimum shall be 16 credits in 300/400-level history courses.

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.

Applied Mathematics

- 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
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	

*The courses 3450:101-39 *Modern University Mathematics*, 3450:147,8 *Elementary Functions*, 3450:149 *Precalculus Mathematics*, 3450:301 *History of Mathematics* and 3470:251-9 *Introduction to Statistics* do not meet major requirements.

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 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 3000:301 *Cooperative Education* in the same manner that a student registers for any other University course. See department adviser before enrolling for this course.

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.

Usually, 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.
- Core curriculum:

3460:209	Computer Programming I	3
3460:210	Computer Programming II	3
3460:306	Assembly Language Programming	3
3460:307	Applied Systems Programming	3
3460:316	Introduction to Data Structures	3
3460:418	Introduction to Discrete Structures	3
3460:420	Structured Programming	3
3460:426	Operating Systems	3

Options

Mathematics

- Other required courses:

3450:221	Analytic Geometry-Calculus I	4
3450:222	Analytic Geometry-Calculus II	4
3450:223	Analytic Geometry-Calculus III	4
3450:427	Introduction to Numerical Analysis	3
3460:201	Introduction to FORTRAN Programming	2
3470:461	Applied Statistics	4

Select one of the following two courses:

3450:312	Linear Algebra	3
3450:428	Numerical Linear Algebra	3

Electives — approved upper-level computer science courses — 12 credits.

Business

- Other required courses:

3250:201	Principles of Macroeconomics	3
3250:202	Principles of Microeconomics	3
3450:215	Concepts of Calculus I	4
3450:216	Concepts of Calculus II	4
3450:115	Linear Programming	1
3460:302	Programming Applications with COBOL	3
3460:475	Data Base Management	3
3470:461	Applied Statistics	4
6200:201	Accounting I	4
6200:202	Accounting II	4

*Select two of the following three courses:

6400:371	Business Finance	3
6500:301	Management: Principles and Concepts	3
6600:300	Marketing Principles	3

- Electives — approved upper-level computer science courses — six credits.

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
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	4
	Mathematics Electives	2
	(Elective course must be an approved 300/400-level course 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.

3500: Modern Languages

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.**

*The courses 3450:101-39 *Modern University Mathematics*, 3450:147,8 *Elementary Functions*, 3450:149 *Precalculus Mathematics*, 3450:301 *History of Mathematics* and 3470:251-9 *Introduction to Statistics* do not meet major requirements.

**For Spanish majors some distribution among languages, literature and culture courses is required. Consult an adviser.

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.

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

A minimum of 40 credits at 200 level or higher, including: ‡

3650:291,2	Elementary Classical Physics I and II	8
3650:301	Elementary Modern Physics	3
3650:322,3	Intermediate Laboratory I, II	4
3650:340	Thermal Physics	3
3650:431	Mechanics I	3
3650:436	Electromagnetism I	3
3650:441	Quantum Physics I	3

Highly recommended courses for all students:

3650:432	Mechanics II	3
3650:437	Electromagnetism II	3
3650:442	Quantum Physics II	3
3650:451,2	Advanced Laboratory I, II	4
3650:481,2	Methods of Mathematical Physics I, II	6
	Physics electives	13

- Mathematics:

3450:235	Differential Equations	3
3450:221,2,3	Analytic Geometry-Calculus I, II and III	12

- Chemistry:

3150:132,3	Principles of Chemistry I, II	7

- Computer Science:

4100:206	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
3650:310	Electronics	3
3650:322	Intermediate Laboratory I	2
	Physics Electives	11

†Additional physics courses are usually necessary to satisfy the admission requirements of graduate schools for advanced work in physics or certain other physical sciences.

‡Only one of the introductory sequences 291,2 or 261,2 is applicable toward the required 40 credits. Courses 1100:224, 3650:130, 133, 137, 138, 141 and 160 are not applicable toward the required 40 credits of physics courses without special permission.

‡‡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.

- Mathematics:

3450:221,2,3	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
3650:438	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

Biophysics

(Bachelor of Science or Bachelor of Arts degree)

A suggested program of 27 credits to include the following:

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

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
3650:471	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
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
3650:320	Optics	3
3650:432	Mechanics II	3
3650:437	Electromagnetism II	3
3650:438	Methods of Applied Physics	3
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. For further information, refer to Buchtel College of Arts and Sciences, "Natural Sciences Division Major," in this section or contact the Department of Physics.

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:

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 (Electives must include at least one 400-level course in political science.)	9

- 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 course work 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
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
3700:461	The Supreme Court and Constitutional Law	4
3700:480	Policy Problems	3
3700:395	Internship in Government and Politics	2-3
	or	
3000:301	Cooperative Education	0
	and	
3700:—	300/400-level political science course	3

*See department head for possible substitutions.

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	Policy Process	3
3700:442	Methods of Policy Analysis	3
3700:480	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 Government and Politics	3
3700:340	American Political Parties	3
3700:341	The 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	Public Opinion and Political Behavior	4
3700:461	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	Comparative Foreign Policy	3
3700:420	Issues and Approaches to Comparative Politics	3

- Statistics:

3470:251,2,3,5	Introduction to Statistics	4

- Computer Science:

3460:126	Introduction to Basic Programming	1
3460:209	Computer Programming I	3

- Accounting:

6200:201	Accounting I	4
6200:470	Governmental and Institutional Accounting	3

- Economics:

3250:202	Principles of Microeconomics	3
3250:405	Public Finance	3

- Psychology:

3750:100	Introduction to Psychology	3

- Management:

6500:301	Management: Principles and Concepts	3
6500:324	Data Management for Information Systems	3
6500:341	Personnel Management	3
	Electives at the 300/400 level	10

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:

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, e.g., academic sociology, deviance and corrections, family, agency and life cycle, urban planning and social research.

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	Evolution of Man and Culture	3
3870:356	Archaeology of the Americas	3
3870:461	Language and Culture	3

- A minimum of two additional credits:

3870:355	Indians of South America	3
3870:357	Magic, Myth and Religion	3
3870:358	Indians of North America	3
3870:455	Culture and Personality	3
3870:463	Social Anthropology	3

- Electives — 44 credits.

Sociology/Law Enforcement

- The General Studies and the second year of a foreign language.
- A minimum of 33 credits in the department including:

3850:100	Introduction to Sociology	4
3850:301,2	Methods of Social Research I, II	6
3850:320	Social Inequality	3
3850:330	Criminology	3
3850:403	History of Sociological Thought	3
3850:404	Contemporary Sociological Theories	3
3850:430	Juvenile Delinquency	3
3850:433	Sociology of Deviant Behavior	3
3850:441	Sociology of Law	3
3850:495	Research Internship	2

- Electives — 42 credits.

Students who enter the Sociology/Law Enforcement program from the University College, or by transfer, must complete course work in the Criminal Justice Technology program. This may be done in one of two ways: (1) complete the program requirements for an A.S. degree in criminal justice; or, (2) complete 18 credits of criminal justice technology course work, plus 2250:260 *Administration and Supervision in the Public Service*. The appropriate course work will be determined by the student's sociology/law enforcement adviser in consultation with the coordinator of the Criminal Justice Technology program.

Sociology/Corrections

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

- A minimum of 33 credits in sociology including:

3850:100	Introduction to Sociology	4
3850:301,2	Methods of Social Research I, II	6
3850:330	Criminology	3
3850:403	History of Sociological Thought	3
3850:404	Contemporary Sociological Theories	3
3850:412	Socialization: Child to Adult	3
3850:430	Juvenile Delinquency	3
3850:431	Corrections	3
3850:432	Probation and Parole	3
3850:495	Research Internship	2

- Electives — 42 credits.

Students who enter the Sociology/Corrections program from the University College, or by transfer, must complete course work in the Criminal Justice Technology program. This may be done in one of two ways: (1) complete the program requirements for an A.S. degree in criminal justice; or, (2) complete 18 credits of criminal justice technology course work, plus 2250:260 *Administration and Supervision in the Public Service*. The appropriate course work will be determined by the student's sociology/corrections adviser in consultation with the coordinator of the Criminal Justice Technology program.

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:

- 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 divisional major provides for a broad background in science with concentration in selected areas. It is an appropriate major for those preparing for admission to professional programs in medicine, dentistry or veterinary science or for those desiring a Liberal Arts degree with a general emphasis in science. Additional course work is often necessary for those planning graduate studies in a particular science discipline. The natural sciences division consists of the departments of biology, chemistry, geology, mathematical sciences, physics and polymer science. The divisional major must include:

- The General Studies.
- A minimum of 64 credits in the division and/or engineering, at least 27 of which must be in divisional courses at the 300/400 level.
- At least 27 credits from one of the departments of the natural sciences division.
- At least 16 credits with at least two credits at the 300/400 level 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 approved by the department offering the course. In general, only courses available toward the major are acceptable. 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:

	Any except 3250:100 *Introduction to Economics** (must include 3250:201 *Principles of Macroeconomics* and 3250:202 *Principles of Microeconomics*)	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

*Course will not apply toward 54 credits in the major.

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 divisional adviser. For further information, please contact the Office of the Dean, Buchtel College of Arts and Sciences.

Bachelor of Science/Doctor of Medicine Degree (B.S./M.D. Program)*

Introduction

The Northeastern Ohio Universities College of Medicine (NEOUCOM) is a consortium composed of The University of Akron, Kent State University, Youngstown State University and the College of Medicine offering a six-year B.S./M.D. program in which students obtain a baccalaureate degree in two years, summers included, and are then directly promoted to NEOUCOM's medical school for a final four years, obtaining a Doctor of Medicine degree.

The University of Akron admits a restricted number of carefully selected students into its B.S./M.D. program. These students usually pursue a natural science divisional major in the Buchtel College of Arts and Sciences, although other majors may be elected. Upon successful completion of the baccalaureate degree requirements, and with favorable faculty recommendations, satisfactory grade-point average and MCAT scores, students are promoted to NEOUCOM's Rootstown campus as medical students. A few students may need to complete their baccalaureate degree program on the University of Akron campus during the summers of the third through fifth years.

Requirements

- The General Studies.**
- Courses to meet the natural sciences divisional major requirements:

3100:111,2	Principles of Biology	8
3100:211	General Genetics	3
3100:365	Histology I	3
3100:466,7	Developmental Anatomy	8
3150:132,3	Principles of Chemistry I, II	7
3150:134	Qualitative Analysis	2
3150:263,4	Organic Chemistry Lecture I, II	6
3150:265	Organic Chemistry Laboratory I	2
3150:401,2	Biochemistry Lecture I, II	6
3450:211,2	Calculus for Life Sciences I, II	6
3470:251,2,3,5	Statistics modules	4
3650:261,2	Physics for Life Sciences, I, II	8
3650:267,8	Computations (optional but recommended)	2

Plus sufficient elective credits to reach distribution requirements of the natural sciences major. Some work may be transferred later from NEOUCOM with prior permission of the divisional major advisor and the Dean of Buchtel College of Arts and Sciences.

- Additional courses:

1880:201	Medical Seminar and Practicum I	3
2780:290	Special Topics	1
3100:190,1	Health-Care Delivery Systems	2
3100:290,1	Health-Care Delivery Systems	2
3750:100	Introduction to Psychology	3

- Humanities distribution requirement:
  16 credits of approved humanities as approved by the Humanities in Medical Education Committee.
  Additional credits as required to make a minimum of 128 credits.

*Deadline for application to program is December 15.

** Some students elect, with prior permission of their adviser and the Dean of the University College, alternative courses in lieu of the Western Cultural Traditions and Eastern Civilizations General Studies requirements to make a minimum of 12 credits.

College of Engineering

Louis A. Hill, Jr., P.E., Ph.D., *Dean*
Glenn A. Atwood, P.E., Ph.D., *Assistant Dean*

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 college offers programs leading to the Bachelor of Science, Master of Science and Doctor of Philosophy degrees.

At the undergraduate level the college has a four-year noncooperative program and a five-year cooperative educational program. The majority of the students elect the cooperative program.

The emphasis in both undergraduate programs is on the preparation of students for professional practice, and University policy assures that each student obtains a substantial exposure to the humanities.

A graduate is prepared for employment in the engineering profession or graduate studies in engineering upon receipt of the baccalaureate degree.

COLLEGE REQUIREMENTS

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.

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 including Calculus II 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.

Degrees

The college offers curricula leading to the degrees of B.S. in chemical, civil, electrical and mechanical engineering; Bachelor of Science in Engineering; and Construction Technology.

Requirements for Graduation

- Compliance with University requirements, **Section 3,** of this *Bulletin.*
- Completion of the requirements in the appropriate list of courses and a minimum of 136 credits of course work.
- 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.

PROGRAMS OF INSTRUCTION

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. 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)

		Credits
• 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:		
4100:206	FORTRAN (Science and Engineering)	2
4200:120	Engineering Fundamentals	1
4200:305	Materials Science	2
4300:201	Statics	3
4400:320	Basic Electrical Engineering	4
4600:125	Engineering Graphics	2
• Chemical engineering:		
4200:200	Material and Energy Balances	4
4200:225	Equilibrium Thermodynamics	4
4200:321	Transport Phenomena I	3
4200:322	Transport Phenomena II	3
4200:330	Chemical Reaction Engineering	3
4200:351	Fluid and Thermal Operations	3
4200:352	Transport Laboratory	2
4200:353	Mass Transfer Operations	3
4200:435	Process Analysis and Control	3
4200:441	Process Economics and Design	4
4200:442	Plant Design	4
4200:454	Operations Laboratory	1
• Electives:		
	Advanced Chemistry or Polymer Science	3
	Chemical Engineering Design	3
	Free Electives, adviser approved	3

4300: Civil Engineering

The civil engineer is dedicated to planning, designing and building to make our environment more desirable. Civil engineers help renovate urban areas; develop new housing systems; plan community facilities; build new water storage systems; design new systems for waste disposal; expand airport and harbor facilities; build and maintain local streets and inter-city highways; design all types of buildings and bridges; build dams, reservoirs and flood control sytems; build tunnels; and design foundations.

The civil engineering curriculum at the University allows specialization in environmental engineering, foundation engineering, hydraulic engineering, structural engineering and transportation engineering.

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.

(an ABET accredited engineering program)

• General Studies — 28 credits.		
• Natural science:		
3150:132,3	Principles of Chemistry I, II	7
3370:101	Introductory Physical Geology	4
3450:221,2,3	Analytic Geometry-Calculus I, II, III	12
3450:235	Differential Equations	3
3470:461	Applied Statistics	4
3650:291,2	Elementary Classical Physics I, II	8
• Engineering core:		
4100:206	FORTRAN (Science and Engineering)	2
4200:305	Materials Science	2
4300:130	Introduction to Engineering	0
4300:201	Statics	3
4300:202	Introduction to Mechanics of Solids	3
4400:320	Basic Electrical Engineering	4
4600:125	Engineering Graphics	2
4600:203	Dynamics	3
4600:305	Thermal Science	2
4600:310	Fluid Mechanics	3
• Civil engineering:		
4300:230	Surveying	4
4300:306	Theory of Structures	3
4300:313	Soil Mechanics	3
4300:314	Geotechnical Engineering	3
4300:323	Water Supply and Wastewater Disposal	3
4300:341	Hydraulics	2
4300:361	Transportation Engineering	3
4300:380	Engineering Materials Laboratory	2
4300:401	Steel Design	3
4300:403	Reinforced Concrete Design	3
4300:448	Hydraulics Laboratory	1
4300:471	Construction Administration	3
• At least one of the following:		
4300:426	Environmental Engineering Design	3
4300:427	Water Quality Modeling	3
4300:443	Applied Hydraulics	3
4300:445	Hydrology	3
• Electives:		
	Technical Electives	10

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)

• 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:		
4100:206	FORTRAN (Science and Engineering)	2
4200:305	Materials Science	2
4300:201	Statics	3
4300:202	Introduction to Mechanics of Solids	3
	or	
4600:203	Dynamics	3
4400:101	Introduction to Electrical Engineering	1
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
• 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 either to pursue further education, formally or informally, or to begin a career in government or industry.

(an ABET accredited curriculum)

- 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
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	System Dynamics and Control	4
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)	9
	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 programs where the course content compares favorably may be admitted to the program.

- General Studies — 14 credits.

1100:112	English Composition	4
1100:320	Western Cultural Traditions	4
1100:321	Western Cultural Traditions	4
1100:3--	Eastern Civilizations	2

- Required Science and Mathematics — seven credits:

2020:334	Mathematics for Technical Applications	3
3370:101	Introduction to Physical Geology	4

- Required Technical Courses — 28 credits:

4980:351	Construction Quality Control	2
4980:352	Field Management	2
4980:354	Foundation Construction Methods	3
4980:355	Computer Applications in Construction	3
4980:356	Safety in Construction	2
4980:357	Construction Administration	2
4980:358	Advanced Estimating	3
4980:361	Construction Formwork	3
4980:453	Legal Aspects of Construction	2
4980:462	Mechanical Service Systems	3
4980:463	Electrical Service Systems	3

- Required Business Courses — 14 credits:

6200:201	Accounting I	4
6200:202	Accounting II	4
6400:371	Business Finance	3
6500:301	Management Principles and Concepts	3

- Technical Electives — five credits:

3370:210	Geomorphology	3
4100:206	FORTRAN	2
4300:313	Soil Mechanics	3
4300:314	Geotechnical Engineering	3
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
4980:465	Heavy Construction Methods	3
4980:466	Hydraulics	3
4980:467	Special Projects	1-3

Bachelor of Science in Engineering

This degree program was established to introduce flexibility into the College of Engineering. Within the 66 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

Constance Cooper, Ed.D., *Dean*
Don Birdsell, Ph.D., *Associate Dean*
Walter Yoder, Ed.D., *Assistant to the Dean*

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.

COLLEGE REQUIREMENTS

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.

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 middle, 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.

Clinical and Field-Based Experiences

Each teacher education student is required to participate satisfactorily 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 9** of this *Bulletin.*

*The secondary education student also must have eight credits in teaching field with a 2.50 average.

Student Teaching

Student teaching is done in the public schools under the direction of cooperating teachers and a representative of the College of Education faculty.

All students must complete a speech and hearing test prior to approval of the student teaching experience.

Each student must have his/her education adviser's recommendation prior to approval of the student teaching experience.

To qualify for student teaching, students must maintain a 2.50 average in methods courses (as defined by departments), foundations courses, and in their teaching field(s). Satisfactory completion of at least 300 hours of field and clinical experiences is also required before student teaching. Students identified as not meeting these requirements will be evaluated by their department and a recommendation made to the director of student teaching.*

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.

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 in the appropriate department. 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.

PROGRAMS OF INSTRUCTION

5200: Elementary Education

Elementary

The elementary program is for those preparing to teach in grades one through 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
5100:310	Educational Media and Technology	3
5100:350	Educational Measurement and Evaluation	2
5100:450	Problems in Education	2
Elementary education:†		
5200:141	Handicrafts	2
5200:286	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
5200:365	Comprehensive Musicianship for the Elementary Classroom Teacher	3
5550:334	Games and Rhythms — Elementary Grades	2
5570:101	Personal Health	2
Laboratory experience:		
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
5200:495	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 that 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 — five 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

*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.

**Six credits of science are included in the General Studies. Three 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.

5200:360	Nursery School—Laboratory	3
7400:265	Child Development	3

- Electives — four 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 course work 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:

Basic:

5100:150	Introduction to Professional Education	3
5100:250	Human Development and Learning	3
5100:310	Educational Media and Technology	3
5100:350	Educational Measurement and Evaluation	2
5100:450	Problems in Education	2
5200:451	Elementary Education	3

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
5200:336	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
5200:495	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 as follows:

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 through eight) upon submitting evidence of the satisfactory completion of the following credits:

Basic:

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
5200:451	Elementary Education	3

- Such a certificate shall be designated as a "retraining" certificate and shall be made standard upon evidence of the completion of the following course work 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
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, eight credits must be scheduled as follows:

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 course work is required to enroll.
- Completion of the above credits does not necessarily constitute qualification for the Bachelor of Science 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:

7500:497	Independent Study (Music Student Teaching)	2
7500:107	Class Voice	2
	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-Percussion Instrument Techniques	3
7500:356	Music: Teaching Handicapped	2
	or	
7500:110	Class Guitar	2
7500:497	Independent Study	2
7510:—	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 through eight in the elementary school.

*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.

†Most methods courses are accompanied by a laboratory. The student must enroll for methods course and laboratory concurrently.

‡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.

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 certification 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."

5630: Bilingual Multicultural Education

This program provides education majors with the knowledge, skills and attitudes necessary to teach bilingual students. The program incorporates course work 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:

		Credits
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
	Field experience of bilingual classrooms/settings	3
5630:485	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

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
5100:310	Educational Media and Technology	3
5100:350	Educational Measurement and Evaluation	2
5100:450	Problems in Education	2
5300:210	Principles of Teaching in the Secondary School	3
5300:275	Exploratory Experience	1
5300:311	Instructional Techniques Secondary Education	4
5300:325	Content Reading in Secondary School	3
5300:375	Exploratory Experience	1
5300:445	Microcomputer Literacy for Secondary Teachers	2
	or	
5300:485	Classroom Dynamics	2
5300:495	Student Teaching	8

- Courses in teaching field(s) and electives as determined by the department.

*Student teaching in both fields is required.

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
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

	First Field Credits	*Second Field Credits*
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

†Many fields require more than the minimum. Please see the department for specific program.

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 for Sports Medicine

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.

- Requirements:

3100:130	Principles of Microbiology	3
3100:206,207	Human Anatomy and Physiology	4 each
3150:129/130	Introduction to General, Organic and Biochemistry I, II	4 each
5550:150	Concepts in Health and Fitness	3
5550:201	Kinesiology	2
5550:202	Physiology of Exercise	3
5550:211	First Aid	2
5550:340	Care and Prevention of Athletic Injuries	3
5550:345	Adapted Physical Education	2
5550:350	Organization and Administration of Health and Physical Education	3
5550:395	Field Experience	1-3
5550:460	Practicum in Physical Education	3-6
5550:475	Seminar in Health and Physical Education	3
5550:497	Independent Study	1-2
5550:441/541	Advanced Athletic Injury Management	4
5550:442/542	Therapeutic Modalities and Equipment in Sports Medicine	3
5570:202	Stress, Life Style and Your Health	3
7400:133	Nutrition Fundamentals	3

- Electives (determined by adviser):

3100:111	Principles of Biology	4
3100:112	Principles of Biology	4
3100:461/561	Human Physiology	4
3100:462/562	Human Physiology	4
3100:465/565	Advanced Cardiovascular Physiology	3
3100:484/584	Pharmacology	3
5550:480	Special Topics: Physical Education	1-4
5550:4--/5--	Workshops in Sports Medicine	1-3

*Certification through the state of Ohio.

**Certification through department or the University.

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. 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.

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
5100:310	Educational Media and Technology	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

†Chosen in consultation with special education adviser.

- Related competency studies:

5200:335	Teaching the Language Arts	5
5200:336	Teaching of Elementary School Mathematics	3
5200:337	Teaching of Reading	3
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	4
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	3
5610:457	Clinical Teaching Practicum: Children with Learning Problems†	3

†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 to 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 entered the program during fall semester 1983, can complete a certification program only as part of a master's degree. Specific program details can be obtained from the Department of Counseling and Special Education and/or the Department of Communicative Disorders.

College of Business Administration

James W. Dunlap, Ph.D., *Dean*
Kenneth E. Mast, D.B.A., *Assistant Dean*
E. Lee Wilson, M.B.A./C.M.A., *Assistant to the Dean*

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.

COLLEGE REQUIREMENTS

Requirements for Admission

The college will accept the student who has completed sufficient course work 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 45 credits with a 2.30 overall grade-point average at the time of acceptance.

Enrollment in upper-college business courses is limited to a student who has done the following:*

- Applied for transfer to the college.
- Successfully completed at least 60 credits.
- Earned at least a 2.30 overall grade-point average required for acceptance and at least a 2.00 grade-point average in business administration and economics courses.

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 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.

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.

Transfer of Courses and Advanced Standing

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 suitability of courses taken elsewhere for the program of study chosen here. A grade of at least "C" must have been earned in pre-business accounting and economics course work for transfer consideration. 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 and marketing. 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, the Bachelor of Science in Business Administration/Marketing, and the Bachelor of Science in Business Administration/Advertising.

*Exceptions to any or all of these may be granted by the dean.

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:

		Credits
3250:20*	Principles of Macroeconomics	3
3250:202	Principles of Microeconomics	3
6200:20*,2	Accounting	8
Two sequential courses in psychology or sociology; or two courses chosen from psychology, sociology and/or cultural anthropology (minimum)		6
One of the following three options:		
Option One		
3450:111,2,3,4	Modern University Mathematics	4
3450:121,2,3	Modern University Mathematics	3
3450:138	Mathematics of Finance	1
Option Two		
3450:138	Mathematics of Finance	1
3450:149	Precalculus Mathematics	3
3450:221	Analytic Geometry-Calculus I	4
Option Three		
3450:138	Mathematics of Finance	1
And one of the following:		
3450:147,8	Elementary Functions I, II	6
	or	
3450:149	Precalculus Mathematics	4
3450:215	Concepts of Calculus I	4
The following core program in business administration:		
6200:355	Accounting Information Processing	3
6400:320	Legal Environment of Business**	4
	or	
6400:321,2	Business Law I, II	6
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
6500:490	Business Policy	4
6600:300	Marketing Principles	3
6800:305	International Business	3

Minor Areas of Study

For an explanation of minor areas of study in the College of Business Administration, see **Section 5** of this *Bulletin*.

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.

The 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:

		Credits
6200:301	Cost Accounting	3
6200:317	Intermediate Accounting I	4
6200:318	Intermediate Accounting II	4
6200:430	Taxation I	4
6200:440	Auditing	3
6200:454	Information Systems	3
Six additional credit of courses in accounting (6200), including at least three credits from the following:		
6200:420	Advanced Accounting	3
6200:431	Taxation II	3
6200:460	Controllership Problems	3
And at least three credits from:		
6200:420	Advanced Accounting	3
6200:425	Current Developments in Accounting	3
6200:431	Taxation II	3
6200:460	Controllership Problems	3
6200:470	Governmental and Institutional Accounting	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 financial 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 nonprofit 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.

*These are pre-business administration requirements.

**An accounting major must take 6200:355 and 6400:321,2; other majors must take 6500:323 and 6400:320.

The finance major must complete four *required* major courses with a minimum grade of "C" (2.00) in each required course:

Core:

6400:338	Financial Intermediaries	3
6400:343	Investments	3
6400:479	Advanced Business Finance	3
6400:373	Financial Statement Analysis	3
	or	
6200:317	Intermediate Accounting I*	4

The finance major must also select at least four *elective* courses (two must be 6400 courses) totaling at least 12 credits from the following list:

6400:400	Real Estate Principles: A Value Approach	3
6400:401	Real Estate Investment	3
6400:402	Income Property Appraisal	3
6400:403	Real Estate Finance	3
6400:318	Risk Management and Insurance	3
6400:351	Financial Decision Making	3
6400:417	Life and Health Insurance	3
6400:419	Property and Liability Insurance	3
6400:432	Personal Financial Planning	3
6400:436	Commercial Bank Management	3
6400:447	Security Analysis	3
6400:475	Commercial and Consumer Credit Management	3
6400:481	International Business Finance	3
6400:497	Honors Project	1-3
6200:301	Cost Accounting	3
6200:318	Intermediate Accounting II	4
6200:460	Controllership Problems	3
6200:340	Taxation I	3

Total credits for a finance major — eight courses with 24 to 27 credit hours minimum depending on how many four credit courses taken.

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.

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:

6500:331	Production and Systems Management	3
6500:332	Production and Operational Management	3
6500:341	Personnel Management	3

*If 6200:317 is selected, the student *must* complete 318 as a finance major elective. See accounting major for prerequisite for 6200:317 and 318.

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	Business Operational Planning	3
6500:434	Production Planning and Control	3

Personnel Option

6500:342	Personnel Relations	3
6500:443	Advanced Personnel Management	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 CPA. 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	3
	or	
6500:323	Introduction to Computer Applications for Business	3
6200:460	Controllership Problems	3
6500:331	Production and Systems Management	3
6500:332	Production and Operational 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 nonprofit 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
Retail Marketing
International Marketing
Marketing Communications
Physical Distribution

The general marketing studies option allows the student to tailor 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:		
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:		
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:		
6600:385	International Marketing	3
6600:460	Marketing Research	3
6800:405	Multinational Corporations	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:		
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:		
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.

Bachelor of Science Degree in Business Administration/ Advertising

This degree shall consist of a minimum of 37 semester credit hours of General Studies courses, 29 semester credit hours of Pre-Business courses (seven credit hours from General Studies are double counted in Pre-Business), 29 semester credit hours in the College of Business Administration Core, 18 semester credit hours of the Advertising Major Core, 12 semester credit hours from the advertising major electives, plus free electives needed to complete the minimum 128 semester credit hours necessary for graduation from the University.

Advertisting majors must satisfy the University Social Science requirements and the College of Business Administration Behavioral Science requirements as follows:

3250:201	Principles of Macroeconomics	3
3870:150	Cultural Anthropology	4
	or	
3850:100	Introduction to Sociology	4
	and	
6600:310	Buyer Behavior	3

Core for Advertising Majors consists of 18 hours as follows:

6600:350	Advertising and Marketing Communications	3
7100:180	Fundamentals of Graphic Design	3
7600:405	Media Copywriting	3
7600:280	Media Production Techniques	3
6600:425	Advertising Research and Evaluation	3
6600:430	Promotional Campaigns	3

In addition to the 18 semester credit hours in the advertising major core, the student must take an additional 12 credit hours to be selected by the student from a list of prescribed electives.

The grouping of electives suggests that the student may pursue some specific area of interest. However, courses in the form of specific tracks are not required.

Graphic Electives:

7100:286	Commercial Design Theory	3
7100:288	Letterform and Typography	3
7100:387	Advertising Layout Design	3
7100:388	Advertising Production Design	3

Writing Electives:

3300:279	Script Writing	3
3300:390	Professional Writing	3
7600:303	Publicity Writing	2
7600:387	Radio and TV Writing	3

Media Electives:

7600:282	Radio Production	3
7600:283	Television Production	3
7600:309	Publications Production	3
7600:384	Mass Media-Communications Research	3

Advertising Management Electives:

7600:403	Communication in Public Relations	3
7600:486	Broadcast Sales and Management	3
6600:340	Retail Management	3
6600:360	Industrial Marketing	3
6600:375	Professional Selling	3
6600:440	Product Planning	3

General Electives:

7600:102	Survey of Mass Communications	3
7600:439	Independent Study: Communications	1-3
	or	
6600:499	Independent Study: Marketing	1-3
3300:389	Popular Culture	3

6800: International Business

In its effort to improve student's understanding of international business, the college's departments regularly offer the following undergraduate courses:

6400:323	International Business Law
6400:481	International Business Finance
6500:455	Management of Arbitration: Commercial, International and Human Resources
6500:457	International Management
6600:385	International Marketing
6800:305	International Business
6800:405	Multinational Corporations

College of Fine and Applied Arts

Kelvie C. Comer, Ed.D., *Acting Dean*
John D. Bee, Ph.D., *Acting Assistant Dean*

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.

COLLEGE REQUIREMENTS

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 music program must submit to a 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.

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.

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 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
Bachelor of Science in Dietetics

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.

Minor Areas of Study

For an explanation of minor areas of study in the College of Fine and Applied Arts, see **Section 5** of this *Bulletin*.

PROGRAMS OF INSTRUCTION

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 course work including one course in each of six different areas of emphasis: e.g., printmaking, sculpture — 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 course work to include at least four different areas of emphasis: e.g., painting, photography (7100:275 recommended) — 12 credits.

Bachelor of Fine Arts

- General Studies — 39 credits.
- Foundations Curriculum in Art

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
7100:132	Instrument Drawing	3
7100:144	Two-Dimensional Design	3
	or	
7100:286	Commercial Design Theory	3
7100:233	Life Drawing	3

- Electives — 13 credits.
- Two advanced-level art history courses (one in graphic design, three credits).
- Senior exhibition: Student must secure a faculty adviser in the major during the first week of the semester the student plans a senior show. The exhibition must be approved by the adviser prior to presentation.
- Portfolio review as specified for student's area of 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

7100:222	Introduction to Sculpture	3
7100:231	Drawing II	3
7100:254	Ceramics I	3
7100:354	Ceramics II	3
7100:454	Advanced Ceramics (to be repeated)	15

Crafts

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.

7100:221	Design Applications	3

Drawing

7100:131	Introduction to Drawing	3
7100:231	Drawing II	3
7100:282	Architectural Presentations I	3
	or	
7100:283	Drawing Techniques	3
7100:331	Drawing III	3
7100:333	Advanced Life Drawing (to be repeated)*	6
7100:431	Drawing IV (to be repeated)*	6
7100:—	Printmaking	3

Graphic Design

2240:222	Advertising Photography	3
7100:131	Introduction to Drawing	3
7100:132	Instrument Drawing	3
7100:231	Drawing II	3
7100:275	Introduction to Photography	3
7100:283	Drawing Techniques	3
7100:284	Introduction to Graphic Design	3
7100:288	Letter Form and Typography	3
7100:386	Packaging Design	3
7100:387	Advertising Layout Design	3
7100:388	Advertising Production and Design	3
7100:480	Advanced Graphic Design (may be repeated to 12 credits)	3
7100:482	Corporate Identity and Graphic Systems	3
7100:484	Illustration	3
7100:485	Advanced Illustration (may be repeated to nine credits)	3
7100:488	Publication Design	3

Metalsmithing

2920:247	Technology of Machine Tools	3
7100:222	Introduction to Sculpture	3
7100:266	Introduction to Jewelry	3
7100:268	Enameling on Metal	3
7100:283	Drawing Techniques	3
7100:366	Metalsmithing II	3
7100:466	Advanced Metalsmithing (to be repeated)	12

Painting

7100:131	Introduction to Drawing	3
7100:144	Two-Dimensional Design	3
7100:231	Drawing II	3
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

Photography

3650:137	Light	3
7100:—	Printmaking	6
7100:231	Drawing II	3
7100:275	Introduction to Photography	3
7100:300	Art since 1945	3
7100:375	Photography II	3
7100:376	Photographics	3
7100:475	Advanced Photography (to be repeated)	12

Printmaking

7100:131	Introduction to Drawing	3
7100:144	Two-Dimensional Design	3
	or	
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
7100:231	Drawing II	3

Two of the following:

7100:275	Introduction to Photography	3
7100:375	Photography II	3
7100:317	Printmaking II (may be repeated)	3
7100:418	Advanced Printmaking (may be repeated)	3

One of the following:

7100:245	Introduction to Acrylic Painting	3
7100:246	Introduction to Watercolor Painting	3
7100:247	Introduction to Oil Painting	3

Sculpture

7100:121	Three-Dimensional Design	3
7100:221	Design Applications	3
7100:222	Introduction to Sculpture	3
7100:231	Drawing II	3
7100:254	Introduction to Ceramics	3
	or	
7100:266	Introduction to Metalsmithing	3
7100:322	Intermediate Sculpture II	3
7100:422	Advanced Sculpture (to be repeated)	9

*Required to be repeated twice for drawing majors only.

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.**

*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 Science in Dietetics and the Bachelor of Arts in Foods and Nutrition is 42 credits. The additional three credits come from the use of 3150:129,30 *General Chemistry* (eight credits) to meet the natural science requirements, and from the use of 3850:100 *Introduction to Sociology* (four credits) and 3250:100 *Introduction to Economics* (three credits) to meet the Social Studies requirement. The above mentioned courses are required by the American Dietetic Association.

- 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:

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

Bachelor of Arts in Family and Child Development

This degree offers the following emphases: family development, child development and child-life specialist. In addition to departmental requirements listed under 7400: Home Economics and Family Ecology a student must complete one of the following options:

Family Development

3750:100	Introduction to Psychology	3
3750:130	Developmental Psychology	4
7400:255	Fatherhood: The Parent Role	2
7400:301	Consumer Education	3
7400:360	Parent-Child Relations	3
7400:390	Family Relationships in Middle and Later Years	2
7400:401	Family-Life Patterns in Economically Deprived Home	2
7400:404	Adolescence in the Family Context	3
7400:422	Advanced Home Management	3
7400:440	Family Crisis	3
7400:442	Human Sexuality	3
7400:445	Public Policy and The American Family	3
7400:496	Parenting Skills	3
7400:497	Internship in Home Economics	5
7750:276	Introduction to Social Welfare	4
	Electives selected in consultation with adviser	13

Child Development

2200:245	Infant/Toddler Day-Care Programs	3
2200:250	Observing and Recording Child Behavior	3
3750:100	Introduction to Psychology	3
3750:130	Developmental Psychology	4
5200:360	Nursery School Laboratory	3
5850:295	Education Technician Field Experience	5
	or	
7400:497	Internship in Home Economics	5
7400:132	Early Childhood Nutrition	2
7400:255	Fatherhood: The Parent Role	2
7400:275	Play and Creative Expression Act	4
7400:290	Administration of Child-Care Centers	3
7400:303	Children As Consumers	3
7400:360	Parent-Child Relations	3
7400:401	Family-Life Patterns in Economically Deprived Home	2
7400:404	Adolescents in the Family Context	3
7400:460	Organization and Supervision of Child-Care Centers	3
7400:496	Parenting Skills	3
7750:276	Introduction to Social Welfare	4
	Electives selected in consultation with adviser	7

Child-Life Specialist

3750:100	Introduction to Psychology	3
3750:130	Developmental Psychology	4
3750:430	Psychological Disorders of Children	4
3850:342	Sociology of Health and Illness	3
5200:360	Nursery School Laboratory	3
5610:440	Developmental Characteristics of Exceptional Individuals	3
7400:275	Play and Creative Expression	4
7400:290	Administration of Child-Care Centers	3
7400:295	Direct Experiences in the Hospital	1
7400:451	The Child in the Hospital	4
7400:455	Practicum: Establishing and Supervising a Child-Life Program	3
7400:460	Organization and Supervision of Child-Care Centers	3
7400:484	Orientation to the Hospital Setting	2
7400:495	Internship: Guided Experience in a Child-Life Program	8
7400:496	Parenting Skills	3
	Electives selected in consultation with adviser	11

†Required for B.S. in dietetics and B.A. in foods and nutrition.

Bachelor of Arts in Foods and Nutrition

2440:120	Introduction to Information Processing	2
3750:100	Introduction to Psychology	3
6500:301	Management: Principles and Concepts	3
7400:245	Basic Food Theory and Applications	5
7400:301	Consumer Education	3
7400:313	Introduction to Food Systems Management	3
7400:316	Science of Nutrition	4
7400:340	Meal Service	2
7400:403	Advanced Food Preparation	3
7400:416	Quantity Food Preparation	3
7400:420	Experimental Foods	3
7400:450	Demonstration Techniques	2

Complete one of the following options:

- Business option:

6600:300	Marketing Principles	3
6600:340	Merchandising	3
6600:350	Advertising and Marketing Communication	3
7600:280	Media Production Techniques	3

- Food Science/Product Development option:

3100:103	Introduction to Microbiology	3
3150:134	Qualitative Analysis	3
6600:300	Marketing Principles	3
6600:440	Product Planning	3

- General electives: 10 credits.

Bachelor of Arts 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
7400:339	The Fashion Industry	3
7400:419	Clothing Communication	3
7400:422	Advanced Home Management and/or Elective in Textiles and Clothing	5
7400:449	Design and Draping	3

Completion of one of the following options:

- Business option:

6200:201	Accounting I	4
	or	
2420:211	Basic Accounting I	3
6600:300	Marketing Principles	3
	or	
2520:101	Elements of Distribution	3
6600:340	Merchandising	3
	or	
2520:202	Retailing Fundamentals	4
6600:350	Advertising and Marketing Communications	3
	or	
2520:103	Principles of Advertising	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

- Theatre costume option:

7100:144	Two-Dimensional Design	3
	or	
7100:131	Introduction to Drawing	3
7800:100	Introduction to the Theatre	3
7800:334	Stage Costume Construction	3
7800:335	Introduction to Stage Costume History and Design	3
7800:435	Stage Costume Design	3
7800:437	Styles in Stage Costume Design	3
	Electives	11

Bachelor of Science 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

		Credits
2420:211	Basic Accounting I	3
	or	
6200:201	Accounting I	4
3100:130	Principles of Microbiology	3
3100:206	Anatomy and Physiology	4
3100:207	Anatomy and Physiology	4
3150:203	Nutritional Biochemistry	3
3470:251	Descriptive Statistics and Probability	1
3470:252	Distributions	1
3750:100	Introduction to Psychology	3
5400:351	Consumer Homemaking Methods	4
6500:301	Management: Principles and Concepts	3
	or	
6500:480	Introduction to Health-Care Management	3
6500:341	Personnel Management	3
7400:245	Basic Food Theory and Application	5
7400:310	Food Systems Management I	5
7400:315	Food Systems Management I - Clinical	2
7400:316	Science of Nutrition	4
7400:328	Introduction to Nutrition in Medical Science	4
7400:413	Food Systems Management	3
7400:420	Experimental Foods	3
7400:424	Nutrition in the Life Cycle	3
7400:428	Nutrition in Medical Science	5
Additional coordinated undergraduate program requirements:		
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
Additional traditional dietetics requirements:		
2420:212	Basic Accounting II	3
	or	
6200:202	Accounting II	4
7400:301	Consumer Education	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.

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, Theatre and Dance 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	Introduction to Musicology	2
7500:452	Composition	2
7500:497	Independent Study (Chamber Music)	2

- Elective.
- Applied music and performance courses:

7520:—	Applied Piano (jury out of "400s" 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:

14 credits additional academic (7500) music courses as follows:

7500:371	Analytical Techniques†	2
7500:471	Counterpoint†	2

Four credits to be selected from the following:

7500:325	Research in Music	2
7500:361	Conducting	2
7500:451	Introduction to Musicology	2
7500:452	Composition	2
7500:454	Orchestration	2
7500:455	Advanced Conducting: Instrumental	
	or	
7500:456	Advanced Conducting: Choral	2

Six credits to be selected in consultation with the student's advisor and with the approval of the applied music instructor.

- Electives — six 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: 20th Century Music	2
7500:451	Introduction to Musicology	2
7500:452	Composition	2
7500:454	Orchestration	2
7500:455	Advanced Conducting: Instrumental	2
	or	
7500:456	Advanced Conducting: Choral	2
7500:471	Counterpoint	2
7500:472	Advanced Orchestration	2

- Senior recital of original composition.
- Electives — seven 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
7500:210,1	Jazz Improvisation I, 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	4
	Jazz Ensembles	8
7520:——	Applied Music — primary instrument (passage to 300 level)	16
	Saxophone major must pass flute and clarinet proficiency (promotion to 200 level)	32

- Electives — eight credits.
- Senior recital.

Music Education

- General Studies — 39 credits.
- Core curriculum in music (see B.A.).
- Performance courses:

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
7500:492	Senior Seminar	1

- 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	2
	Approved Electives	4

Instrumental (non-keyboard)

7500:342	Wind/Percussion Techniques (second semester)	3
7500:454	Orchestration	2
7500:455	Advanced Conducting: Instrumental	2
	Approved Electives	4

String major

7500:255	String Instruments II	2
7500:454	Orchestration	2
7500:455	Advanced Conducting: Instrumental	2
	Approved Electives	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 *Music Handbook* available from the Department of Music, Theatre and Dance, Guzzetta Hall.

*Passage to the 500 level in the primary applied levels is required prior to graduation.

**For those with piano as their major performing instrument 7500:264 is taken in place of 7500:455.

†Required of all performance majors.

††Passage to the 300 level in the primary applied area is required before graduation.

‡Acceptance in the jazz program by permission of coordinator of Jazz Studies.

7600: Communication

Bachelor of Arts

- General Studies and second year of a foreign language — 53 credits.
- Core — 18 credits.
  Grade of "C-" or better required for all core courses.

7600:102	Survey of Mass Communication	3
7600:115	Survey of Communication Theory	3
7600:201	Newswriting	3

7600:245	Argumentation	3
7600:280	Media Production Techniques	3
7600:384	Communication Research	3

- Concentration in business and organizational 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.*
- Core — 18 credits.
- Area of specialization (see below) — 15-18 credits.
- Elective mass media-communication courses — 12-15 credits.
- Electives — 27 credits.

Business and Organizational Communication

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	Group Processes	3
	or	
7600:471	Theories of Rhetoric	3
7600:344	Public Decision Making	3
7600:357	Speech in America	3
	or	
7600:470	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 in Mass Media	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 in Mass Media	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

*B.A. tag degree program substitute 14 credits of "tag" courses for the foreign language requirement.

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:

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.

More than 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 Ohio 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. Students enrolling in clinical practicum must have a grade point average of at least 2.50 in major field course work plus grades of "C" or better in specific prerequisite classes for each practicum.

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, community action and development, and human relations.

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.

The Bachelor of Arts degree with a major in social work requires completion of two years of a foreign language (Spanish is recommended). The Bachelor of Arts in Social Work degree does not require a language. It requires some additional course work in social work and the social sciences.

Curricula have been developed so that students completing the two-year associate degree programs in Community Services Technology (C & T) and Social Services Technology (WGTC) with social services emphasis programs can complete either the BA or BA/SW four-year curriculum in social work with two additional years of course work. Similarly, curricula have been developed so that students completing the two-year associate degree program in criminal justice technology can complete either the BA or BA/SW four-year curriculum in social work in the two additional years' course work.

**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).

Certificate programs can be designed in Afro-American Studies, Life-Span Development: Adulthood and Aging; Gender Identity and Roles.

Bachelor of Arts

- Completion of the General Studies and the second year of a foreign language —53 credits.*
- Social Work courses:

7750:270	Poverty in the United States	3
7750:276	Introduction to Social Welfare	4
7750:401,2,3	Social Work Practice I, II, III	9
7750:410	Minority Issues in Social Work Practice	3
7750:421	Field Experience Seminar (two semesters, one credit each)	2
7750:427	Human Development for Social Workers	3
7750:430	Human Behavior and Social Environment	3
7750:440	Social Work Research I	3
7750:441	Social Work Research II	3
7750:445	Social Policy Analysis for Social Workers	3
7750:495	Field Experience: Social Agency (two semesters, four credits each)	8
7750:——	Electives in Social Work	6

- Electives should be selected in consultation with an adviser — 25 credits.

Bachelor of Arts (2+2) with C&T [Community Services Technology (Social Service Emphasis)]

- General studies:

1100:321,2	Western Cultural Traditions	8
1100:22-	Natural Science Biology	3
1100:33-	Eastern Civilizations	4
	Mathematics	4
	Natural Science	3

- Foreign language:

Complete second year. 14

- Social work:

7750:401,2,3	Social Work Practice I, II, III	9
7750:410	Minority Issues in Social Work Practice	3
7750:427	Human Development for Social Workers	3
7750:430	Human Behavior and Social Environment	3
7750:440	Social Work Research I†	3
7750:441	Social Work Research II	3
7750:445	Social Policy Analysis for Social Workers	3

- Field experience:

7750:421	Field Experience Seminar (two semesters required concurrent with 7750:495)	2
7750:495	Field Experience in a Social Agency (two required)	8
7750:4——	Social Work Electives	3

Bachelor of Arts (2+2) with C&T (Criminal Justice Technology)

- General studies:

1100:112	English Composition	4
1100:320,1	Western Cultural Traditions	8
1100:33-	Eastern Civilizations	4
1100:221	Natural Science: Biology	3

- Foreign Language:

Complete second year. 14

- Social Work:

7750:401,2,3	Social Work Practice I, II, III	9
7750:410	Minority Issues in Social Work Practice	3
7750:421	Field Experience Seminar	2
7750:427	Human Development for Social Workers	3
7750:430	Human Behavior & Social Environment	3
7750:440	Social Work Research I†	3
7750:441	Social Work Research II	3
7750:445	Social Policy Analysis for Social Work	3
7750:495	Field Experience in Social Agency	8

Bachelor of Arts (2+2) with Wayne College [Social Services Technology (Social Service Emphasis)]

- General studies:

1100:320,1	Western Cultural Traditions	8
1100:33-	Eastern Civilizations	4
	Mathematics	4

- Foreign language:

Complete second year 14

- Social work:

7750:401,2,3	Social Work Practice I, II, III	9
7750:410	Minority Issues in Social Work Practice	3
7750:421	Field Experience Seminar	2
7750:427	Human Development for Social Workers	3
7750:430	Human Behavior and Social Environment	3
7750:440	Social Work Research I†	3
7750:441	Social Work Research II	3
7750:455	Social Policy Analysis for Social Work	3
7750:495	Field Experience in Social Agency	8
	Social Work Electives	3

Bachelor of Arts/Social Work

- General Studies — 40 credits.
- Social work courses:

7750:270	Poverty in the United States	3
7750:276	Introduction to Social Welfare	4
7750:401,2,3	Social Work Practice I, II, III	9
7750:410	Minority Issues in Social Work Practice	3
7750:425	Social Work Ethics	3
	or	
7750:470	Law for Social Workers	3
7750:427	Human Development for Social Workers	3
7750:430	Human Behavior and Social Environment	3
7750:440	Social Work Research I†	3
7750:441	Social Work Research II	3
7750:445	Social Policy Analysis for Social Workers	3

- Field experience:

7750:421	Field Experience Seminar (two semesters required concurrent with 7750:495)	2
7750:495	Field Experience in a Social Agency (two required)	8

- Electives:

7750:4—	Social Work Electives	6
	Social Science Electives	6

- Other electives — 29 credits.

Bachelor of Arts/Social Work (2+2) with C&T [Community Services Technology (Social Service Emphasis)]

- General studies:

1100:221	Natural Science: Biology	3
1100:320,1	Western Cultural Traditions	8
1100:33-	Eastern Civilizations	4
	Mathematics	4
	Natural Science	3

- Social work:

7750:401,2,3	Social Work Practice I	9
7750:410	Minority Issues in Social Work Practice	3
7750:421	Field Experience Seminar	2
7750:425	Social Work Ethics	3
	or	
7750:470	Law for Social Workers	3
7750:427	Human Development for Social Workers	3
7750:430	Human Behavior and Social Environment	3
7750:440	Social Work Research I†	3
7750:441	Social Work Research II	3
7750:445	Social Policy Analysis for Social Work	3
7750:495	Field Experience in Social Agency	8
	Social Science Electives	6
	Social Work Electives	3

*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.

†3450:111,2; 3470:251,2 are prerequisites for 7750:440 *Social Work Research I*.

Bachelor of Arts/Social Work (2+2) with C&T (Criminal Justice Technology)

- General Studies:

1100:112	English Composition	4
1100:221	Natural Science: Biology	3
1100:320,1	Western Cultural Traditions	8
1100:33-	Eastern Civilizations	4

- Social Work:

7750:401,2,3	Social Work Practice I, II, III	9
7750:410	Minority Issues in Social Work Practice	3
7750:421	Field Experience Seminar	2
7750:425	Social Work Ethics	3
	or	
7750:470	Law for Social Workers	3
7750:427	Human Development for Social Workers	3
7750:430	Human Behavior and Social Environment	3
7750:440	Social Work Research I†	3
7750:441	Social Work Research II	3
7750:445	Social Policy Analysis for Social Work	3
7750:495	Field Experience in Social Agency	8
	Social Science Electives	6

Bachelor of Arts/Social Work (2+2) with Wayne College [Social Services Technology (Social Service Emphasis)]

- General studies:

1100:320,1	Western Cultural Traditions	8
1100:33-	Eastern Civilizations	4
	Mathematics	4

Social work:

7750:401,2,3	Social Work Practice I, II, III	9
7750:410	Minority Issues in Social Work Practice	3
7750:421	Field Experience Seminar	2
7750:425	Social Work Ethics	3
	or	
7750:470	Law for Social Workers	3
7750:427	Human Development for Social Workers	3
7750:430	Human Behavior and Social Environment	3
7750:440	Social Work Research I†	3
7750:441	Social Work Research II	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: Theatre

Bachelor of Arts

- General Studies program and second year of a foreign language — 53 credits.
- Core curriculum:

7800:100	Experiencing Theatre	3
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.‡
- All candidates for the B.A. degree will be required to earn at least eight credits of 7810 laboratory work. At least four of these credits must be in 7810 *Production Laboratory*. Majors must enroll in at least one credit of production laboratory every semester they are in residence. To earn *laboratory* credit, theatre majors must attend all University mainstage auditions. A *maximum* of sixteen 7810 credits may count toward requirement for the B.A. degree.

Bachelor of Arts in Theatre Arts‡‡

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.

All theatre majors shall audition for each University theatre mainstage production.

Acting

- General Studies — 39 credits.
- Acting:

7800:172	Acting I	3
7800:373	Acting II	3
7800:374	Acting III	3
7800:474	Acting IV	3

- Voice:

7800:151	Voice for the Stage	3
7800:350,1	Advanced Voice for the Stage I, II	6
7520:	Applied Voice (Music)#	8

- Dance:

7800:323	Jazz Technique I	2
7800:328	Period Movement/Dance	2
7900:119,20	Introduction to Contemporary Dance I, II	4
7900:124,5	Introduction to Ballet I	4

- Theatre:

7800:100	Experiencing Theatre	3
7800:262	Stage Makeup	3
7800:265	Basic Stagecraft I	3
7800:271	Directing I	3
7800:367	History of Theatre I: Greek to Renaissance	4
7800:368	History of Theatre II: Restoration to Present	4
7800:445,6	Movement for Actors I, II	6
7810:----	Production/Performance Laboratory	8

- Electives (with approval of adviser) — 14 credits.

Design/Technology

- General Studies — 39 credits.
- Basic preparation:

7800:102	Introduction to Technical Theatre	3
7800:262	Stage Makeup	3
7800:265,6	Basic Stagecraft I, II	6
7800:362	Advanced Stagecraft	3

- Studio courses:

7800:106	Introduction to Stage Design	3
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
7800:464	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

- Theatre:

7800:100	Experiencing Theatre	3
7800:271	Directing I	3
	or	
7800:172	Acting I	3
7800:367	History of Theatre I: Greek to Renaissance	4
7800:368	History of Theatre II: Restoration to Present	4
7810:----	Production/Performance Laboratory	8

- Electives (with approval of adviser) — 15-18 credits.

Musical Theatre

- General Studies — 39 credits.
- Theatre:

7800:151	Voice for the Stage	3
7800:172	Acting I	3
7800:261	Introduction to Theatre	3

†3450:111,2, 3470:251,2 are prerequisites for 7750:440 *Social Work Research I*.

††Consult Theatre Program undergraduate coordinator and handbook.

‡Consult academic adviser.

‡‡The student in B.A. in theatre 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, Theatre and Dance regarding audition for placement.

7800:262	Stage Makeup	3
7800:265	Basic Stagecraft I	3
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	6
7800:421	Musical Theatre Production	3
7800:475	Acting for the Musical Theatre	3
7810:——	Production/Performance Laboratory	8

- Dance:

7900:119	Introduction to Contemporary Dance I	2
	or	
7900:229	Contemporary Technique I	3-6
7900:122	Ballet Technique I	5
	or	
7900:222	Ballet Technique II	5
7900:124	Introduction to Ballet	2
	or	
7900:224	Fundamentals of Ballet Technique	3
7900:323	Jazz Dance Technique I	2
7900:324	Tap Technique I	2
7900:329	Contemporary Technique II	3-6
7900:377	Jazz Dance Technique II	2
7900:378	Tap Technique II	2

- Music:

7500:101	Introduction to Musical Theory	2
7500:161	Aural/Oral Music Reading Skills	4
7500:107,8	Class Voice I, II	4
	or	
7520:124	Applied Voice*	4
7510:——	Choral Organizations	4

- Electives (with approval of adviser) — 3-11 credits.

*See Department of Music, Theatre and Dance regarding audition for placement.

7900: Dance

Bachelor of Fine Arts**

The dance major is designed for the student who wishes to pursue professional training in dance for 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 completion of two years of study 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 program and second year of a foreign language — 53 credits.
- Required dance courses:

7900:116,7	Dance Analysis I, II	4
7900:122, 222	Ballet Technique I, II	20
7900:229	Contemporary Technique I	6
7900:316,7	Choreography I, II	4
7900:320	Dance Notation	2
7900:322, 422	Ballet Technique III, IV	20
7900:329	Contemporary Dance Technique	6
7900:416	Choreography III	2
7900:417	Choreography IV	2
7900:423	History of the Dance	2
7900:424	20th Century Dance	2
7900:425	Development of Ballet	2
7900:426,7	Techniques of Teaching Ballet I, II	4

- Sophomore Jury taken by all majors at the completion of two years' study.
- Electives (with approval of adviser) — 15 credits.
- All candidates for the B.A. degree will be required to earn at least five credits of 7910: *Dance Organization.*

**The student in B.A. in theatre 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.

College of Nursing

Lillian J. DeYoung, R.N., Ph.D., *Dean*
Phyllis A. Fitzgerald, R.N., Ph.D., *Assistant Dean, Undergraduate Programs*
A. Jeanne Hoffer, R.N., Ed.D., *Assistant Dean, Graduate Programs*
Barbara E. Brown, R.N., Ed.D., *Assistant Dean, Continuing Education*

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 biologic, 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.

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.

REQUIREMENTS

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

*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.

meet the same course requirements as the generic student and those of The University of Akron. In addition, anatomy and physiology and microbiology must have been completed within the past 10 years at the time of admission to the College of Nursing. This 10 year limit applies to all students.

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 higher.
- 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. Generic student applicants will be ranked in order from the highest grade-point average (GPA) to 2.50. Transfer student applicants with a combined GPA of 2.75 or above (University of Akron grades plus transfer grades) will be ranked in order along with generic students. Transfer student applicants with a combined GPA between 2.50 and 2.7499 will be admitted if openings still exist. Having a GPA of 2.50 will not 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 with the other half beginning 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 alternate 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.

Continuation in the Baccalaureate Program

A student must achieve a grade-point average of 2.30 or higher on a 4.00 scale in the nursing major. A student receiving a "D+" or "F" in any nursing course will be required to repeat the course. The student may repeat the course only once.

The following policies must be adhered to by all students once they are admitted to the baccalaureate program:

- Obtain a two-year liability insurance policy prior to July 15 and maintain the policy throughout the program.
- If a licensed nurse, provide a copy of valid Ohio nurse's license.
- Complete necessary immunization requirements prior to July 15.
- Complete CPR (cardiopulmonary resuscitation) certification prior to or concurrent with 8200:300 (if registered nurse 8200:305).
- Maintain a current CPR certification throughout the program.

Evidence of completion of these requirements will be submitted to the records coordinator prior to July 15, otherwise course registration will be closed.

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, Progression 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.

Probation and Retention

A student must achieve and maintain a grade-point average of 2.30 or higher on a 4.00 scale in the nursing major. A student who fails to maintain the 2.30 average will be placed on probation. Failure to raise the average to 2.30 in a period of one semester or 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 2.30 is not attained. The student may not apply for readmission for at least one semester.

A student may be on probation only once in the College of Nursing, and the academic probation period is to be no longer than one semester, or one 10-week summer session.

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 2.30 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*.
- Complete the last 32 credits in the baccalaureate program at The University of Akron.
- Complete all requirements which were in effect at the time of transfer to the College of Nursing.

Program of Studies

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
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

*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.

3100:206	Anatomy and Physiology	4
3600:101	Introduction to Philosophy	3
	or	
3600:120	Introduction to Ethics	3
	or	
3600:170	Introduction to Logic	3
3750:100	Introduction to Psychology	3

Semester II

3100:105	Ecology and Biological Resources	2
	or	
1830:201	Man and His Environment	2
	or	
3350:310	Physical and Environmental Geography	3
3100:207	Anatomy and Physiology	4
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

7400:316	Science of Nutrition	4
8200:200	Nursing Theories and Concepts	5

Junior Year

Semester I

1100:320	Western Cultural Traditions	4
8200:300	Nursing: Health	10

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	12

Semester II

1100:—	Eastern Civilizations	2
8200:420	Nursing: Synthesis	10
	Elective	3

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.

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	4
3600:101	Introduction to Philosophy	3
	or	
3600:120	Introduction to Ethics	3
	or	
3600:170	Introduction to Logic	3
3750:100	Introduction to Psychology	3

Semester II

3100:105	Ecology and Biological Resources	2
	or	
1830:201	Man and His Environment	2
	or	
3350:310	Physical and Environmental Geography	3
3100:207	Anatomy and Physiology	4
3100:381	Human Genetics	2
3750:130	Developmental Psychology	4
3850:340	The Family	3
	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	6
	Electives	3

Fall

1100:320	Western Cultural Traditions	4
1100:33-	Eastern Civilizations	2
8200:405	Health Maintenance Nursing	5
8200:415	Diminished Health Nursing	6

Spring

1100:321	Western Cultural Traditions	4
8200:420	Nursing: Synthesis**	10
	Electives	4

Option #2

Summer

1100:305	Nursing Theories, Concepts and Research	6
1100:33-	Eastern Civilizations	2
	Electives	5

Fall

1100:320	Western Cultural Traditions	4
1100:33-	Eastern Civilizations	2
8200:405	Health Maintenance Nursing	5

Spring

1100:321	Western Cultural Traditions	4
8200:415	Diminished Health Nursing	6
	Electives	3

Fall

8200:420	Nursing: Synthesis**	10

*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	12

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.

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
Akron Metropolitan Housing Authority
American Diabetes Association
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
Fallsview Psychiatric Hospital
Hattie Larlham Foundation
Henry Center for Child Care and Learning
Nurse's House Call
Rockynol Presbyterian Home
St. Edward Nursing 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

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.

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.

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 course work 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.

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.

LOCATION

The campus is located on S.R. 44 in Rootstown just south of the I-76 intersection, across from the Rootstown High School.

*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*

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. To help the participant discover potential capabilities and sense of direction this unique learning experience emphasizes a close student-faculty relationship.

ADMISSION

The requirements for admission to the University Honors Program are as follows:

- 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.

PROGRAM

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 course work 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.

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 and 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.

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.

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 students who complete the University Honors Program. At commencement exercises, they will be properly recognized as University Scholars.

OTHER FEATURES

Scholarships

An honors student who maintains a minimum 3.40 cumulative grade-point average is eligible for substantial honors scholarships which are renewable annually.

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 bypassed 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.

Open Classroom

An honors student may attend undergraduate classes or lectures for which the student is not formally enrolled. Free access is available.

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.

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 count as credits completed toward graduation requirements.

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.

Distinguished Student Program for Associate Degree Students

PURPOSE

The purpose of the Distinguished Student Program shall be to encourage and assist exceptionally talented students who are enrolled in associate degree programs to achieve excellence in their academic work. The program is also intended to expose these students to the total offerings of this University. Every attempt will be made to make available to students the broad expanse of knowledge available on this campus.

ADMISSION

Students shall be admitted to the program based on their academic achievement and potential for scholarship. These persons shall be identified at the time of admission to The University of Akron. The requirement for admission to the program shall include: (1) high school grade-point average of 3.50 or higher on a 4.00 scale; (2) scores on the Scholastic Aptitude Test (SAT) or American College Test (ACT) which places the student in the 90th percentile or higher of freshman college norms; (3) rank in the top 10 percent or higher of the high school class; (4) recommendations from high school principal, teachers or counselors; and, (5) approval of the council. In exceptional circumstances where an applicant is able to demonstrate extraordinary academic promise, the high school grade-point average, class rank, and the SAT or ACT requirement may be waived by the Distinguished Student Council. Students desiring to enter the program after they have been enrolled at The University of Akron may make application to the council.

PROGRAM

A distinguished student's program of study shall consist of, for the most part, courses within the major. The *Distinguished Student Colloquium* (taken the first semester of the second year) and the *Honors Colloquium* (taken the second semester of the second year) shall provide an opportunity for all distinguished students to meet and explore the breadth and interrelationships of the various academic disciplines. These one-semester, two-credit colloquia shall be suitably scheduled over the span of the academic year. The coordinator, with the assistance of the Distinguished Student Council, shall determine the sequence in which these colloquia shall be offered and also approve the course content of the *Distinguished Student Colloquia*. Distinguished students may be permitted to attend classes or lectures within the Community and Technical College for which they are not formally enrolled.

The designation *Distinguished Student* will appear on the academic record of all students who have met all graduation requirements. At commencement exercises, the students will be properly recognized as such.

Graduation Requirements

The distinguished student shall earn the minimum total credits required for a particular degree and for a program major. Progress toward completing the degree requirements may be accelerated by credit by examination, bypassed credit and credit awarded for satisfactory achievement on high school advanced placement examinations in accordance with University policies.

Colloquia

Beginning at the sophomore level, all distinguished students attend one colloquium per semester. The first will be in the fall semester and be restricted to distinguished students. The second will be in the spring semester and will be offered through the University Honors Program if possible. These one-semester, two-credit lecture and discussion sessions are interdisciplinary in scope. They provide an opportunity for students to meet and explore the breadth and the interrelations of academic studies. A major objective of the colloquia is to provide significant insights, especially in areas which lie outside the student's major field and may have been excluded from a previous sphere of intellectual curiosity.

ADVISEMENT

Immediately upon admission to the program, the student shall be assigned a program adviser. The adviser shall assist in the selection of courses which are appropriate for the distribution requirement and the formulation of an integrated major program.

The coordinator consults with the adviser in all matters relating to the student's academic performance and the completion of requirements for graduation as a distinguished student. The college advising staff shall be available for assistance in all matters pertaining to the program.

A distinguished student who does not immediately choose a major shall be assigned to the Community and Technical College advising staff. The distinguished student shall be admitted to the college immediately upon being admitted to the program.

RETENTION

A distinguished student must maintain a minimum grade-point average which would qualify the student for graduation *With Distinction*. The Distinguished Student Council shall review each distinguished student's record at the end of each semester.

Students who achieve a 3.25 to a 3.39 accumulative grade-point average their first semester of attendance shall be placed on probation. If they raise their accumulative grade-point average to the required 3.40 by the end of their second semester of attendance, they will be permitted to continue in the Distinguished Student Program. Any student whose accumulative grade-point average falls below a 3.25 overall shall be withdrawn from the programs. Students may be readmitted to the program at a later date if they raise their accumulative grade-point average to at least 3.40.

A student who transfers to a baccalaureate program will no longer be eligible for the Distinguished Student Program but may apply to the University Honors Program for admission.

OTHER FEATURES

Scholarships

Distinguished students who meet the requirements for retention in the program are eligible for scholarships renewable each semester.

Library Privileges

All distinguished students receive a special borrower's card which entitles them to:

- Unlimited renewal of regularly circulating library materials, if no one has requested their return. All materials must be presented to the library for renewal.
- Privilege of using closed carrels.
- Privilege of borrowing materials on interlibrary loan.

The special borrower's card is renewable annually. Library handbooks are issued to all entering distinguished students.

Open Classrooms

Distinguished students may attend undergraduate classes or lectures for which they are not formally enrolled. Access to all courses and academic programs will be for a limited time with the approval of their adviser and in accordance with University policy.

Evening College and Summer Sessions

Caesar A. Carrino, Ph.D., *Dean*
Elmore J. Houston, M.A., *Assistant Dean*

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 course work.

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 — all 7,500 of them.

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.

SUMMER SESSIONS

The Summer Sessions re-emphasizes 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 more than 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 contribute talents and resources to further the dynamics of the academic and cultural process.

Minor Areas of Study

REQUIREMENTS

The University of Akron has approved minor fields of study that may be placed on a student's record when all requirements have been completed. The following rules apply to all minors:

- The student must complete at least 18 credits.
- At least six of the 18 credits must be at the 300/400 level except where the department does not offer 300/400-level courses.
- A minimum grade-point average of 2.00 in each minor is required.
- A minor may be designated at any time during the student's career up to and including the time the degree clearance is processed.
- A minor will be placed on the student's record only at the time the student receives a degree and only on application.
- Courses for a minor may not be taken credit/noncredit. All credits must be earned (bypassed credit may not be used).

ADVISEMENT

Although not required to do so, students are advised to contact faculty in the department(s) in which they may wish to earn minors early in their undergraduate programs.

SPECIFIC PROGRAM REQUIREMENTS*

Anthropology

		Credits
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 six additional credits of anthropology courses.
- Nineteen total credits are required.

Art

Art History

7100:100	Survey of History of Art I	4
7100:101	Survey of History of Art II	4
7100:300	Art since 1945	3
7100:302	Art in Europe during the 17th and 18th Centuries	3
7100:303	Renaissance Art in Italy	3
7100:304	Art in Europe During the 19th Century	3
7100:400	Art in the US before World War II	3
7100:401	Special Topics in History of Art	3
7100:405	History of Art Symposium	3
7100:498	Special Problems in History of Art	1-3

*All programs are listed in alphabetical order.

Art

- Core need not be completed.
- Prerequisites must be honored.
- Student may complete any department courses except 7100:191.

Ceramics

7100:254	Introduction to Ceramics	3
7100:354	Ceramics II	3
7100:454	Advanced Ceramics**	3

Crafts

- Prerequisites must be honored.
- Students must complete courses in two of these three areas: ceramics, metalsmithing/enameling or weaving.

7100:254	Introduction to Ceramics	3
7100:266	Introduction to Jewelry	3
7100:268	Enameling on Metal	3
7100:293	Introduction to Weaving	3
7100:354	Ceramics II	3
7100:366	Metalsmithing II	3
7100:368	Advanced Enameling	3
7100:393	Weaving II	3
7100:454	Advanced Ceramics**	3
7100:466	Advanced Metalsmithing	3

Drawing

7100:131	Introduction to Drawing	3
7100:231	Drawing II	3
7100:232	Instrument Drawing	3
7100:233	Life Drawing	3
7100:283	Drawing Techniques	3
7100:331	Drawing III	3
7100:333	Advanced Life Drawing	3
7100:431	Drawing IV	3
7100:484	Illustration	3
7100:485	Advanced Illustration	3

Graphic Design

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
7100:380	Graphic Video	3
7100:387	Advertising Layout Design	3
7100:388	Advertising Production Design	3
7100:389	Corporate Identity	3
7100:480	Advanced Graphic Design	3
7100:484	Illustration	3
7100:485	Advanced Illustration	3
7100:486	Packaging Design	3
7100:488	Publication Design	3

Illustration

7100:283	Drawing Techniques	3
7100:333	Advanced Life Drawing	3
7100:480	Advanced Graphic Design/Illustration Portfolio	3
7100:484	Illustration	3
7100:485	Advanced Illustration	3

Interior Design

7100:282	Architectural Presentations	3
7400:121	Textiles	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

Metalsmithing

7100:266	Introduction to Jewelry	3
7100:268	Enameling on Metal	3
7100:366	Metalsmithing II	3
7100:368	Advanced Enameling	3
7100:466	Advanced Metalsmithing	3

**May be repeated for a total of 15 credits.

Painting

7100:245	Introduction to Polymer Acrylic Painting	3
7100:246	Introduction to Water Color Painting	3
7100:348	Painting II*	3
7100:449	Advanced Painting**	3

Photography

2240:222	Advertising Photography	3
7100:275	Introduction to Photography	3
7100:375	Photography II	3
7100:376	Photographics	3
7100:475	Advanced Photography	3

Printmaking

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
7100:317	Printmaking II	3
7100:418	Advanced Printmaking	3

Sculpture

7100:221	Design Applications	3
7100:222	Introduction to Sculpture	3
7100:254	Introduction to Ceramics	3
	or	
7100:266	Introduction to Jewelry	3
7100:321	Figurative Sculpture	3
7100:322	Sculpture: Casting	3
7100:422	Advanced Sculpture	3

Biology

- Total credits required for a minor in biology: 23-24.

3100:111,2	Principles of Biology	8
3100:211	General Genetics	3
3100:217	General Ecology	3
3100:311	Cell Biology	3
	or	
3100:130	Principles of Microbiology	3
3100:316	Evolutionary Biology	3
3100:---	A 300/400-level course approved by department head	---

Business Administration

6200:201,2	Accounting I, II	8
6400:320	Legal Environment	4
6400:371	Business Finance	3
6500:301	Management Principles and Concepts	3
6500:321,2	Quantitative Business Analysis I, II	6
6500:323	Computer Applications for Business	3
6600:300	Marketing Principles	3

Business Management Technology

2020:247	Survey of Basic Economics	3
2420:101	Elements of Distribution	3
2420:103	Role of Supervision in Management	3
2420:202	Personnel Practices	3
2420:211	Basic Accounting I	3
2420:280	Essentials of Law	3
2420:---	Elective	3
Elective:		
2420:170	Business Mathematics	3
	or	
2420:212	Basic Accounting II	3
	or	
2420:243	Survey in Finance	3

*Must be taken in a medium taken previously at the introductory level. May be repeated for a total of nine credits but limited to a maximum of three credits in any of the three media.

**Must be taken in a medium taken previously in Painting II. May be repeated for a total of nine credits.

Chemistry

- Total credits required for a minor in chemistry: 19-22.
- Core comprised of one of the following options:

3150:132,3	Principles of Chemistry I, II	7
3150:263,4	Organic Chemistry Lecture I, II	6
	or	
3150:129,30	Introduction to General, Organic and Biochemistry I, II	8
3150:201,2	Organic Chemistry and Biochemistry I, II	8

- An additional six credits from 300/400-level courses. For example, a pre-med or biology student might take 3150:401,2 *Biochemistry* (three credits each). An engineer or physics major might select 3150:313,4 *Physical Chemistry* (three credits each). Analytical or instrumental courses might be attractive to others.
- Medical technology students automatically have a chemistry minor.
- Chemical engineering majors also fulfill the requirements for a minor in chemistry.
- Students who intend to minor in chemistry may seek advice about the 300/400-level courses that would be most relevant to their interests.

Classics

- Total credits required for a minor in classics: 21 credits.

3200:189	Mythology	3
3200:313/14	Archaeology of Greece and Rome	6
	or	
3200:361/2	Literature of Greece and Rome	6
3210:303/4	Advanced Greek	6
	or	
3220:303/4	Advanced Latin	6
	Electives in Classics	6

- It is strongly recommended that a minor in classics take at least three credits of 3400:304,5,6,7 *Survey in Ancient History.*

Classical Civilization

3200:189	Mythology	3
3200:304,5,6,7	Ancient History (select one)	3
3200:313/14	Archaeology of Greece and Rome	6
3200:361,2	Literature of Greece and Rome	6
	Electives in Classics	3

- It is strongly recommended that a minor in classical civilization fulfill the language requirement by taking 3220:121,2,223,4 or 3210:121,2,223,4.

Communicative Disorders

- Required core courses:

7700:110	Introduction to Disorders of Communication	3
7700:120	Introduction to Audiology/Aural Rehabilitation	3
7700:130	Bases and Structure of Languages	3
7700:211	Introduction to Speech Science	2
7700:430	Aspects of Normal Language Development	3

- Select at least four hours from the following:

7700:460	Speech-Language Hearing Disorders in the Public Schools	2
7700:480	Seminar in Communicative Disorders	2
7700:481	Special Projects: Communicative Disorders	1-3
7700:483	Communication Disorders: Geriatric Population	3

Community Services Technology

2020:240	Human Relations	3
2260:100	Introduction to Community Services	3
2260:150	Introduction to Gerontological Services	3
2260:260	Alcohol Use and Abuse	3
2260:240	Drug Use and Abuse	3
2260:278	Techniques of Community Work	4

Criminal Justice Technology

- Core courses:

2220:100	Introduction to Criminal Justice	3
2220:102	Criminal Law for Police	3
2220:204	Criminal Evidence and Court Procedures	3

- Additional courses for general criminal justice minor:

2220:240	Vice Crime and Substance Abuse	3
2220:250	Criminal Case Management	6
2250:260	Administration and Supervision: Public Service	3

- Additional courses for corrections area of concentration:

3850:100	Introduction to Sociology	3
3850:330	Criminology	3
3850:431	Corrections	3
	or	
3850:432	Probation and Parole	3

- Additional courses for security area of concentration:

2220:101	Introduction to Security	4
2230:200	Fire Prevention Practices	3
2220:290	Special Topics in Security	6

Dance

7800:115	Dance as an Art Form	2
7800:119	Introduction to Contemporary Dance I	2
7800:120	Introduction to Contemporary Dance II	2
7800:124	Introduction to Ballet I	2
7800:219	Introduction to Contemporary Dance III	2
7800:224	Fundamental Ballet Technique	3
7800:316	Choreography I	2
7800:320	Dance Notation	2
7800:426	Techniques of Teaching Dance I	2

Data Processing

2440:120	Introduction to Information Processing	2
2440:121	Introduction to Programming Logic	2
2440:131	Introduction to Programming	2
2440:133	Structured COBOL	2
2440:234	Advanced COBOL Programming	3
2440:241	Data Processing Systems	3
2440:239	RPG II	2
2440:	Electives	3-4

Economics

3250:201,2	Principles of Economics	6
	or	
3250:244	Introduction to Economics Analysis	3
	and	
3250:400	Intermediate Macroeconomics	3
	or	
3250:410	Intermediate Macroeconomics	3
	and	
	Electives in economics	3

Labor Economics

3250:201,2	Principles of Economics	6
	or	
3250:244	Introduction to Economics Analysis	3
	and	
3250:410	Intermediate Microeconomics	3
	and	

Choose at least two courses:

3250:330	Labor Problems	3
3250:333	Labor Economics	3
3250:430	Human Resource Policy	3
3250:431	Labor and the Government	3
3250:432	Collective Bargaining	3
	and	
	Electives in department	

English

English

English Literature

American Literature

Professional Writing

3300:390,1	Professional Writing I, II	6

- One from the following:

3300:389	Legal Writing	3
3300:489	Advanced Management Reports	3
3300:489	Science Writing	3

- One departmental linguistics or language course.
- Two additional courses from any of the literature, language or writing offerings in the department.

Creative Writing

- Two introductory courses in creative writing from the following:

3300:277	Introduction to Poetry Writing	3
3300:278	Introduction to Fiction Writing	3
3300:279	Introduction to Script Writing	3

- One advanced course in creative writing from the following:

3300:377	Advanced Poetry Writing	3
3300:378	Advanced Fiction Writing	3

- One literature course primarily concerned with modern work.
- Two additional courses from any of the literature or language offerings of the department, which may include a second advanced course in the writing of fiction or poetry.

Fire Protection

2230:100	Introduction to Fire Protection	3
2230:102	Fire Safety in Building Design and Construction	3
2230:104	Fire Investigation Methods	3
2230:153	Principles of Fire Protection and Life Safety	3
2230:204	Fire Hazards Recognition	3
2230:205	Fire Detection and Suppression Systems I	3

Geology

- Minimum of 20 credits of departmental courses; 17 of which must be in courses having a laboratory.
- Student should consult with the department faculty adviser for minors.

Geography

General Geography

3350:310	Physical and Environmental Geography	3
3350:320	Economic Geography	3
3350:330	Rural and Urban Settlement	3
3350:341	Maps and Map Reading	3

- The remaining six credits to be selected from any geography offerings, except 3350:100.

Planning

Students must complete 19 semester credits of course work as follows:

3350:433	Urban, Regional and Resource Plan	3
3350:495	Soil and Water Field Studies	3
3350:385	Planning Seminar	1

At least two courses (six credits) from the following:

3350:335	Recreation Resource Planning	3
3350:422	Transportation System Planning	3
3350:428	Industrial and Commercial Site Selection	3
3350:436	Urban Land Use Analysis	3

At least two courses (six credits) from the following:

3350:340	Cartography	3
3350:405	Geographic Information Systems	3
3350:447	Introduction to Remote Sensing	3
3350:483	Spatial Analysis	3
3350:496	Field Research Methods	3

Cartography

At least five courses (15 credits) from:

3350:340	Cartography	3
3350:405	Geographic Information Systems	3
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

At least one course (three credits) from:

3350:481	Geographic Research Methods	3
3350:483	Spatial Analysis	3
3350:496	Field Research Methods	3

History

- Twelve of the 18 credits must be at the upper-division level (300/400). A combination of courses in United States and non-United States history is required.
- A student may work primarily in United States history, European, Medieval, Latin American and the like, provided in both cases there is some combination or distribution between United States and non-United States history.

Home Economics and Family Ecology

Apparel Design and Construction

7400:121	Textiles	3
7400:123	Clothing Construction	3
7400:305	Advanced Construction & Tailoring	3
7400:311	Contemporary Needle Arts	3
7400:449	Flat Pattern Design	3
7400:——	Elective in Clothing and Textiles Area	3

Fashion

7400:121	Textiles	3
7400:317	Historic Costume	3
7400:331	History of Textiles and Furnishings	3
7400:339	The Fashion Industry	3
7400:419	Clothing Communication	3
7400:——	Elective in Clothing and Textiles Area	3

Interior Design

See Art Department Listing.

Clinical Nutrition

7400:133	Nutrition Fundamentals	3
7400:316	Science of Nutrition*	4
7400:328	Introduction to Nutrition in Medical Science	4
7400:424	Nutrition in the Life Cycle	3
7400:428	Nutrition in Medical Sciences	5

Community Nutrition

7400:133	Nutrition Fundamentals	3
7400:316	Science of Nutrition*	4
7400:380	Introduction to Community Nutrition	1
7400:424	Nutrition in the Life Cycle	3
7400:480	Community Nutrition I	3
7400:482	Community Nutrition II	3
7400:485	Practicum in Dietetics	1

Food Systems Administration

2280:236	Food and Beverage Cost Control	3
6500:341	Personnel Management*	3
7400:133	Nutrition Fundamentals	3
7400:245	Basic Food Theory and Applications*	5
7400:313	Introduction to Food Systems Management	3
7400:416	Quantity Food Preparation	3

*Prerequisites required.

Food Science

7400:133	Nutrition Fundamentals	3
7400:245	Basic Food Theory and Applications*	5
7400:403	Advanced Food Preparation	3
7400:420	Experimental Foods	4
7400:485	Sensory Evaluation of Food (or other appropriate seminar)	3

Family Development

(Prerequisites must be honored.)

7400:201	Relational Patterns in Marriage and Family	3
7400:265	Child Development	3

The remaining 12 credits may be selected from the following:

7400:255	Fatherhood: The Parent Role	2
7400:360	Parent-Child Relations*	2
7400:361	Home Management Theory	3
7400:390	Family Relationships in Middle and Later Years	2
7400:401	Family-Life Patterns in Economically Deprived Homes	2
7400:404	Adolescence in the Family Context*	3
7400:440	Family Crisis	3
7400:442	Human Sexuality*	3
7400:445	Public Policy and the American Family	3
7400:496	Parenting Skills*	3
7400:485	Seminar Family Communication	3

Child Development

(Prerequisites must be honored.)

7400:201	Relational Patterns in Marriage and Family	3
7400:265	Child Development	3

The remaining 12 credits may be selected from the following:

7400:132	Early Childhood Nutrition	2
7400:255	Fatherhood: The Parental Role	2
7400:275	Play and Creative Expression Activities*	4
7400:290	Administration of Child-Care Centers*	3
7400:360	Parent-Child Relations*	2
7400:401	Family-Life Patterns in Economically Deprived Homes	2
7400:404	Adolescents in the Family Context*	3
7400:460	Organization and Supervision of Child-Care Centers	3
7400:496	Parenting Skills*	3

Hospitality Management

2280:121	Fundamentals of Food Preparation I	4
2280:122	Fundamentals of Food Preparation II	4
2280:135	Menu Planning and Purchasing	3
2280:232	Dining Room Service and Training	2
2280:233	Restaurant Operations and Food Management	4
2280:236	Food and Beverage Cost Control	3

Culinary Arts

2280:121	Fundamentals of Food Preparation I	4
2280:160	Wine and Beverage Service	2
2280:122	Fundamentals of Food Preparation II	4
2280:123	Meat Technology	2
2280:232	Dining Room Service and Training	2
2280:261	Baking and Classical Desserts	3
2280:262	Classical Cuisine	3
2280:263	International Foods	2

Hotel/Motel Management

2280:150	Front Office Procedures	3
2280:152	Maintenance and Engineering Management	3
2280:153	Principles of Fire Protection and Life Safety	3
2280:240	System Management and Personnel	3
2280:256	Hospitality Law	3
2280:255	Hotel/Motel Sales Promotion	3
2280:254	Hotel/Motel Housing Management	3

Interpreting for the Deaf

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 Service Practicum (must be repeated to eight credits)	1-4
2210:200	Reverse Interpreting	3
2210:230	Specialized Interpreting II	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 Deaf Culture and Its Origin	2
7700:271	Language of Signs I	3

Library

- Courses are offered in alternate years.
- Students are encouraged to take typing before taking library courses.

2200:100	Introduction to Library Technology	3
2200:201	Cataloging, Classifying and Processing Materials	3
2200:202	Organizing and Operating Library/Media Centers	3
2200:203	Materials Selection	2
2200:204	Reference Procedure	3
2200:205	Information Retrieval Systems in Library Technology	3
2200:297	Independent Study (Student pursues a project in major area of study utilizing library skills.)	1

Mathematical Sciences

- Total credits required for minors in mathematical sciences — 24.

Mathematics/Applied Mathematics

3450:221,2,3	Analytic Geometry-Calculus I, II, III	12
3450:235	Differential Equations	3
3450:312	Linear Algebra	3

- Approved 300/400-level mathematical sciences electives (at least three credits in 3450 courses).

Statistics

3450:221,2	Analytic Geometry-Calculus I, II	8
3450:312	Linear Algebra	3
3450:461	Applied Statistics	4
3450:463	Experimental Design I	3

- Approved 300/400-level mathematical sciences electives.

Computer Science

3450:221,2	Analytic Geometry-Calculus I, II	8
	or	
3450:215,6	Concepts of Calculus I, II	8
3460:209	Computer Programming I	3
3460:210	Computer Programming II	3
3460:316	Data Structures	3
3460:306	Assembly Language Programming	3

- Approved 300/400-level computer science electives. 6

Modern Languages

French, German, Spanish, Russian or Italian

- A minimum of 18 credits is required.
- The student must have at least 12 credits beyond the second year excluding courses which are not counted for credit toward a major.

Music, Theatre and Dance

Jazz Studies

7500:210	Jazz Improvisation I	2
7500:211	Jazz Improvisation II	2
7500:212	Music Industry Survey	2
7500:307	Technique of State Band Performance and Direction	2
7500:308	Jazz History and Literature	3
7500:497	Elective in Jazz*	2
7510:115	Jazz Ensemble	4
7520:—	Applied Jazz Study	8

Theatre Arts

(Requires a minimum of 24 credits.)

7800:100	Introduction to Theatre	3
7800:102	Introduction to Technical Theatre	3

Thirteen additional credits are required: three credits from each of the following areas, four credits of theatre electives, plus two credits of practical theatre experience.

Design/Technology

7800:106	Introduction to Stage Design	3
7800:265	Basic Stagecraft I	3
7800:464	Stage Lighting	3

Acting/Directing

7800:171	Acting I	3
7800:271	Directing I	3

Musical Theatre

7800:421	Music Theatre Production	3
7800:475	Acting for the Musical Theatre	3

History/Dramatic Literature

7800:370	The American Theatre	3
7800:467	Contemporary Theatre Styles	3

Theatre Production/Performance

7810:—	Production/Performance	1

Theatre Electives 4

Office Administration

- Core:

2540:150,1, or 253	Typewriting	6
2540:125	Business Machines	2

- Additional courses for general secretarial area:

2540:171,3,274 or 276	Shorthand/Transcription	8
2540:141	Information Management	3
	or	
2540:121	Office Problems	3

- Additional courses for word processing area:

2540:241	Information Management	3
2540:280	Word Processing Concepts	2
2540:281	Machine Transcription	2
2540:286	Keyboarding of Word Processing Equipment	3

- Additional courses for information management area:

2420:211	Accounting I	3
2540:121	Office Problems	3
2540:241	Information Management	3
2540:281	Machine Transcription	2

*Elective to be determined in consultation with the director of Jazz Studies.

Philosophy

Requirements

- A total of 18 semester credits in philosophy including: (a) at least three semester credits at the introductory level (introduction to philosophy, logic or ethics); and (b) at least six semester credits at the 300/400 level.
- Students may select a minor related to their major area of study.

Minors

Major Area	*Philosophy Minor*
Arts	philosophy of art
Humanities	philosophy
Natural sciences	philosophy of science
Computer sciences/mathematics	philosophy of mathematics
Law	philosophy of law
Business	philosophy of management
Teaching	philosophy of education
Theology	philosophy of religion
Political science	political philosophy
Communication/journalism	philosophy of communication
Social work	social philosophy
Health professions	biomedical philosophy
Technical writing	philosophy of language
Engineering	philosophy of technology

- Other minors in philosophy may be designed with the approval of the Department of Philosophy.
- Students should consult with the Department of Philosophy for courses appropriate to their minors.

Examples

- Examples of courses available for students majoring in arts, humanities and natural sciences follow:

Arts (philosophy of art)
3600:120, 223 Ethics
3600:350 Philosophy of Art
3600:211, 312,13 History of Philosophy
3600:481/581 Philosophy of Language
3600:232 Philosophy of Religion
3600:424/524 Existentialism
3600:426/526 Phenomenology

Humanities (philosophy)
3600:120, 223 Ethics
3600:170, 374 Logic
3600:211, 312,13 History of Philosophy
3600:350 Philosophy of Art
3600:462/562 Theory of Knowledge
3600:481/581 Philosophy of Language
3600:424/524 Existentialism
3600:426/526 Phenomenology
3600:471/571 Metaphysics

Natural Sciences (philosophy of science)
3600:120, 223 Ethics
3600:170, 374 Logic
3600:464/564 Philosophy of Science
3600:418/518 Analytic Philosophy
3600:471/571 Metaphysics
3600:426/526 Phenomenology
3600:462/562 Theory of Knowledge
3600:211 History of Ancient Philosophy

Physics

- Requirements for a minor in physics include: 3650:291,2 *Elementary Classical Physics I, II* — eight credits; and, physics electives at the 300/400 level — 10 credits. Note: 3650:261,2, *Physics for the Life Sciences*, may be substituted for 3650:291,2, in whole or in part.

  Recommended physics electives: most students should elect 3650:301. Unless a student has already acquired considerable expertise in electronics, courses 3650:310, 322 and 323 should prove valuable. Finally, 3650:320 provides an important background in optics, useful to engineers, geophysicists and others.

Political Science

- Each student shall complete at least nine of the required courses in 300/400-level course work in political science.
- A student may select a minor concentration from one of the five following course sequences.

American Politics

3700:100	Government and Politics in the United States	4
Fourteen credits from the following:		
3700:210	State and Local Government and Politics	3
3700:302	American Political Ideas	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
3700:382	Intergovernmental Relations	3
3700:402	Politics and the Media	3
3700:440	Public Opinion and Political Behavior	4

Comparative Politics

3700:200	Comparative Politics	4
Fourteen credits from the following:		
3700:304	Modern Political Thought	3
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
3700:325	Comparative Public Policy	3
3700:326	Politics of Developing Nations	3
3700:327	African Politics	3
3700:330	Canadian Politics	3
3700:405	Politics in the Middle East	3
3700:420	Issues and Approaches in Comparative Politics	3
3700:425	Latin American Politics	3

International Politics

3700:100	Government and Politics in the United States	4
3700:310	International Politics and Institutions	4
3700:415	Comparative Foreign Policy	3
Seven credits from the following:		
3700:200	Comparative Politics	4
3700:220	American Foreign Policy	3
3700:304	Modern Political Thought	3
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
3700:325	Comparative Public Policy	3
3700:326	Politics of Developing Nations	3
3700:327	African Politics	3
3700:330	Canadian Politics	3
3700:405	Politics in the Middle East	3
3700:425	Latin American Politics	3

Public Policy Analysis

3700:100	Government and Politics in the United States	4
3700:201	Introduction to Political Science	3
3700:441	The Policy Process	3
3700:442	Methods of Policy Analysis	3
3700:480	Policy Problems	3
Two credits from the following:		
3700:325	Comparative Public Policy	3
3700:370	The American Bureaucracy	4
3700:382	Intergovernmental Relations	3
3700:402	Politics and the Media	3
3700:440	Public Opinion and Political Behavior	4

Pre-Law

3700:100	Government and Politics in the United States	4
3700:360	The Judicial Process	3
3700:461	The Supreme Court and Constitutional Law	4

Seven credits from the following:

3700:210	State and Local Government and Politics	3
3700:302	American Political Ideas	3
3700:341	The American Congress	3
3700:381	State Politics	3
3700:392	Special Topic: Criminal Law and Procedures	1-3

Psychology

- Required for all students:

3750:100	Introduction to Psychology	3

- At least *one* course from *each* of the following three groups (two of which must be on the 300/400 level):

Group I

3750:120	Introduction to Experimental Psychology (Prerequisites are by permission of instructor for non-psychology majors only.)	4
3750:310	Sensory and Perceptual Experience	4
3750:320	Physiological Psychology	4
3750:330	Motivation	3
3750:450	Learning and Cognition	4

Group II

3750:140	Introduction to Industrial and Organizational Psychology	4
3750:470	Advanced Industrial and Organizational Psychology	4
3750:400	Personality	3
3750:410	Tests and Measures (Prerequisites are by permission of instructor for non-psychology majors only.)	3
3750:420	Abnormal Psychology	3
3750:430	Psychological Disorders of Children	4
3750:440	Introduction to Clinical Method	3

Group III

3750:130	Developmental Psychology	4
3750:340	Social Psychology	4
3750:350	The Psychology of Small Group Behavior	3
3750:360	Cross Cultural Psychology	3
3750:460	History of Psychology	3

- Up to four credits of 3750:480 *Special Topics* or 3750:497 *Independent Reading and Research* can be included in all minors. Prior approval required.
- Students may select a minor related to their major or may select a minor in psychology relevant to any of the following areas: natural sciences, humanities, social sciences, business, pre-law, education, sociology/social work.

Sociology

- Nineteen total credits are required.
- Required for all students:

3850:100	Introduction to Sociology	4

- A minimum of 15 additional credits of sociology courses at the 300/400 level are required. Students may wish to select courses which relate to a particular interest area (e.g., family, health and illness, sex roles, urban life, gerontology). These areas are outlined in materials available in the Department of Sociology. Students with such interest should see an adviser in the Department of Sociology for assistance in course selection for the minor program.

Transportation

- Core:

2560:110	Transportation Economic Policy	3
2560:118	Transportation Rate Systems	3
2560:221	Transportation Principles and Practices	3
2560:224	Transportation Regulation	4

- Five credits from the following:

2560:115	Motor Transportation	3
2560:116	Air Transportation	2
2560:117	Water Transportation	2
2560:220	Terminal Management and Safety	2
2560:227	Transportation of Hazard Materials and Wastes	2
2560:228	Introduction to Travel	2

Interdisciplinary and Certificate Programs of Study

OVERVIEW

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 unless otherwise specified.

AFRO-AMERICAN STUDIES

Mr. N. Holmes, *assistant director*

Requirements

To satisfy the requirements for the certificate, a student must 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 requirements are as follows:

		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	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.

AGING SERVICES

Mr. John Mumper, *coordinator*

Requirements*

2020:121	English	4
2020:222	Technical Report Writing	3
2260:150	Introduction to Gerontological Services	3
2260:251	Senior Citizen Services	3
2260:278	Techniques of Community Work	4
2260:279	Technical Experience: Community and Social Services	5
Any two of the following four courses:		
2020:240	Human Relations	3
2020:290	Death and Dying	2
2260:252	Resident Activity Coordination	3
2260:290	Special Topics: The World of Retirement	3

ALCOHOL SERVICES AIDE

Mr. John Mumper, *coordinator*

Requirements*

2020:121	English	4
2020:222	Technical Report Writing	3
2260:260	Alcohol Use and Abuse	3
2260:261	Alcohol Treatment	3
2260:278	Techniques of Community Work	4
2260:262	Basic Helping Skills in Alcohol Problems	4
2260:263	Group Principles in Alcoholism	4
2260:279	Technical Experience: Community and Social Services	5

CARTOGRAPHIC SPECIALIZATION

Dr. A. Noble, *department head*

Requirements

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 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.

*The awarding of this certificate is not contingent upon completion of a degree program. Undergraduate certificate programs require a 2.00 grade-point average; graduate certificate programs require a 3.00 grade-point average.

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.

Core

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

Electives

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 to cope with social, economic, political, geographical, physical design and governmental problems. Selecting courses that 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 course work 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 course work 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.

CHILD CARE WORKER*

Mrs. Harriet K. Herskowitz, *coordinator*

*The awarding of this certificate is not contingent upon completion of a degree program. Undergraduate certificate programs require a 2.00 grade-point average, graduate certificate programs require a 3.00 grade-point average

Requirements

The establishment of this certificate program provides basic vocational training for child-care practitioners. The course of study is a means of meeting the short range goals of students interested in acquiring skills for immediate job placement.

2200:245	Infant/Toddler Day-Care Programs	3
2200:250	Observing and Recording Children's Behavior	3
5200:360	Nursery School Laboratory	3
5850:295	Educational Technology Field Experience	5
7400:132	Early Childhood Nutrition	2
7400:265	Child Development	3
7400:275	Play and Creative Expression Activities	4
7400:290	Administration of Child-Care Centers	3

COMPUTER PHYSICS CERTIFICATE

Dr. E. VonMeerwall, *director*

Requirements

To qualify for the certificate program, a student must be in good academic standing in the major department and must submit a written request for admission to the director of the program. This course of study adds a component of both physics and computer science to a major in a traditional area of science. The physics courses, beyond *Elementary Classical Physics*, emphasize computer applications, including interfacing and data acquisition, data analysis and use of computers to solve physical problems.

Physics

3650:291,2	Elementary Classical Physics I, II	8
3650:325	Laboratory Data Analysis	3
3650:350	Computational Physics	3
3650:468	Digital Data Acquisition	3

Mathematics

3450:221,2	Analytic Geometry-Calculus I, II	8

Computer Science

3460:209	Computer Programming I	3
3460:210	Computer Programming II	3

The certificate program has been structured to be accessible to most students working toward an undergraduate degree in a traditional area of science. The certificate may be combined with a minor in physics for students who wish to obtain a background in physics which emphasizes applications and uses of computers to collect and analyze data and to solve physical problems.

COMPOSITION

Dr. Martin McKoski, *director*

Requirements

To be eligible for the certificate in composition, a person must be admitted to the University as a graduate student (with either regular graduate status or special non-degree status). An eligible person interested in the program should contact the program director. Five courses in composition and linguistics are required. Other appropriate English courses in composition or linguistics may be substituted as optional courses with the permission of the director.

Required Courses:

3300:576	Seminar: Theory and Teaching of Basic Composition	3
3300:673	Theories of Composition	3
3300:675	Seminar: Research Methodologies in Composition	3

Optional Courses

3300:570	History of the English Language	3
3300:571	U.S. Dialects: Black and White	3
3300:589	Grammatical Structures of Modern English	3
3300:575	Theory of Rhetoric	2
3300:589	Seminar: Sociolinguistics	3
3300:670	Modern Linguistics	3
3300:689	Seminar: Stylistics	3
3300:689	Seminar: Contextual Linguistics	3

COMPUTER SCIENCE

Dr. William C. Beyer, *department head*

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 four credits of mathematics in the Department of Mathematical Sciences and must submit to the department head a written request for admission to the program. The request will outline the student's reasons and goals for enrolling in the program. 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. A minimum grade-point average of 2.00 in the certificate is required.

Courses

3450:215	Concepts of Calculus I	4
3450:216	Concepts of Calculus II	4
	or	
3450:221	Analytic Geometry-Calculus I	4
3450:222	Analytic Geometry-Calculus II	4
	and	
3460:209	Computer Programming I	3
3460:210	Computer Programming II	3
3460:316	Introduction to Data Structures	3
3460:306	Assembly Language Programming	3
3460:420	Structured Programming	3
	Approved 300/400-Level Computer Science Electives	3

CRIMINAL JUSTICE TECHNOLOGY

Mr. Kenneth L. McCormick, *coordinator*

Requirements*

The program specified is designed to provide background, proficiency and updating in the criminal justice area. In the immediate geographic area there are approximately 2,200 police officers and support personnel in police departments. While many of these police officers have completed a degree, many more would benefit by this type of approach. The designed program would provide a measure of recognition for those students enrolled and completing the program. The program would be continually monitored and has been included in many localities as an incentive for promotion, pay increases and lateral movement within the police agency.

2200:100	Introduction to Criminal Justice	3
2220:102	Criminal Law for Police	3
2220:104	Evidence and Criminal Legal Process	3
2220:250	Criminal Case Management	6
2220:240	Dynamics of Vice Crime and Substance Abuse	3
3850:100	Introduction to Sociology	4

CRIMINAL JUSTICE/ SECURITY EMPHASIS

Mr. Kenneth L. McCormick, *coordinator*

Requirements*

The program specified is designed as an integrated approach to provide proficiency and updating in the security field. The security field is one of the fastest growing areas of business today. There are approximately 750,000 individuals in the United States dealing with security problems. In the state of Ohio, there are approximately 70,000 and in the local area, 2,500 security personnel. The field is upgrading very rapidly by accepted state training and there is a move now for more education to be provided at the college level.

2220:101	Introduction to Security	4
2220:290	Special Topics in Security	3
2230:204	Fire Prevention Practices	3
2230:250	Hazardous Materials	4
2250:260	Administration and Supervision for Public Service	3
2880:141	Safety Procedures	3

ENVIRONMENTAL HEALTH

Dr. Walter Sheppe, *Coordinator*

Students majoring in any department may earn the certificate in environmental health by completing a program agreed on in advance by the coordinator and the major adviser, to include at least 21 credits in approved core and elective courses. Students must also complete a course in statistics approved by the Environmental Health Committee. The certificate program is designed to supplement the student's major and therefore the certificate will be awarded only upon completion of the bachelor's degree.

Core Courses

1890:300	Introduction to Environmental Health	3
1890:410	Epidemiology	3
1890:437	Individual Studies or Internship in Environmental Health or Approved Equivalent	1-3

*The awarding of this certificate is not contingent upon completion of a degree program. Undergraduate certificate programs require a 2.00 grade-point average; graduate certificate programs require a 3.00 grade-point average.

Electives

Students will complete courses in at least two departments in the natural sciences and two in the social sciences, not to include the major department, from the following list or others approved by the Environmental Health Committee.

Environmental Health

1890:450	Seminar in Environmental Health	1
1890:480	Special Topics in Environmental Health	1-3

NATURAL SCIENCES

Biology

3100:130	Principles of Microbiology (non-majors)	3
3100:331	Microbiology (majors)	4
3100:383	Laboratory Techniques and Instrumentation in Biology	2
3100:426	Applied Aquatic Ecology	3
3100:480	Radiation Biology	3
3100:450	Animal Pests and Vectors	3

Chemistry

3150:498	Special Topics: Environmental Chemistry	3

Geography

3350:495	Soil and Water Field Studies	3

Geology

3370:200	Environmental Geology	3
3370:470	Geochemistry	3
3370:474	Groundwater Hydrology	3

Civil Engineering

4300:423	Water Pollution Principles	4

SOCIAL SCIENCES

Home Economics and Family Ecology

7400:133	Fundamentals of Nutrition	3

Philosophy

3600:120	Introduction to Ethics	3

Political Science

3700:441	Policy Processes	3
3700:442	Methods of Policy Analysis	3
3700:480	Policy Problems	3

Psychology

3750:340	Social Psychology	4

Sociology

3850:323	Social Change	3
3850:342	Sociology of Health and Illness	3
3850:457	Culture and Medicine	3

Health Education

5570:400	Environmental Aspects of Health Education	3

Social Work

7750:450	Social Needs and Services: Aging	3
7750:452	Social Work: Mental Health	3
7750:456	Social Work in Health Services	3

ENVIRONMENTAL STUDIES

Dr. Jim Jackson, *director*

Requirements

To qualify for the certificate program, a student must be in good academic standing with the major department and request admission to the program. 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.

The student's plan of study for this certificate will be developed in consultation with the director of the Center for Environmental Studies.

Courses

1830:201	Man and the Environment	2
1830:401	Seminar in Environmental Studies	2
1830:490	Workshop in Environmental Studies	1-4
1830:602	Evaluation of Environmental Data	3
1830:661	Graduate Seminar in Environmental Studies	3
3100:105	Ecology and Biological Resources	2
3100:217	General Ecology	3
3100:422	Conservation of Biological Resources	3
3100:424	Limnology	3
3100:426	Applied Aquatic Ecology	3
3250:385	Economics: Natural Resources and Environment	3
3350:314	Climatology	3
3350:335	Recreational Resource Planning	3
3350:436	Urban Land Use Analysis	3
3350:447	Introduction to Remote Sensing	3
3350:495	Soil and Water Field Studies	3
3370:200	Environmental Geology	3
3370:474	Ground Water Hydrology	3
3370:678	Urban Geology	3
3400:434	American Environmental History	3
3850:321	Population	3
3850:425	Sociology of Human Life	3
4100:201	Energy and Environment	2
4100:202	Atmosphere Pollution	2
4200:463	Pollution Control	3
4300:421	Environmental Engineering	3
4300:425	Environmental Engineering Laboratory	2
5800:491	Workshop: Arithmetic or in Physical Science	3

FIRE PROTECTION TECHNOLOGY

Mr. David H. Hoover, *coordinator*

Requirements*

Although fire continues to be a growing problem in Ohio with more than 72,000 fires in 1981 causing 223 fatalities and 2,381 injuries, many municipalities are financially unable to provide a full-time fire department and instead must depend upon the dedicated volunteer firefighter. As this trend continues, the need for the well-educated volunteers will be even more critical as these citizens assume responsible officer positions.

The Fire Protection Technology certificate will assist the student in acquiring the skills and knowledge to function effectively as a volunteer/paid on-call firefighter or officer in addition to receiving a certificate of completion and accomplishment.

*The awarding of this certificate is not contingent upon completion of a degree program. Undergraduate certificate programs require a 2.00 grade-point average; graduate certificate programs require a 3.00 grade-point average.

2230:100	Introduction to Fire Protection	3
2230:102	Fire Safety in Building Design and Construction	3
2230:104	Fire Investigation Methods	3
2230:202	Fire Suppression Methods	3
2230:204	Fire Hazards Recognition	3
2230:205	Fire Detection and Suppression Systems I	3
2230:250	Hazardous Materials	4

HIGHER EDUCATION

Dr. Don Birdsell, Acting Director

Requirements*

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:

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 course work 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.

*The awarding of this certificate is not contingent upon completion of a degree program. Undergraduate certificate programs require a 2.00 grade-point average; graduate certificate programs require a 3.00 grade-point average.

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)	3
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)	3
	or	
5700:710	Principles of Curriculum Development (B)	3

HOSPITALITY MANAGEMENT

Mr. Donald V. Laconi, *Coordinator*

2280:120	Safety and Sanitation	3
2280:121,2	Fundamentals of Food Preparation I	8
2280:160	Wine and Beverage Service	2
2280:123	Meat Technology	2
2280:232	Dining Room Service and Training	2
2280:240	Systems Management and Personnel	3
2280:261	Baking and Classical Desserts	3
2280:262	Classical Cuisine	3
2280:233	Restaurant Operations and Management	4
2280:263	International Foods	2

The awarding of this certificate is not contingent upon completion of a degree program.

Hotel/Motel Option

2280:150	Front Office Procedures	3
2280:120	Safety and Sanitation	3
2280:135	Menu Planning and Purchase	3
2280:152	Maintenance and Engineering for Hotels and Motels	3
2230:153	Principles of Fire Protection and Life Safety	3
2280:232	Dining Room Service and Training	2
2280:240	Systems Management and Personnel	3
2280:236	Food and Beverage Cost Control	3
2280:256	Hospitality Law	3
2280:255	Hotel/Motel Sales Promotion	3
2280:254	Hotel/Motel Housing Management	3

The awarding of this certificate is not contingent upon completion of a degree program.

Restaurant Management Option

2280:120	Safety and Sanitation	3
2280:121	Fundamentals of Food Preparation I	4
2280:135	Menu Planning and Purchase	3
2280:122	Fundamentals of Food Preparation II	4
2280:123	Meat Technology	2
2280:232	Dining Room Service and Training	2
2280:240	Systems Management and Personnel	3
2280:243	Food Equipment and Plant Operations	3
2280:236	Food and Beverage Cost Control	3
2280:233	Restaurant Operation and Management	4
2280:237	Internship	1

The awarding of this certificate is not contingent upon completion of a degree program.

INTERIOR DESIGN

Mrs. Carolyn Albanese, *assistant professor*

Requirements

This certificate program represents a concentration of study in 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:*

7100:121	Three-Dimensional Design	3
7100:244	Color Concepts	3
7100:282	Architectural Presentations	3
7400:331	Applied Home Furnishings	3
7400:433	Interior Design I	3
7400:434	Interior Design II	3
7400:435	Principles and Practices of Interior Design	3

*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.

LATIN AMERICAN STUDIES

Dr. Hugo Lijeron, *coordinator*

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	Latin America: National Origins	3
3400:416	Latin America: 20th Century	3
3400:417	United States, Latin America and Imperialism	3
3400:418	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.

LIFE-SPAN DEVELOPMENT: ADULTHOOD AND AGING

Dr. Harvey Sterns, *director*

Requirements

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.

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.
- Make formal application to the program.

Program

Graduate

Minimum: 12 credits.

Core

1850:680	Interdisciplinary Seminar in Life-Span Development and Gerontology	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
3850:681	Cross Cultural Perspectives in Aging	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
6500:689	Seminar in Health-Care Systems Management	3
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

**Select a minimum of three courses. A student is required to take two of the three electives outside the major or degree department.

Undergraduate

Minimum: 17 credits.

Core

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
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
6500:485	Special Topics in Health Services Administration	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: WOMEN'S STUDIES

Dr. Harvey Sterns, *director*
Mrs. Faye Dambrot, *administrative assistant*

Requirements

The program provides interdisciplinary study of women to enable women and men to examine such topics as sex roles, sex differences and concepts of masculinity and femininity; women's social and cultural roles and their implications for men's roles; gender-based distribution of power, work and resources; and the significance of feminine and masculine imagery.

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 a postbaccalaureate student or as special admission for a free-standing certificate.
- Make written application to the program countersigned by the student's major academic advisor.
- Receive written notification of admission from the Director of the Women's Studies Program.
- Consult with the Director of the Women's Studies Program to formulate a program of study.

**Select a minimum of three courses. A student is required to take two of the three electives outside the major or degree department.

Program

Requirements

Total Credits Required: 19.

Core:

1850:300	Introduction to Women's Studies	3
1850:493	Individual Studies on Women	3
1850:499	Seminar in Women's Studies	1

Electives: 12 credits (two courses 300-400 level).

(One course from each of the following three areas: social sciences, humanities, fine and applied arts.)*

Social Science

3400:336	Women in Modern Europe	3
3400:338	Women in the United States	3
3400:341	Soviet and U.S. Women in 20th Century	3
3400:437	American Family History	3
3750:480	Special Topics in Psychology: Psychology of Women	3
3850:344	Sociology of Sex Roles	3

Humanities

3300:282	Drama Appreciation: Women in Modern Drama	3
3300:386	Women in Modern Novels	3
3300:389	Special Topics: Ethnic Women in Literature	3
3300:490	Workshop: Readings of the Women's Movement 1960-1984	2
3300:489	Seminar: American Women Poets	3
3580:422	Special Topic: Women as Protagonist and Creator in Contemporary Spanish Novels	3
3580:422	Special Topics: Women Authors in Latin America	3

Fine and Applied Arts

7400:201	Relational Patterns in Marriage and Family	3
7400:440	Family Crises	3
7400:442	Human Sexuality	3
7600:450	Special Topics: Women and Minorities in Films	3
7600:450	Special Topics: Women Speakers/Social Change	3
7750:411	Women's Issues in Social Work Practice	3

Electives in Education, Institute for Life-Span Development and Community and Technical College

1850:490	Workshop: Women in Mid-Life	2
1850:490	Workshop: Women and Law	2
1850:490	Workshop: Mathematics and Computer Anxiety in Women	3
2200:290	Special Topics: Women and Chemical Dependency	2
2200:290	Special Topics: Women in Politics	2
5100:480	Special Topics: Historical and Current Perspectives on the Education of Women	3

LINGUISTIC STUDIES

Dr. Arthur Palacas, *director*

Requirements

Completion of six linguistically oriented courses as follows: the foundation course, two core courses and at least three elective 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†

3300:270	Introduction to Linguistics	3

*An elective course not included on the suggested list may be used for elective credit toward the certificate if the course is appropriate and the student obtains prior approval from the Women's Studies Coordinating Committee.

†Required.

Core†

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

Electives

3300:389	Special Topics (any linguistically oriented course offered under this number, e.g., *United States Dialects: Black and White)*	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

Dr. Thomas Black, *coordinator*

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.

Core

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	3
	or	
7700:223	Speech and Language of the Deaf Child and Adult	4

MID-CAREERS PROGRAM IN URBAN STUDIES

Dr. James Richardson, *department head*

Requirements

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.

†At least two required.

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

3980:600	Basic Analytical Research*	3
	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

Urban Planning

3980:630	Planning Concepts and Methods	3
3980:681	Urban Planning Design	3
3980:681	Planning Theory and Innovation	3
	Elective(s)	4

Urban Service Systems

3980:620	Social Services Planning	4
3980:621	Urban Society and Service Systems	3
3980:681	Program Evaluation	3
	Elective(s)	3

Urban Studies

3980:602	Seminar in American Urban Development	3
	or	
3980:681	Urban Theory and Value	3
	Elective(s)	10

OFFICE ADMINISTRATION

Mrs. Virginia J. Watkins, *coordinator*

Administrative Secretarial

*Both required in Urban Research Methods option.

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

2420:211	Basic Accounting I	3
2540:121	Office Problems	3
2540:125	Business Machines	2
2540:130	Introduction to Information Management	3
2540:151	Intermediate Typewriting	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

Office Information Management

2540:121	Office Problems	3
	or	
2540:279	Legal Office Procedures	4
2540:119	Business English	3
2540:125	Business Machines	2
2540:286	Keyboarding on Word Processing Equipment	3
	or	
2420:170	Business Mathematics	3
2540:120	Introduction to Information Processing	2
2540:130	Introduction to Information Management	3
2540:131	Computerized Document Control	4
2540:151	Intermediate Typewriting	3
2540:247	Automated Office Systems	4
2540:281	Machine Transcription	2

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

2440:120	Introduction to Information Processing	
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
2540:287	Word Processing Applications	

Word Processing Option

2540:119	Business English	3
2540:253	Advanced Typewriting	3
2540:280	Word Processing Concepts	3
	Electives	3

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:

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 20th 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

Dr. Alan Noble, *department head*

*The awarding of this certificate is not contingent upon completion of a degree program. Undergraduate certificate programs require a 2.00 grade-point average; graduate certificate programs require a 3.00 grade-point average.

Requirements

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.

Program

- 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:

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 to cope with social, geographical, physical design, economical and governmental problems. Selecting courses that 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

Dr. Joseph F. Ceccio, Dr. James Fee, *codirectors*

Requirements

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

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.

PUBLIC POLICY

Dr. Carl Lieberman, *chairman coordinating committee*

Program

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 Program 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.

Requirements

Core

Each student enrolled in the program shall complete three of the following courses — one from the Department of Economics, one from the Department of Political Science and one from the Department of Sociology.

Economics

3250:530	Human Resource Policy	3
3250:606	Public Finance	3
3250:665	Seminar on Economic Planning	3

Political Science

3700:541	The Policy Process	3
3700:542	Methods of Policy Analysis	3
3700:668	Seminar in Public Policy Agendas and Decisions	3
3700:670	Seminar in the Administrative Process	3

Sociology

3850:613	Sociology of Program Evaluation and Program Improvement	3
3850:679	Political Sociology	3

In addition to the courses listed above, each student, after receiving the approval of his or her adviser, shall complete two courses related to public policy.

Each student shall complete a scholarly paper dealing with public policy under the direction of a graduate faculty member in the departments of economics, political science or sociology. The student shall enroll for three credits in one of the following courses: 3250:697/698 *Reading in Advanced Economics*, 3700:697 *Independent Research and Readings* or 3850:697 *Readings in Contemporary Sociological Literature*. The student's paper shall be evaluated by an interdisciplinary committee consisting of graduate faculty from at least two of the previously mentioned departments.

All persons enrolled in the Graduate Certificate Program in Public Policy must successfully complete 3700:695 *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 course work for the certificate.

Administration of the Program

The departments of economics, political science and sociology 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.

SMALL BUSINESS MANAGEMENT

Mr. Jack D. Huggins, *coordinator*

2420:211	Basic Accounting I	3
2420:170	Business Mathematics	3
2420:280	Essentials of Law	3
2540:119	Business English	3
2420:117	Small Business Development	3
2420:118	Small Business Management and Operations	3
2420:227	Entrepreneurship Projects	4
2440:120	Introduction to Information Processing	2

The awarding of this certificate is not contingent upon completion of a degree program.

SOVIET AREA STUDIES

Dr. Barbara Clements, *coordinator*

Requirements

To obtain a certificate in Soviet Area Studies, the undergraduate will satisfy the requirements for a baccalaureate major in the field of study of his or her choice. In addition the student will complete two years of Russian language (14 credits) and will also complete 12 additional credits in courses dealing with the study of the U.S.S.R. These courses may be selected from the following list:

Economics

3250:450/550	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

TEACHING ENGLISH AS A SECOND LANGUAGE*†

Dr. Kenneth J. Pakenham, *director*

Requirements

This program is intended for those who seek training in the teaching of English as a second language at the elementary or high school level or who wish to obtain an initial qualification in teaching ESL in order to teach in settings other than the Ohio public school system.

The program is designed to introduce the student to the central issues in the theory and practice of teaching English to non-native speakers through courses in modern and applied linguistics, in second language pedagogy and in related disciplines.

Students who do not have English as a native language must demonstrate adequate proficiency in English with a valid TOEFL score of at least 550.

*Recommended for students intending to teach in Ohio public schools: two years of college-level foreign language learning experience or its equivalent; two credits of field experience in *English as a Second Language* (5200:395/695 or 5300:395) or its equivalent at the discretion of the director.

†The awarding of this certificate is not contingent upon completion of a degree program. Undergraduate certificate programs require a 2.00 grade-point average; graduate certificate programs require a 3.00 grade-point average.

Program

Graduate

3300:589	Special Topics: Theory and Method of ESL	3
3300:589	Special Topics: Grammatical Structures of English	3
5630:581	Multicultural Education in the U.S.**	3
	or	
3300:589	Special Topics: Sociolinguistics**	3
5630:587	Techniques for Teaching ESL	3

Undergraduate

This certificate requires the completion of four core courses and two elective courses for a minimum of 18 credits.

Core

3300:489	Special Topics: Theory and Method of ESL	3
3300:489	Special Topics: Grammatical Structures of English	3
5630:481	Multicultural Education in the U.S.**	3
	or	
3300:489	Special Topics: Sociolinguistics**	3
5630:487	Techniques for Teaching ESL	3

Electives

3300:270	Introduction to Linguistics	3
3300:370	Intermediate Linguistics	3
3300:389	Special Topics in Linguistics	3
3300:470	History of the English Language	3
3300:489	Special Topics: Sociolinguistics††	3
3580:409	(Spanish) Linguistics	3
3580:410	(Spanish) Linguistics	3
3870:461	Language and Culture	3
5630:485	Teaching Reading and Language Arts to Bilingual Students	4
7600:325	Intercultural Communication	3
7700:230	Speech and Language Development	3
7700:430	Aspects of Normal Language Development	3

**Choice to be decided in consultation with the program director.

††May not be taken both as an elective and as a core course.

VOLUNTEER PROGRAM MANAGEMENT†

Mr. John Mumper, *coordinator*

2020:121	English	4
2020:222	Technical Report Writing	3
2020:240	Human Relations	3
2260:100	Introduction to Community Services	3
2260:278	Techniques of Community Work	4
2260:279	Technical Experience: Community and Social Services	5
2260:280	Fundamentals of Volunteer Program Management	3
2260:281	Recruitment and Interviewing Volunteers	3

†The awarding of this certificate is not contingent upon completion of a degree program. Undergraduate certificate programs require a 2.00 grade-point average; graduate certificate programs require a 3.00 grade-point average.

Graduate School

Joseph M. Walton, Ph.D., *Acting Dean of Graduate Studies and Research*
Brian F. Pendleton, Ph.D., *Acting Assistant Dean of Graduate Studies and Research*
John E. Mulhauser, M.A., J.D., *Director of Research Services and Sponsored Programs*

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.

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.

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 was appointed dean of Graduate Studies and Research in 1978 and served in that capacity until 1986. Dr. Joseph M. Walton is now acting 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.

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 doctoral 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, urban studies, 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 Doctor of Philosophy program in urban studies is a joint program with Cleveland 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.

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 professor 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 the following:

- 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.

*An exclusive listing of graduate faculty and Graduate Council can be found in the "Directory" of the *Graduate Bulletin*.

The graduate faculty recommends a student who has been nominated by the student's college faculty for the appropriate master's or doctoral 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.

REGULATIONS

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.

Admission

Every person who desires to enroll in or audit any graduate credit course 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 of Graduate Studies and Research 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 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.

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 course work. 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.
- *Postdoctoral* 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 doctorate 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 postdoctoral 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 international student seeking admission should not plan to leave the home country until notice of admission has been received from the Graduate School.

Applicants from countries other than the United States in which English is not the major language in daily life are required to demonstrate high-level competence in the use of the English language, including reading, writing, speaking and listening, prior to admission. 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). The TOEFL is administered by Educational Testing Service, Box 899, Princeton, NJ 08540, USA. Applicants should make arrangements to take the test as soon as study at The University of Akron is anticipated and should request ETS to forward the official test score directly to the Graduate School, The University of Akron, Akron, OH 44325. The official score should be received in the Graduate School by June 1 for fall admission. Unofficial copies of the TOEFL cannot be accepted. If the TOEFL is not available, the applicant should contact the international student adviser at 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.

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.

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. No more than six semester credits of "C" grades may be counted toward the degree. 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+	0.0	Graduate Course Only
D	1.0	
D	0.0	Graduate Course Only
D-	0.7	
D-	0.0	Graduate 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 course work 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.

Course Load

A full load of course work at the graduate level is normally 9-15 semester credits including audit.

*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.

Colloquia, Seminars and Workshops

Colloquium (credit/noncredit grading)
A course that normally involves guests, faculty or graduate students as speakers. The intent of the course is to introduce a broad range of topics using resource personnel. Normally, assignments are limited to class participation.

Seminar (letter grades)
A course that normally involves group discussion or other activities based on assigned material. Grades are awarded based on a combination of assignments, tests and class participation.

Workshop (credit/noncredit grading)
A course that normally operates over a shorter period than a semester or a summer session. Workshops focus on a particular aspect or aspects of a field of study, require a combination of assignments, tests and class participation, and may or may not be permitted to satisfy degree requirements.

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 1986-87 and are subject to change without notice.

Application Fee	
This fee is not refundable under any circumstances	$25
Tuition Fees	
Resident student per credit	$73.60
Nonresident student per credit	$132.60
(auditors pay same fees)	
General Fee	
1-14 credits per semester	$6.50 per credit
14 credits and over per semester	$84.50 per semester
Parking Permit Fee	
9 or more credits per semester	$35
8½ or fewer credits per semester	$17.50
One summer session	$12
Workshop participants	$12
Graduation Fees	
Each degree	$30
Other Fees	
Thesis and binding (payable at time of application for degree) binding per volume	$9.50
Microfilming (Ph.D. only) (payable at time of application for degree)	$54.50
Course schedule change fee (for each schedule change form processed)	$5
Transcripts (if more than one transcript of a student's academic record is ordered by a student at one time, the fee shall be $4 for the first transcript and $2 for each additional one.)	$4
Delayed Registration Fee	$10
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 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

- Instructional and nonresident surcharge.
- General fee.
- Parking (only if permit is returned).
- Student teaching.
- Laboratory breakage and late service deposit.

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.

Commencement

A student earning a graduate degree is expected to participate in the commencement exercises. A degree candidate who has legitimate reasons for graduating "In Absentia" should make a written request to the registrar within the established dates and pay the designated fee.

*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.

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 $4,800 to $7,300 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 $13,000. For information, contact the head of the department.

Information about student loans can be obtained from the Office of Student Financial Aid.

MASTER'S DEGREE REQUIREMENTS

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.

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.

Time Limit

All requirements must be completed within *six* years after beginning graduate-level course work 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.

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 course work 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.

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.

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.

Advancement to Candidacy

A student should apply for advancement to candidacy after completion of one-half of the credits required for the degree in his or her program. A student must be in good standing to be advanced to candidacy.

Advancement to Candidacy forms must be submitted no later than May 15 for the January commencement and no later than September 15 for the May commencement. These forms are available in the office of the Dean of Graduate Studies and Research or in the academic department.

Graduation

To be cleared for graduation, a candidate must have completed course work 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 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 *Preparing a Thesis or Dissertation* is available in the Graduate School and all copies of the thesis must conform to these instructions.

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.

Admission

Usually, 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.

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 *10 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.

Time Limit

All doctoral requirements must be completed within 10 years of starting course work at The University of Akron or elsewhere. This refers to graduate work after receipt of a master's degree 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.

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.

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 10-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. Thirty semester credits are transferable from a master's degree.

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.

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.

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.

Advancement to Candidacy

A student should apply for advancement to candidacy after completion of one-half of the credits required for the degree in his or her program. A student must be in good standing to be advanced to candidacy.

*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.

Advancement to Candidacy forms must be submitted no later than May 15 for the January commencement and no later than September 15 for the May commencement. These forms are available in the office of the Dean of Graduate Studies and Research or in the academic department.

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 titled *Guidelines for Preparing a Thesis or Dissertation* is available in the Graduate School and all copies of the dissertation must conform to these instructions.

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*

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 in Chemistry, the Doctor of Philosophy in Counseling Psychology, the Doctor of Philosophy in History, the Doctor of Philosophy in Psychology and Doctor of Philosophy in Polymer Science. The Doctor of Philosophy in Sociology is offered jointly with Kent State University and the Doctor of Philosophy in Urban Studies with Cleveland State University.

Doctor of Philosophy in Chemistry

In addition to satisfying the general requirements of the Graduate School, a student working toward the Doctor of Philosophy 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 course work 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 thesis 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.

Doctor of Philosophy in Counseling Psychology

The University of Akron offers a doctoral program in counseling psychology. The program allows the student a choice of emphases—a scientist-practitioner model through the Buchtel College of Arts and Sciences or a practitioner-scientist model through the College of Education. Students in both emphases are expected to attain a level of broad scientific competence in the core areas of psychology: the biological, social, cognitive-affective and individual bases of human behavior. Practica and internship experiences are also required of students in both emphases and range from skill building in basic psychological assessment and counseling, to actual work with clients, to a year-long, full-time internship in an applied service setting. Pertinent information regarding differences in emphasis orientation and course work is included below. Students receive exposure to both colleges through shared course work and faculty involvement with dissertations but must choose a specialization in one emphasis. The program in counseling psychology has been constructed so as to lead to APA approval in coming years.

The Department of Psychology offers a five-year counseling psychology program leading to a doctoral degree and, in general, is geared toward students who hold a B.A. in psychology. Program emphasis is strongly placed on a scientist-practitioner model of training. Beyond the basic core areas of psychology, students are expected to establish specific competencies in the areas of theory, research and practice of counseling psychology. Academic preparation includes theories of personality and psychotherapy, psychodiagnostics, vocational development theory, intelligence testing, research and statistics, and professional issues. Research and publication are highly encouraged. Graduates typically seek out academic teaching, research and training and positions, as well as positions in counseling centers and other mental health agencies.

Admission to the Joint Program in Counseling Psychology will be handled through the department associated with the student's chosen emphasis. Departures from the above program may be made only with the approval of the counseling psychology program faculty.

Scientist-Practitioner Program Rationale and Track

The current curriculum reflects the new joint program in counseling psychology. The additional courses taken in counseling and special education will broaden the knowledge and skill bases of the students who choose the scientist-practitioner emphasis. Electives and other classes to be planned along with student's adviser.

	Credits
• Required courses include:	
— core (I, II, III, IV);	16
— statistics sequence (I, II, Multivariate, Nonparametrics, Regression and Correlation, Factor Analysis);	16
— practica sequence (P, C, A, Advanced I, II);	18
— counseling psychology courses (*Advanced Tests and Measures, Theories of Psychotherapy, Vocational Behavior, Survey of Projectives, Psychodiagnostics, IQ Testing, Advanced Counseling, Personality, Functional Analysis);*	36
— practitioner-scientist track classes (*Group Processes, Introduction to Marriage and Family,* electives);	15
— thesis credits;	
— dissertation credits.	

- Practicum—each conducted in own department and evaluated there.
- Internship—2,000 hours post-master's with 1,600 hours in no more than two years.
- Psychology core—3750:610, 620, 630, 640.
- Counseling psychology joint core:
  - scientist-practitioner track—15 credits required including group (5600:633) and introduction to marriage and family (5600:655) with others to be decided upon with adviser.
  - practitioner-scientist track—12 credits required including advanced counseling (3750:706) with other counseling psychology courses to be decided upon with adviser.
- Other course requirements for each track are up to faculty of the track.
- Comprehensive examinations—separate written exams but shared orals.
- Dissertation—at least one faculty member from each track on the student's committee.
- In the scientist-practitioner emphasis, students must perform at an acceptable level on the qualifying exam over the basic area of psychology to determine eligibility for M.A.-Ph.D. standing in that program. In the practitioner-scientist emphasis, M.A. students must take the preliminary exam to appraise their current competency level. These exams will be administered by the faculty specific to the student's chosen emphasis.
- Language and residency requirements — these will be completed in accordance with guidelines from the Graduate School and the appropriate department.

Doctor of Philosophy in History

The Doctor of Philosophy 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.

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 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 course work 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.

Doctor of Philosophy in Psychology

The Department of Psychology offers a doctoral degree in psychology with specialization in either industrial/organizational psychology, applied 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 as follows:
  - 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 the student's specialty area: 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 and overall 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 student's 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 student's advisory committee, depending upon the career plans of the student and upon the academic and/or scientific requirements of the dissertation.

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. Course work 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 after at least one year of full-time course work or equivalent (18 credits) in

the sociology master of arts program at The University of Akron. The course work must include the master of arts core sequence. Scores from either the Miller Analogies Test (MAT) or the aptitude portion of the Graduate Record Examination (GRE) are required as part of the doctoral application. 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 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 course work.
- 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 M.A. core course work.
- Completion of a research practicum (three 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) course work beyond the bachelor's degree.

Doctor of Philosophy in Urban Studies

The departments of urban studies of The University of Akron and Cleveland State University jointly offer a program leading to the Ph.D. in urban studies. Students admitted to the program may take courses at either campus and all committees contain members from both universities.

The purpose of the program is to train senior-level persons in urban public management, planning and policy analysis research.

Admission

Admission to the Graduate School of The University of Akron requires a master's degree in an appropriate area. In some instances persons holding a master's degree may be asked to take additional specified master's-level courses before beginning Ph.D. courses.

Degree Requirements

The program has a required core of eight courses, including: two courses in advanced quantitative methods and program evaluation; five courses in policy development, analysis, planning and management.

Each student will also complete an area of specialization through a combination of tutorials (12 credits) and elective courses (12 credits). The tutorial rests upon a close working relationship between students and individual faculty members in particular areas where faculty members are actively engaged in research.

Students must pass written and oral comprehensive examinations on both the core and their specialization.

The capstone of the program is the dissertation where students must present the results of their research and successfully defend their dissertations in an oral examination.

A minimum of 63 credits beyond the master's degree is required.

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.

- Course work 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 six credits.
- Participation in seminars — two 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 M.S. 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 course work (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 course work — with the approval of the adviser, up to 12 credits may be taken in related areas — 24 credits.
- Research and thesis — six 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 course work 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 course work 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:

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:

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.

Courses taken outside the department must be approved (in writing) by the student's adviser prior to enrollment.

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.

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:
  - literature — 16 credits;
  - culture — eight credits;
  - linguistics — eight 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 (M.A. only) — four to six credits.
- Statistics (M.S. only) — eight credits.
- Successful completion of a comprehensive examination administered by the departmental committee.

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.

*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
6500:321,2	Quantitative Bus. Analysis I, II	6

†Unless the student has passed a comparable course at the undergraduate level with a grade of "B" or better.

††In M.A. degree, at least 24 credits must be in course work.

- 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 M.S. 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.

Degree Specialization

The program of each individual will be adapted to his/her career objectives.

Geology

Equivalents of the geology, cognate science and mathematics requirements for the University's B.S. in geology are required.

Earth Science

Equivalents of the geology courses for the University's B.A. in geology are required. Course program will be selected to provide the student with a well-rounded background in lithosphere, hydrosphere and atmosphere. 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. in geophysics are required.

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	5

- Required courses:

3370:631	Rocks and Minerals	4
4300:611	Fundamentals of Soil Behavior	2
4300:614,5	Foundation Engineering I, II	6

Environmental Geology

Equivalents of the science and mathematics requirements for the University B.S. in geology are required. As many as eight credits may be selected from engineering, biology and/or geography with the approval of a geology 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 re-examine 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.

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:

3450:611	Algebraic Theories I	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.

*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.

Master of Science — Statistics

- Entrance into the program will require the initial completion of the following prerequisites:

  3470:561 *Applied Statistics*, four credits; OR 3470:661 *Advanced Behavioral Statistics*, three credits; OR equivalent.

  3450:601 *Introduction to Analysis*, four credits; OR equivalent (may not be used to meet degree requirements for mathematical sciences majors).

  3470:620 *Applications of Matrices to Statistics*, three credits; OR equivalent. (May be taken concurrently with 3470:651 *Probability and Statistics*, four credits.)

- Core requirements:

3470:651	Probability and Statistics	4
3470:563	Experimental Design	4
3470:665	Regression and Correlation	3
3450:692	Mathematics and Statistics Seminar	2

Thesis Option (30 credits of graduate work)

In addition to the core requirements, 13 to 15 credits in 500/600-level mathematical sciences courses and two to four credits in 3450:699 *Thesis Research* must be completed, at least 10 credits of which must be from the 3470 designation.

Non-thesis Option (33 credits of graduate work)

In addition to the core requirements, 20 credits in 500/600-level mathematical sciences courses must be completed, at least 10 credits of which must be from the 3470 designation.

- A comprehensive examination, taking the form suggested by the department, must be completed in the thesis or non-thesis option.
- 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.

Master of Science — Applied Mathematics

- Core:

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	Probability and Statistics	4
	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 at 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 a minimum of 30 graduate credits of approved courses in physics. Up to six credits of graduate-level electives outside the department may be included in the program. There is no foreign language requirement for this degree.
- A cumulative grade-point average of 3.00 or better for all graduate-level credits applicable toward the degree.
- Complete an approved program of courses which includes the following required courses:

3650:615	Electromagnetic Theory I	3
3650:625	Quantum Mechanics I	3
3650:641	Lagrangian Mechanics	3
3650:661	Statistical Mechanics	3
3650:551,2	Advanced Laboratory I, II	4

A student preparing for further graduate work in a physical science of for academic or industrial employment, should include the following courses in the graduate program:

3650:581,2	Methods of Mathematical Physics I, II	6
3650:616	Electromagnetic Theory II	3
3650:626	Quantum Mechanics II	3

A student preparing for teaching secondary school science should include the following courses in the graduate programs:

3650:500	History of Physics	3
3650:504	Energy and Environment	3
3650:568	Digital Data Acquisition	2
3650:590	Workshops (maximum credit)	6

A student must pass a comprehensive examination of a form suggested by the department. This exam consists of two parts, as follows:

Part I: The basic exam must be passed by all degree candidates. This is a written examination covering the fields of mechanics, electricity and magnetism, optics, thermodynamics and modern physics at the undergraduate level.

Part II: Completion of at least one of the following options:

Option A: An advanced written examination covering the fields of quantum physics, electricity and magnetism, atomic and nuclear physics, mechanics and experimental physics at the beginning-graduate level.

Option B: A formal report, based upon an original research project, submitted in a form suitable for publication and approved by a physics faculty committee.

Option C: A master's thesis.

- Graduate research participation is strongly encouraged. Up to five credits may be earned in 3650:697 *Graduate Research*, upon the 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.

Political Science

Master of Arts

- Complete 30 credits of graduate work, including 18 credits at the 600 level.
- As a part of the above, complete a minimum of 15 graduate hours at the 600 level in political science, consisting of the following:

  Five required core courses:

3700:600	Scope and Theories of Political Science	3
3700:601	Research Methods in Political Science	3

  Three additional graduate seminars. Neither Independent Research, Thesis, nor Internship is considered a graduate seminar.
- Pass a comprehensive examination covering one field to be determined in conjunction with a departmental adviser.
- Complete **either** of the following:

  A master's thesis, including six hours of thesis credit (3700:699) in preparation. These credits may be presented as part of the overall 30-credit requirement. Thesis topic and completed thesis must be approved by student's thesis committee.

  A non-thesis option, which shall consist of two seminar papers approved by a department committee of three persons chosen by the department head.

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 —six credits.
- Attendance at and participation in seminar-type discussions scheduled by the department.

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;
  - two letters of recommendation.
- Course requirements:
  - completion of a minimum of 30 credits of graduate psychology courses including the M.A. core courses or equivalents, specialty area 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 M.A. 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 areas;
- 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, counseling or developmental psychology.

Non-thesis Option

Completion of a minimum of 30 credits of graduate work with no thesis required. Completion of course work, practicum and examinations in either personnel, counseling or developmental psychology.

Sociology

Master of Arts

- Complete three required core courses with at least a 3.00 grade-point average:

3850:603	Sociological Research Methods	3
3850:604	Social Research Design	3
3850:617	Sociological Theory	3

Thesis Option

Satisfactory completion of 32 semester credits of which at least 21 must be at the 600 level or higher in sociology or anthropology (excluding 3850:699; 3850:697 and 3850:698). In meeting these requirements the student must:

- Complete five required core courses with at least a 3.00 grade-point average:

3850:603	Sociological Research Methods	3
3850:604	Social Research Design	3
3850:617	Sociological Theory	3
3850:631	Social Psychology	3
	or	
3850:645	Social Organization	3
3850:706	Multivariate Techniques in Sociology	3

- Complete at least six hours of thesis work (3850:699). No more than six credits will count toward the degree.
- Completion of master's thesis and successful oral defense of thesis.

Non-thesis Option I

This degree 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. In meeting these requirements the student must:

- Complete four required core courses with at least a 3.00 grade-point average:

3850:603	Sociological Research Methods	3
3850:604	Social Research Design	3
3850:617	Sociological Theory	3
3850:631	Social Psychology	3
	or	
3850:645	Social Organization	3

- 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 degree is intended for the student who needs rigorous training in the methodologies and techniques of social research. Students pursuing this degree will select one of three options: *general* research techniques, *survey* research techniques or *evaluation* research techniques. Upon completion of this program, students will have a greater exposure to research strategies, techniques and issues than many Ph.D. students experience.

Completion of 32 semester credits of graduate-level course work which must include the following:

- Complete the following required courses with at least a 3.00 average:

3850:603	Sociological Research Methods	3
3850:604	Social Research Designs	3
3850:617	Sociological Theory	3
3850:631	Social Psychology	3
	or	
3850:645	Social Organization	3
3850:706	Multivariate Techniques in Sociology	3
3850:711	Survey Research Methods	3

- Complete two courses (six hours) under one of the following options:

General research methodology

3850:707	Measurement in Sociology	3
3850:708	Advanced Techniques in Research	1-3
3850:709	Analysis of Sociological Data	3
3850:710	Social Sampling	3
3850:712	Experimental and Quasi-Experimental Research	3
3850:714	Qualitative Methodology	3

Survey research methodology

3850:710	Social Sampling	3
3850:750	Research: Akron Area Survey	3

Evaluation research methodology

3850:613	Sociology of Program Evaluation and Program Improvement	3
3850:712	Experimental and Quasi-Experimental Research	3

- Complete five credits of elective course work.
- Complete at least three credits of 3850:698 *Directed Research* culminating in a research paper on a topic appropriate to the student's research methodology option (e.g., general, survey or evaluation). No more than three credits will count toward the degree. Guidelines for the content of the paper and for selecting the student's research adviser available in the department.
- Pass a two-hour defense of the research paper written for 3850:698 *Directed Research.*

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.

Spanish

Master of Arts

- Thirty-two semester credits of graduate work which may include a thesis amounting to four credits.
- Requirement: proficiency level in listening comprehension, speaking, reading and writing Spanish.
- Second language requirement: completion of 202 with a grade of at least B in another language; or a translation from another language. 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 submit two graduate essays each of which subject to an oral exam.

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:

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 course work as follows:

- Core — 12 credits.
- Selection of recommended courses — six credits.
- Urban related courses — 16 credits.

Options

Public Administration

Forty credits of course work (plus internship where applicable) as follows:

- Core — 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 —one to three credits.

Urban Planning

Forty-eight credits of course work (plus internship where applicable) as follows:

- Core requirements:

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

- Planning requirements:

3350:536	Urban Land Use Analysis	3
3980:630	Introduction to Planning Practice and Theory	3
3980:631	Urban Facilities Planning	3
3980:632	Land Use Control	3
3980:637	Field Methods in Urban and Regional Planning	3
3980:638	Field Methods in Urban and Regional Planning Laboratory	3
3980:670	Planning Research	3

- Electives:

Four elective courses totaling 12 credits or more should be selected in consultation with the faculty adviser.

- Internship:

3980:695	Required for students who do not have professional planning experience	3

Joint Programs

Joint Degree Programs in Law and Urban Planning and Law and Public Administration.

The University of Akron offers joint J.D. and Urban Planning and J.D. and Public Administration programs. The titles are: J.D./M.A. Urban Planning and J.D./M.A. Public Administration.

To become accepted into the program, a student must meet the admission requirement of the School of Law, the Graduate School and the Department of Urban Studies.

J.D./M.A. Urban Planning Degree Requirements

Seventy-six credits in law and 33 credits in urban planning.

Under this program, a student must take 43 credits of required law courses, 32 credits of law electives and 33 credits of required urban planning courses plus urban studies internship of one to three credits. (Internship is required of any student without professional planning experience.)

J.D./M.A. Public Administration Degree Requirements

Seventy-six credits in law and 27 credits in public administration.

Under this program a student must take 43 credits of required law courses, 32 credits of law electives and 27 credits of required public administration courses plus urban studies internship of one to three credits. (Internship is required of any student without professional administrative experience.)

These programs reduce the total existing credit hours of Law School and Urban Studies as follows:

J.D./M.A. Urban Planning

The law requirements are reduced by nine credit hours from 85 to 76 while urban planning requirements are reduced by 12 credit hours from 45 to 33.

J.D./M.A. Public Administration

The law requirements are reduced by nine credit hours from 85 to 76, while public administration requirements are reduced by 13 credit hours from 40 to 27.

College of Engineering

Louis A. Hill, Jr., P.E., Ph.D., *Dean*
Glenn A. Atwood, P.E., Ph.D., *Assistant Dean*

DOCTOR OF PHILOSOPHY IN ENGINEERING

Areas of study offered through the College of Engineering include civil, chemical, electrical and mechanical engineering in addition to interdisciplinary programs in biomedical engineering, environmental engineering, materials science, mechanics, polymer engineering, systems engineering and transport processes. 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 course work 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 course work and 30 for dissertation, must be earned.
- Pass a candidacy examination which may be taken after 90 percent of the course work 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.

JOINT PROGRAM

Coordination for the M.D. and Ph.D. Degrees Between the Department of Biomedical Engineering, University of Akron and the Northeastern Ohio Universities College of Medicine.

I. Introduction and Purpose

The Department of Biomedical Engineering of The University of Akron and NEOUCOM agree to cooperate to provide a coordinated program for those desiring both the M.D. and Ph.D. degrees. It is recognized that such cooperation is to the benefit of both instititions.

This coordinated program does not change in any way the requirements for either the M.D. at NEOUCOM or the Ph.D. at The University of Akron. The program allows for the timing of requirements to be met in such a manner that a shorter total time would be required for completion of both degrees than if the degrees were completed separately and individually. This program will also help integrate the knowledge and skills acquired by the student in each of the programs.

II. Routes of Admission

1. Entry from undergraduate (or master's level) programs in engineering, biology, chemistry, or other pre-medicine into both the M.D. and Ph.D. programs.
2. Entry for the B.S./M.D. Biomedical Engineering program into the M.D. and Ph.D. programs.

All students will be required to have completed the following minimum courses and to have taken the MCAT prior to admission into the coordinated M.D. and Ph.D. programs.

M.D.	Principles of Chemistry I and II
M.D.	Organic Chemistry I and II
M.D.	Principles of Biology I and II
M.D.,Ph.D.	Classical Physics I and II
Ph.D.	Statics
Ph.D.	Dynamics
Ph.D.	Strength of Materials (or Material Science)
Ph.D.	Basic Electrical Engineering (or Circuits I & II)
Ph.D.	Calculus I,II,III and Differential Equations.

III. Structure of Degree Programs

Each individual coordinated degree program will be tailored to suit the background and research interests of the student.

Additional information may be obtained from the Department of Biomedical Engineering at The University of Akron or at NEOUCOM.

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.

*A student without a B.S. 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.

**The elective electrical engineering courses may not include more than three credits of 500-level courses.

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 Course Work	15
Approved Mathematics or Science	3
Approved Electives	6
Thesis	6

The thesis must be satisfactorily defended in an oral examination.

Non-thesis Option

Civil Engineering Course Work	15
Approved Mathematics or Science	3
Approved Electives	12
Special Problem	2

Master of Science in Electrical Engineering

Areas of study in the department include: computer engineering, control system engineering, power system engineering and related areas.

Thesis Option

Electrical Engineering Course Work*	15
Approved Mathematics	6
Approved Electives	3
Thesis	6

The thesis must be defended in an oral examination.

Non-thesis Option**

Electrical Engineering Course Work*	18
Approved Mathematics	6
Approved Electives	12

A student must pass a graduate-level oral comprehensive examination which may be taken after 24 credits have been completed.

*The required electrical engineering course work of 18 credits may not include more than three credits of 500-level courses.

**The 36 credits requirement of the non-thesis option will be effective with the new incoming students.

***The elective chemical engineering courses may not include more than three credits of 500-level courses.

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 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 Course Work†	15
Approved Mathematics	3
Approved Electives†	6
Thesis	6

The thesis must be defended in an oral examination.

Non-thesis Option

Mechanical Engineering Course Work†	15
Approved Mathematics	3
Approved Electives**	12
Special Problems	2

Master of Science in Engineering

This program is intended for the student whose educational objectives cannot be met by the chemical, civil, electrical or mechanical departmental programs or those who wish to specialize in biomedical or polymer engineering.

Thesis Option

Engineering Course Work	12
Approved Mathematics or Science	3
Approved Electives	9
Thesis	6

The thesis must be defended in an oral examination.

Non-thesis Option

Engineering Course Work	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 15 credits of mechanical engineering course work. 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 15 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.

Biomedical Engineering Specialization

- Core:

3100:561,2	Human Physiology I, II	8
4800:611	Biometry	3
4800:530	Biomedical Instrumentation I	4

- Elective (two of the following):

4800:613	Biomaterials and Laboratory	4
4800:623	Mechanics in Physiology and Medicine	3
4800:632	Processing of Biomedical Signals	3
4800:637	Image Formation and Processing in Biomedicine	3
4800:643	Biomedical Computing	3
4800:653	Transport Phenomena in Biology and Medicine	3
4800:663	Artificial Organs	3
4800:697	Special Topics (maximum three hours)	3

- Approved elective. 3
- Approved engineering elective. 3
- Thesis:

4800:699	Thesis	6

Polymer Engineering Specialization

The major emphases of the graduate program in polymer engineering are in polymer processing, engineering performance and structural and rheological characterization of polymers.

- Polymer engineering core:

4700:611	Structural Characterization of Polymers with Electromagnetic Radiation	2
4700:621	Rheology and Polymer Processing	3
4700:622	Analysis and Design of Polymer Processing Operations I	2
4700:631	Engineering Properties of Solid Polymers	2
4700:641	Polymeric Materials Engineering Science	2

- Polymer engineering elective:

4700:601	Polymer Engineering Seminar	1
4700:623	Analysis and Design of Polymer Processing Operations II	3
4700:642	Engineering Aspects of Polymer Colloids	2
4700:651	Polymer Engineering Laboratory	2
4700:661	Polymerization Reactor Engineering	3

- Approved engineering and science elective (a minimum of three credits of approved science or mathematics required):

3150:674	Physical Chemistry of Polymers I	2
3150:675	Physical Chemistry of Polymers II	2
3450:	Approved Mathematics	3
3940:613	Polymer Science Laboratory	2
4300:681	Advanced Engineering Materials	3
4600:622	Continuum Mechanics	3

- Thesis:

4700:699	Thesis	6

College of Education

Constance Cooper, Ed.D., *Dean*
Don Birdsell, Ph.D., *Associate Dean*
Walter Yoder, Ed.D., *Assistant to the Dean*

DOCTOR OF PHILOSOPHY DEGREE

Programs leading to the Doctor of Philosophy degree in elementary education, secondary education counseling psychology, 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.

DOCTOR OF PHILOSOPHY IN COUNSELING PSYCHOLOGY

The University of Akron offers a doctoral program in counseling psychology. The program allows the student a choice of emphases—a practitioner-scientist model through the College of Education or a scientist-practitioner model through the Buchtel College of Arts and Sciences. Students in both emphases are expected to attain a level of broad scientific competence in the core areas of psychology: the biological, social, cognitive-affective and individual bases of human behavior. Practica and internship experiences are also required of students in both emphases and range from skill building in basic psychological assessment and counseling, to actual work with clients, to a year-long, full-time internship in an applied service setting. Pertinent information regarding differences in emphasis orientation and course work is included below. Students receive exposure to both colleges through shared course work and faculty involvement with dissertations but must choose a specialization in one emphasis. The program in counseling psychology has been constructed so as to lead to APA approval in coming years.

The program is designed for students who hold a master's degree in counseling, psychology or a related field. The practitioner-scientist emphasis provides students with a foundation in substantive areas of psychological theory and research, as well as extensive academic training in counseling specialty areas such as assessment, individual and group counseling, marriage and family therapy, career development and supervision and consultation in counseling psychology. A preventive, developmental and situation crisis orientation to training and professional practice is maintained. Graduates are employed in counseling testing centers in higher education, community and private mental health agencies, and other educational and health settings.

Admission to the Joint Program in Counseling Psychology will be handled through the department associated with the student's chosen emphasis.

Departures from the above program may be made only with the approval of the counseling psychology program faculty.

- Practicum—each conducted in own department and evaluated there.
- Internship—2,000 hours post-master's with 1,600 hours over no more than two years.
- Psychology Core—3750:610, 620, 630, 640.
- Counseling Psychology Joint Core:
  - scientist-practitioner track - 15 credits required including group (5600:653) and introduction to marriage and family (5600:655) with others to be decided upon with adviser.
  - practitioner-scientist track - 12 credits required including advanced counseling (3750:706) with other counseling psychology courses to be decided upon with adviser.
- Other course requirements for each track are up to faculty of the track.
- Comprehensive examinations—separate written exams, but shared orals.
- Dissertation—at least one faculty member from each track on the student's committee.
- In the scientist-practitioner emphasis, students must perform at an acceptable level on the qualifying exam over the basic areas of psychology to determine eligibility for M.A.-Ph.D. standing in that program. In the practitioner-scientist emphasis, M.A. students must take the preliminary exam to appraise their current competency level. These exams will be administered by the faculty specific to the student's chosen emphasis.
- Language and residency requirements - these will be completed in accordance with guidelines from the Graduate School and the appropriate department.

Counseling Psychology Practitioner-Scientist Track

Students may be considered for admission to the practitioner-scientist emphasis in counseling psychology if they have a master's degree in counseling, guidance and counseling, psychology, school psychology or a related field.

- Core requirements (P/S-S/P Tracks):

3750:612	Psychology Core I	4
3750:620	Psychology Core II	4
3750:630	Psychology Core III	4
3750:640	Psychology Core IV	4
3750/5600:653	Group Counseling	4
3750/5600:707	Supervision in Counseling Psychology I	3
3750/5600:710	Theories of Counseling and Psychotherapy	4
3750/5600:711	Vocational Behavior	4
3750/5600:712	Principles and Practice of Intelligence Testing	4
3750:5600:713	Advanced Seminar in Counseling Psychology	4
3750/5600:714	Objective Personality Evaluation	4
3750/5600:715	Research Design in Counseling I	3
3750/5600:796	Counseling Psychology Practicum	8
	Electives (permission of adviser required)	6
5600:896	Dissertation (minimum)	15
	Internship	NC

- P/S Track requirements:

	College of Education Foundations	6*
5100:640	Techniques of Research	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
5600:675	Practicum in Counseling I	5
5100:741	Statistics in Education	3
5100:743	Advanced Educational Statistics	3
5600:708	Supervision in Counseling Psychology II	3
5600:716	Research Design in Counseling II	3
	Electives	7

*Students must elect a minimum of six semester hours of graduate credits in behavioral, humanistic, historical and/or social-philosophical studies from the following:

5100:600	Philosophies of Education	3
5100:602	Comparative and International Education	3
5100:604	Topical Seminar in the Cultural Foundations of Education	3
5100:620	Behavioral Bases of Education	3
5100:624	Seminar: Educational Psychology	3
5100:701	History of Education in American Society	3
5100:703	Seminar: History and Philosophy of Higher Education	3
5100:705	Seminar: Social-Philosophical Foundations of Education	3
5100:721	Learning Processes	3
5100:723	Teacher Behavior and Instruction	3

DOCTOR OF EDUCATION DEGREE

The Department of Educational Administration offers a program 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.

Foundation Studies Education — Doctoral Program Requirements*

Behavioral Studies

5100:620	Behavioral Bases of Education	3
	or	
5100:624	Seminar in Educational Psychology	3
5100:721	Learning Processes	3
	or	
5100:723	Teaching Behavior and Instruction	3

Humanistic Studies

5100:701	History of Education in American Society	3
	or	
5100:703	Seminar in History and Philosophy of Higher Education	3

Social and Philosophical

5100:600	Philosophies of Education	3
	or	
5100:602	Comparative and International Education	3
	or	
5100:604	Seminar in Cultural Foundations of Education	3
5100:705	Seminar in Social-Philosophical Foundations	3

*Counseling psychology students contact adviser for requirements.

Research

5100:640	Techniques of Research	3
5100:741	Statistics in Education	3
5— 899	Dissertation	10-20

MASTER'S DEGREE

Programs leading to the degree of M.A. in education, M.S. in education and M.S. 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**:

5100:600	Philosophies of Education	3
	or	
5100:602	Comparative and International Education	3
	or	
5100:604	Seminar in Cultural Foundations of Education	3
5100:620	Behavioral Bases of Education	3
	or	
5100:624	Seminar in Educational Psychology	3
5100:640	Techniques of Research	3

PROGRAMS

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 and special education. The 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.

Classroom Guidance for Teachers

- Foundation Studies courses — nine credits.
- Guidance courses:

5600:610	Counseling Skills for Teachers	3
5600:526	Career Education	2
5600:631	Elementary School Guidance	3
	or	
5600:633	Secondary School Guidance	3
5600:645	Group Testing in Counseling	3
5600:661	Seminar in Guidance	2
5600:671	Counseling Clinic: Test Interpretation	1
5600:695	Field Experience†	1

**Students in some psychology programs may choose other options - see adviser.

†Must be taken concurrently with 661.

5610:540	Developmental Characteristics of Exceptional Individuals	4
	or	
5610:604	Education and Management Strategies for Parents of Exceptional Individual	3

- Area of concentration:

A minimum of eight credits may be selected from one of the following (the student may, with adviser approval, propose an area of concentration not listed). The courses in the area of concentration must be selected with, and approved by an adviser.

Middle School Education
Early Childhood Education
School and Community Relations
Curriculum and Instruction
Physical Fitness and Well-Being
Special Education
Computers in Education
Family Ecology
Communicative Disorders
Outdoor Education

Community Counseling

- Foundation Studies courses — nine credits. (See department handbook for options.)
- Required courses:

5600:600	Seminar in Counseling	1
5600:620	Topical Seminar: Substance Abuse and Sexuality	2
5600:635	Community 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	4
5600:665	Seminar: Counseling Practice**	3
5600:671	Counseling Clinic†	1
5600:675	Practicum in Counseling I	5
5600:685	Internship	4

- Electives (select a minimum of six credits *only* with help of adviser). 6

Counseling in Elementary or Secondary Schools

- Foundation Studies courses — nine credits.

5100:604	Topical Seminar in Cultural Foundations	3
5100:624	Seminar: Educational Psychology	3
5100:640	Techniques of Research	3

- Required courses:

5600:600	Seminar in Counseling	1
5600:620	Topical Seminar: Current Issues	2
5600:631	Elementary School Guidance	3
	or	
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 Philosophy	3
5600:651	Techniques of Counseling	3
5600:653	Group Counseling	4
5600:659	Organization and Administration of Guidance Services	3
5600:663	Seminar in School Counseling**	3
5600:671	Counseling Clinic†	1
5600:675	Practicum in Counseling I	5
5600:685	Internship	4
5610:540	Developmental Characteristics of Exceptional Individuals	4

Marriage and Family Therapy

- Foundation Studies courses — nine credits. (See department handbook for options.)
- Required courses:

5600:600	Seminar in Counseling	1
5600:645	Group Testing in Counseling	3
5600:651	Techniques of Counseling	3
5600:653	Group Counseling	4
5600:655	Marriage and Family Therapy: Theory and Techniques	3
5600:665	Seminar: Counseling Practice**	3
5600:667	Marital Therapy	3
5600:669	Systems Theory in Family Therapy	3
5600:671	Counseling Clinic†	1
5600:675	Practicum in Counseling I	5
5600:685	Internship	6

- Specialized studies (see department handbook for options). 12

School Psychologist‡

- College requirements:

5100:600	Philosophies of Education	3
5100:640	Techniques of Research	3
5100:721	Learning Processes	3
	or	
3750:550	Learning and Cognition	4
5620:694	Research Project	2
	or	
5620:698	Master's Problem	2-4
	or	
5620:699	Thesis Research	4-6

- Departmental requirements:

5610:540	Developmental Characteristics of Exceptional Individuals	3
	or	
5610:543	Developmental Characteristics of Learning Disabled Individuals	3
5600:643	Counseling: Theory and Philosophy	3
	or	
3750:703	Theories of Psychotherapy	3

- Program requirements:

3750:500	Personality	3
	or	
3750:704	Theories of Personality	3
3750:620	Methods and Theories of Human Development	4
	or	
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	3
	or	
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:

3750:520	Abnormal Psychology*	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

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:

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	3

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 including the six credits for the internship.

**Must be taken with 685.

†Must be taken with 645.

‡Program admission is competitive based upon state internship allocations. 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."

*May be taken at undergraduate level.

*Required as part of Special Education Master's.

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 educational 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.

- Foundation core (nine hours required):

5100:600	Philosophies of Education	3
	or	
5100:604	Topical Seminar in Cultural Foundations/Education	3
5100:620	Behavioral Bases of Education	3
	or	
5100:624	Seminar: Educational Psychology	3
5100:640	Techniques of Research	3

- Departmental core (21 hours required):

5600:610	Counseling Skills for Teachers	3
5610:601	Seminar: Curriculum Planning in Special Education	3
5610:603	Assessment and Educational Programming Special Education	3
5610:604	Education and Management Strategies Parents of Exceptional Individuals	3
5610:605	Program Development and Service Delivery Systems Special Education	3
5610:606	Research Design and Practice in Special Education	3
5610:612	Issues in Special Education	3

- Department: Master's Papers (choose three hours):

5610:694	Research Project in Special Area (Scholarly Paper)	3
5610:698	Master's Problem Special Education	3
5610:699	Thesis Research Special Education	3

- Other programs can be developed to meet needs.
- Electives (minimum six hours).

  Completion of at least six hours with the approval of your major adviser. (May include a directed field experience.) 6
- Certification: Special Education Supervisor.

  The supervisor's certificate may be issued to a holder of a master's degree, plus 27 months teaching experience in the area to be supervised and completion of the following course work:

5100:600	Philosophies of Education*	3
5100:620	Behavioral Bases of Education*	3
5100:640	Techniques of Research*	3
5700:610	Principles of Education Supervision	3
5700:710	Curriculum Development	3
5610:601	Seminar: Curriculum Planning in Special Education*	3
5610:602	Supervision of Instruction in Special Education	3
5700:695	Field Experience for Supervisors	2

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.

*Required as part of Special Education Master's.

Educational Administration

Certification as Administrative Specialist: School and Community Relations

Program

- Foundation Studies — nine credits.
- Required courses:

5700:601	Principles of Educational Administration	3
5700:604	School-Community Relations	3
5700:606	Evaluation in Educational Organizations	3
5700:607	School Law	2
5700:608	School Finance and Economics	3
5700:609	Principles of Curriculum Development	3
5700:610	Principles of Educational Supervision	3
5700:698	Master's Problem	2
5700:705	Decision Making in Educational Administration	3
5700:732	Organizational Communications and the School Administrator	3
5700:895	Field Experience: The Superintendency	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

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 — nine credits.
- Administration courses:

5200:630	Elementary School Curriculum and Instruction	2
5200:732	Supervision of Instruction in the Elementary School	2
5700:601	Principles of Educational Administration	3
5700:607	School Law	2
5700:610	Principles of Educational Supervision	3
5700:613	Administration of Pupil Services	2
5700:615	Computer Applications in Educational Administration	2
5700:631	Elementary School Administration	3
5700:684	Field Experience I: Elementary Administration	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 — three credits.

Post-Master's Degree Requirements for Ohio Certification as an Elementary School Principal:

5700:603	Administration of Educational Personnel	2
5700:604	School-Community Relations	3
5700:606	Evaluation in Educational Organizations	3
5700:608	School Finance and Economics	3
5700:694	Field Experience II: Elementary Administration	3
5700:706	Collective Bargaining and Employee Relations in Education	2

Total for Certification: 46 credits.

Educational Administration

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 — nine credits.
- Major field:

5700:601	Principles of Educational Administration	3
5700:603	Administration of Educational Personnel	2
5700:606	Evaluation in Educational Institutions	3
5700:607	School Law	2
5700:608	School Finance and Economics	3
5700:615	Computer Applications in Educational Administration	2
5700:684	Field Experience I: Elementary Administration	2
	or	
5700:686	Field Experience I: Secondary Administration	2
	or	
5700:706	Collective Bargaining and Employee Relations	2
5700:707	The Superintendency	3
5700:895	Field Experience I: The Superintendency	2

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 — nine credits.
- Administration courses:

5300:619	Secondary School Curriculum and Instruction	2
5300:721	Supervision of Instruction in the Secondary School	2
5700:601	Principles of Educational Administration	3
5700:607	School Law	2
5700:610	Principles of Educational Supervision	3
5700:613	Administration of Pupil Services	2
5700:615	Computer Applications in Educational Administration	2
5700:620	Secondary School Administration	3
5700:686	Field Experience I: Secondary Administration	2

Post-Master's Degree Requirements for Ohio Certification as a Secondary School Principal:

5700:603	Administration of Educational Personnel	2
5700:604	School-Community Relations	3
5700:606	Evaluation in Educational Organizations	3
5700:608	School Finance and Economics	3
5700:696	Field Experience II: Secondary School Administration	3
5700:706	Collective Bargaining and Employee Relations in Education	2

Total for Certification: 46 credits

Sixth-Year Program: City School Superintendent

This program requires 60 credits.

Program

- Required courses:

5100:600	Philosophies of Education	3
	or	
5100:604	Topical Seminar in Cultural Foundations of Education	3
5100:620	Behavioral Bases in Education	3
	or	
5100:624	Seminar: Educational Psychology	3
5100:640	Techniques of Research	3
5100:701	History of Education in American Society	3
	or	
5100:703	Seminar: History and Philosophy of Higher Education	3
5100:721	Learning Processes	3
	or	
5100:723	Teacher Behavior and Instruction	3
5100:741	Statistics in Education	3
5700:601	Principles of Educational Administration	3
5700:603	Administration of Educational Personnel	2
5700:604	School-Community Relations	3
5700:606	Evaluation of Educational Institutions	3
5700:607	School Law	2
5700:608	School Finance and Economics	3
5700:609	Principles of Curriculum Development	3
5700:610	Principles of Educational Supervision	3
5700:612	Administration of Educational Facilities	2
5700:698	Master's Problem*	2
5700:705	Decision Making in Educational Administration	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.

Supervisor

Program

- Foundation Studies — nine credits.
- Major field:

5200:630	Elementary School Curriculum and Instruction†	2
5200:732	Supervision of Instruction in the Elementary School‡	2
5300:619	Secondary School Curriculum and Instruction††	2
5300:721	Supervision of Instruction in the Secondary School††	2
5610:601	Seminar: Special Education Curriculum Planning‡	3
5610:602	Supervision of Instruction Special Education‡	3
5700:609	Principles of Curriculum Development	3
5700:610	Principles of Educational Supervision	3
5700:695	Field Experience of Supervisors	2

- 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

Educational Foundations

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

- Foundation Studies — nine 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

- Interdepartmental electives:

	A minimum of six credits will be taken outside the Department of Educational Foundations	6

*Required of those completing the master's degree.

**Electives should be selected with adviser's approval.

†Required only of an elementary student.

††Required only of a secondary student.

‡Required only of a special education student.

***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.

Elementary Education

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 course work.

The program incorporates course work 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:

3300:589	Seminar in English: Introduction to Bilingual Linguistics	3
5630:582	Characteristics of Culturally Different Youth	3
5630:584	Principles of Bilingual Multicultural Education	3
5630:587	Techniques for Teaching English as a Second Language in the Bilingual Classroom	4
	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

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 — nine credits:

5200:695	Field Experience**	1-2
5200:698	Master's Problem**	1-2
5200:780	Elementary Education Seminar: Children's Literature - Reading**	2
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
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:

5200:590	Workshop in Reading	1-2
5200:780	Elementary Education Seminar: Reading	2
5250:511	Materials and Organizations for Reading Instruction	3
5250:540	Developmental Reading in the Content Area**	3
5250:680	Trends in Reading Instruction	2

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 who are special.

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 — nine 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.

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.

This program is primarily for the student who expects to progress as a teacher in elementary schools.

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:

5100:604	Cultural Foundations of Education	3
5100:624	Psychology of Early Adolescence	3
5200:780	Curriculum Development in Middle School	2
5300:625	Reading Programs in Secondary School	3
5300:780	Philosophy and Organization of Middle School	2
5600:526	Career Education/Guidance in Middle School	2

**For elementary education students only.

†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 secondary education students only.

*Two seminars are required.

Physical Education

Athletic Training for Sports Medicine

- Foundation courses:

5100:600	Philosophies of Education	3
	or	
5100:604	Topical Seminar in the Cultural Foundation of Education	3
5100:620	Behavioral Bases of Education	3
	or	
5100:624	Seminar: Educational Psychology	3
5100:640	Techniques of Research	3

- Required courses:

3100:561	Human Physiology	4
3100:562	Human Physiology	4
3100:584	Pharmacology	3
5550:541	Advanced Athletic Injury Management	4
5550:552	Therapeutic Modalities and Equipment in Sports Medicine	3
5550:605	Physiology of Muscular Activity and Exercise	3
5550:695	Field Experience: Master's	2-6
	or	
5550:698	Master's Problem	2-4
	or	
5550:699	Thesis Research	4-6

- Electives (determined by adviser):

3100:565	Advanced Cardiovascular Physiology	3
5550:5——	Workshops in Sports Medicine	1-3
5550:601	Administration of Health, Physical Education, Athletics and Recreation	3
5550:605	Measurement and Evaluation in Physical Education	3
5550:680	Special Topics in Health and Physical Education	2-4
5550:697	Independent Study	1-3

Outdoor Education

The outdoor education program, requiring 32 credits, 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 — nine credits.
- Required courses:

5560:550	Application of Outdoor Education to the School Curriculum	4
5560:552	Methods, Materials and Resources for Teaching Outdoor Education	3
5560:556	Outdoor Pursuits	4
	or	
5560:605	Outdoor Education: Special Topics	2-4
5560:600	Outdoor Education: Rural Influences	3
5560:690	Practicum in Outdoor Education	2-4
5560:695	Field Experience	2-6
	or	
5560:698	Master's Problem	2-4
	or	
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.

Physical Education

Graduate programs in physical education may be designed for students interested in general physical education and teacher preparation. Specialized graduate programs may be designed in cooperation with the student's adviser, and the approval of the dean of Graduate Studies. Such areas of specialization include, but are not limited to, industrial fitness, cardiac rehabilitation, exercise physiology of the adult and aging, exercise sciences and gerontology and health promotion/enhancement. The program, totaling 30 credits, is designed to meet the needs of the student relative to graduate study and future employment.

Program

- Foundation Studies — nine 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	2-6
	or	
5550:698	Master's Problem	2-4
	or	
5550:699	Thesis Research	4-6

- Electives agreed on by the adviser to meet special student needs.

Secondary Education

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 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 course work.

The program incorporates course work 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:

3300:589	Seminar in English: Introduction to Bilingual Linguistics	3
5630:582	Characteristics of Culturally Different Youth	3
5630:584	Principles of Bilingual Multicultural Education	3
5630:587	Techniques for Teaching English as a Second Language in the Bilingual Classroom	4
	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

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:

5100:604	Cultural Foundations of Education	3
5100:624	Psychology of Early Adolescence	3
5200:780	Curriculum Development in Middle School	2
5300:625	Reading Programs in Secondary School	3
5300:780	Philosophy and Organization of Middle School	2
5600:526	Career Education/Guidance in Middle School	2

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.

Program

- Required courses:

5100:640	Techniques of Research	3
5300:780	Seminar in Secondary Education*	4
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.

Secondary Education

Objectives

This program is for middle and junior high school, high school and post-secondary school teachers. Preparation is for the master teacher, department head, supervisor and resource teacher (the physical education major should see an adviser for alternate course requirements). This program also serves the holder of a baccalaureate degree who seeks a teaching certificate.

Program

- Foundation Studies — nine credits.
- Secondary education course:

5300:780	Seminar in Secondary Education: Improvement of Instruction in the area of concentration	2

- Ten credits from the following:

5300:619	Secondary Curriculum and Instruction	2
5300:625	Reading Programs in Secondary Education	3
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	
	Middle and Junior High School	
	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)
Middle school education
Reading specialist (certification program)
Economic education
Mini-computer applications
Business education supervisor (certification program)

- Electives — two to four credits.

*Only two seminars for this option may be counted towards the degree.

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 — nine credits.
- Professional technical education courses:

5400:510	The Two-Year College	3
	or	
5400:505	Vocational Education for Youth and Adults	3
5400:521	Instructional Techniques in Technical Education	4
5400:530	Course Construction in Technical Education	2

- 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

- Elective credits may support the field of specialization, add to general education or be professional education courses — zero to four credits.
- A comprehensive examination is required.

Options (Select one for a total of 8-13 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 followed in sequence)

5600:643	Counseling: Theory and Philosophy	3
5600:651	Techniques of Counseling	3
5600:653	Group Counseling	3
5600:675	Practicum in Counseling I	5

Guidance Option B

5600:635	Community Counseling	3
5600:647	Career Counseling: Theory and Practice	3
5600:645	Group Testing in Counseling	3
Select one of the following:		
5600:649	Counseling and Personnel Services in Higher Education	3
5600:526	Career Education	2
5600:610	Counseling Skills for Teachers	3

Curriculum and Supervision

5700:609	Principles of Curriculum Development	3
5700:610	Principles of Educational Supervision	3
	Elective in Curriculum or Supervision	2

Vocational Home Economics — Family Life (eight to nine credits)

Vocational Home Economics — Child Care and Development (Job Training Specialization) (eight to nine credits)

College of Business Administration

James W. Dunlap, Ph.D., *Dean*
Kenneth E. Mast, D.B.A., *Assistant Dean*
E. Lee Wilson, M.B.A./C.M.A., *Assistant to the Dean*

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.

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. 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.
- 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.

Procedure

GMAT scores should be 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.

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.

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.

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.

Requirements

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.

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 course work 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 and II courses can be taken concurrently provided that all prerequisites have been met.

Phase I Foundation Courses

All are required unless Phase I courses have been 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

*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.

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	4
6200:431	Taxation II	3
6200:440	Auditing	3
6200:610	Accounting Management and Control	3

Phase II Core Courses — Accounting Concentration

- Breadth courses:

6500:652	Organizational Behavior	3
6500:662	Quantitative Methods in Operations Management	3
Choose two:		
6400:650	Administering Costs and Prices	3
	or	
6400:674	Financial Management and Policy	3
	or	
6600:620	Strategic Marketing Management	3
	Elective	
	Any three nonfoundation graduate credits offered by the college *not* in the area of accounting	3

- Concentration courses:

6200:637	Advanced Accounting Theory	3
6200:655	Information Systems	3
6200:670	Cost Concepts and Control	3
	Elective	
	One accounting course above 610	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)	6

Phase II Core Courses — Finance Concentration

- Breadth courses:

6200:610	Accounting Management and Control (or alternate accounting elective as approved by the director of Graduate Programs)**	3
6400:650	Administering Costs and Prices	3
	or	
6600:620	Strategic Marketing Management	3
6500:652	Organizational Behavior	3
6500:662	Quantitative Methods in Operations Management	3
	Elective	
	Any three nonfoundation graduate credits offered by the CBA *not* in the area of finance	3

- Concentration courses:

6400:674	Financial Management and Policy	3
	Electives (three courses from the following: one of which must be 6400:633, 645, 676 or 678)	
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 six credits)	3
6400:697	Independent Study (may be repeated for a total of three credits)	3
6400:699	Seminar in Finance (may be repeated for a total of six 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 (or alternate accounting elective as approved by the director of Graduate Programs)**	3
6500:662	Quantitative Methods in Operations Management	3
Choose two:		
6400:650	Administering Costs and Prices	3
	or	
6400:674	Financial Management and Policy	3
	or	
6600:620	Strategic Marketing Management	3
	Elective	
	Any three nonfoundation graduate credits offered by the CBA *not* in the area of management	3

- Concentration courses:

6500:640	Information Systems and Management	3
6500:652	Organizational Behavior	3
	Electives	
	Any six nonfoundation graduate credits in management	6

- 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 — Marketing Concentration

- Breadth courses:

6200:610	Accounting Management and Control (or alternate accounting elective as approved by the director of Graduate Programs)**	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 Management	3
	Elective	
	Any three nonfoundation graduate credits offered by the CBA *not* in Marketing	3

- Concentration courses:

6600:620	Strategic Marketing Management	3
6600:640	Marketing Information Systems and Research	3
	Elective	
	Any six nonfoundation graduate credits in marketing	6

- 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 elective up to six credits of free electives. Electives outside the CBA must be approved by the graduate director)	6

**Students with sufficient managerial accounting background must elect another accounting course to substitute for 6200:610 and such election must be approved by the director of Graduate Programs in the College of Business Administration.

Phase II Core Courses — International Business Concentration*

- Breadth courses:

6200:610	Accounting Management and Control (or alternate accounting elective as approved by the director of Graduate Programs)**	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 Management	3
6600:620	Strategic Marketing Management	3

- Concentration courses:

6400:681	International Business Finance	3
6600:630	International Marketing Policies	3
6800:505	Multinational Corporations	
	Elective (must be approved by graduate director)	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

Other International Business Courses

In an effort to improve the student's understanding of international business topics, the following graduate courses are offered, in addition to the International Business Concentration degree requirements:

6200:680	International Accounting	3
6500:555	Management of Arbitration: Commercial, International and Human Resources	3
6500:656	Management of International Operations	3
6600:690	Seminar in International Business	3

These courses are available through the departments of accounting, finance, management and marketing. Combinations of the above courses may be selected to fulfill the requirements of an MBA degree with an international business concentration.

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 course work 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
	or	
6500:490	Business Policy	4
6600:600	Marketing Concepts	3

- Postbaccalaureate foundation:

6200:301	Cost Accounting	3
6200:317	Intermediate Accounting I	4
6200:318	Intermediate Accounting II	4
6200:430	Taxation I	4
6200:431	Taxation II	3
6200:440	Auditing	3
6400:321	Business Law I	3
6400:322	Business Law II	3
6500:490	Business Policy*	4

Phase II

- Required:

6200:630	Tax Research and Policy	3
6200:637	Advanced Accounting Theory	3
6200:640	Advanced Auditing	3
6200:655	Advanced Information Systems	3
6200:670	Cost Concepts and Control	3
6400:674	Financial Management and Policy	3
	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

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 course work: 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

- Postbaccalaureate foundation:

6200:430	Taxation I	4
6200:431	Taxation II	3
6500:490	Business Policy	4

Phase II

- Required:

6200:630	Tax Research and Policy	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

*Requires reading and conversational proficiency in one language other than English.

**Students with sufficient managerial accounting background must elect another accounting course to substitute for 6200:610 and such election must be approved by the director of Graduate Programs in the College of Business Administration.

†May elect to take 6500:695 instead.

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 course work 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:

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 Management	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

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. 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 (75 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 99 (J.D./M.Tax.) or 105 (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

Kelvie C. Comer, Ed.D., *Acting Dean*
John D. Bee, Ph.D., *Acting 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

		Credits
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:

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 *Community Involvement* 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	3
7400:596	Parenting Skills	3
7400:605	Developmental Parent-Child Interactions	3
7400:610	Child Development Theories	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 — nine 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 as follows:

- 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 stuoent's major instrument/voice. Please contact the coordinator of Graduate Studies for an audition time.
- 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.

For the Performance Option in Voice, a proficiency equal to two semesters each of Italian, German and French are required for completion of the Master of Music Degree in Voice Performance. If the student lacks background in any of these languages, auditing of undergraduate courses is required.

After completion of all course work, the student must pass an examination covering the graduate program. This examination is individualized for each candidate's unique program.

Composition Option

- Music core courses — eight credits (to be selected):

7500:555	Advanced Conducting: Instrumental	2
7500:556	Advanced Conducting: Choral	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

*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.

- Major required courses -- 21-23 credits:

7500:601	Choral Literature	2
7500:618	Musical Styles and Analysis IV (20th Century)	2
7500:624	Historical Survey: Music of the 20th Century	2
7500:647	Master's Chamber Recital	1
7500:699	Thesis Research/Recital Document	4-6
7510:6--	Ensemble (participation in two ensembles required)	2
7520:642	Applied Composition	8

- Additional music courses - zero to two credits.

  Graduate-level (music) courses, workshops, applied lessons (other than in composition) and/or advanced problems to be selected by the student and adviser.

- Electives - three credits.

  To be selected by student and adviser. Areas include graduate-level courses in other disciplines, such as theatre arts, for which the student meets requirements and permission of instructor, or 7520:6742 *Applied Composition.*
  Degree total: 34-36 credits.

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	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

Music History and Literature Option

- Music core courses — eight credits (to be selected):

7500:555	Advanced Conducting: Instrumental	2
7500:556	Advanced Conducting: Choral	2
7500:618	Musical Styles and Analysis IV (20th Century)	2
7510:6--	Ensemble (participation required in two ensembles)	2
7500:697	Advanced Problems in Music	4

- Major required courses — 20-22 credits:

7500:551	Introduction to Musicology	2
7500:553	Bibliography and Research	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 20th Century	2
7500:697	Advanced Problems in Music	4
7500:699	Thesis Research/Recital Document	4-6

- Additional music courses - two to four credits.
  Graduate-level (music) workshops, applied music and/or courses to be selected by the student and adviser.

- Electives -- two to four credits.

  To be selected by the student and adviser. Areas include graduate-level courses in other disciplines in which student obtains permission of instructor.
  Degree Total: 34-36 credits.

Performance Option in Accompanying

- Music core courses -- eight credits (to be selected):

7500:555	Advanced Conducting: Instrumental	2
7500:556	Advanced Conducting: Choral	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
7500:621	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 20th Century	2

- Major required courses — 21-24 credits:

Select either 7500:562 or 7400:633

7500:562	Repertoire and Pedagogy: Organ	3
	or	
7500:633	Teaching and Literature: Piano and Harpsichord	2
7500:618	Musical Styles and Analysis IV (20th Century)	2
7500:666	Advanced Song Literature	3
7500:697	Advanced Problems in Music (selected topics in chamber music to be coached by faculty members)	2
7500:698	Graduate Recital (to be completed in a minimum of two performance media)	2
7510:614	Keyboard Ensemble (participation in two ensembles required)*	2-4
7520:6--	Applied Music (piano, organ and/or harpsichord)	8

- Additional Music Courses - two to three credits.
  Graduate-level (music) courses, advanced problems, workshops and or applied lessons, to be selected by the student and adviser.

- Elective - two credits.

  Areas may include graduate-level courses in other disciplines, such as theatre arts, for which the student obtains permission of instructor, or additional music courses, as determined by the student and adviser.
  Degree total: 34-36 credits.

Note: A minimum pronunciation proficiency is required in Italian, German and French. If the student lacks background in any of these language requirements, auditing of undergraduate courses is required.

All candidates for this degree must accompany a minimum of three solo ensemble recitals (instrumental and vocal). These can be done as part of 7500:697.

Performance Option in Winds, String and Percussion

- Music core courses: eight credits (to be selected):

7500:555	Advanced Conducting: Instrumental	2
7500:556	Advanced Conducting: Choral	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
7500:621	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 20th Century	2

- Major required courses - 16-18 credits:

7500:618	Musical Styles and Analysis IV (20th Century)	2
7510:6--	Ensemble (participation in two ensembles required)**	2-4
7520:6--	Applied Music (select appropriate instrument)	

- Select one of the following as appropriate to major instrument:

7500:630	Teaching and Literature: Brass Instruments	2
7500:631	Teaching and Literature: Woodwind Instruments	2
7500:632	Teaching and Literature: Percussion Instruments	2
7500:634	Teaching and Literature: String Instruments	2
7500:698	Graduate Recital	2

- Additional music courses - six credits.*

  Graduate-level (music) workshops, applied lessons, advanced problems and/or courses to be selected by student and adviser.

- Electives - four credits.*

  Areas may include graduate-level courses in other disciplines, such as theatre arts, in which the student obtains permission of instructor, or additional music courses, as determined by the student and his adviser.
  Degree total: 34-36 credits.

  Note: No more than a total of 16 credits of 7520 courses may be applied to the degree.

*It is recommended that each student's graduate committee recommend the appropriate elective credits.

**Two semesters ensemble participation required for degrees completed in two semesters. Four semesters ensemble participation required for degrees completed in four semesters.

Performance Option in Voice

- Music core courses: eight credits (to be selected):

7500:555	Advanced Conducting: Instrumental	2
7500:556	Advanced Conducting: Choral	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
7500:621	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 20th Century	2

- Major required courses - 20-22 credits:

7500:618	Musical Styles and Analysis IV (20th Century)	2
7500:665	Vocal Pedagogy	3
7500:666	Advanced Song Literature	3
7500:698	Graduate Recital	2
7510:6--	Ensemble (participation in two ensembles required)*	2-4
7520:624	Applied Voice	8

- Additional music courses - two credits (suggested minimum).

  Graduate-level (music) courses, workshops, advanced problems and/or applied lessons, to be selected by student and adviser.

- Electives - four credits.

  Areas may include graduate-level courses in other disciplines, such as theatre arts, in which the student obtains permission of instructor, or additional music courses, as determined by the student and adviser.
  Degree total: 34-36 credits.

Performance Option in Keyboard

- Music core courses: eight credits (to be selected):

7500:555	Advanced Conducting: Instrumental	2
7500:556	Advanced Conducting: Choral	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
7500:621	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 20th Century	

- Major required courses - 18-21 credits:

7500:618	Musical Styles and Analysis IV (20th Century)	2
Select either 7500:562 or 7500:633		
7500:562	Repertoire and Pedagogy: Organ	3
	or	
7500:633	Teaching and Literature: Piano and Harpsichord	2
7500:697	Advanced Problems in Music	2
7500:698	Graduate Recital	2
7510:614	Keyboard Ensemble (participation in two ensembles required)*	2-4
7520:6--	Applied Music (piano, organ and/or harpsichord)	8

- Additional music courses - three to four credits.

  Graduate-level (music) courses, advanced problems, workshops and/or applied lessons, to be selected by the student and adviser.

- Electives - four credits.

  Areas may include graduate-level courses in other disciplines, such as theatre arts, for which the student obtains permission of instructor, or additional music courses, as determined by the student and adviser.
  Degree total: 34-36 credits.

*Two semesters ensemble participation required for degrees completed in two semesters. Four semesters ensemble participation required for degrees completed in four semesters.

Theory Option

- Music core courses — six credits (to be selected):

7500:553	Bibliography and Research	2
7500:555	Advanced Conducting: Instrumental	2
7500:556	Advanced Conducting: Choral	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 20th Century	2

- Major required courses — 26-28 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 (20th Century)	2
7500:619	Theory Pedagogy	2
7500:697	Advanced Problems in Music	8
7500:699	Thesis Research/Recital Document	4-6
7510:6--	Ensemble (participation in two ensembles required)	2
7520:642	Applied Composition	2

- Additional music courses — zero to two credits.

  Graduate-level (music) workshops, applied music (other than composition), advanced problems, and/or courses to be selected by student and adviser.

  Electives - zero to two credits.
  To be selected by student and adviser. Areas include graduate-level courses in other disciplines in which student obtains permission of instructor or 7520:642 *Applied Composition.*
  Degree total: 34-36 credits.

Communication

The Department of Communication offers the Master of Arts degree in a coordinated program of communication arts. The program is as follows:

- Meet the general requirements for admission to the Graduate School.
- Have undergraduate course work required for a major in the chosen area of concentration. Complete a thesis, project/production. The student may enroll for thesis credit only after passing all parts of the written comprehensive examination and completing an acceptable thesis prospectus.
- Complete a written qualifying examination over departmental course work taken before advancement to candidacy. At the completion of 24 credits of work, the student should contact the director of graduate studies to arrange the examination.
- Earn a minimum of 32 semester credits plus one to four credits for the thesis, project/production.

The program is as follows:

- Core:

7600:600	Introduction to Graduate Study in Mass Media-Communication	6
7600:603	Empirical Research in Mass Media-Communication	3
7600:624	Survey of Communication Theory	3
	or	
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 — six credits.

Theatre

The following will qualify the student in the field of theatre.

- 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 coordinator of the graduate theatre program.
- 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
7800:590	Workshop in Theatre Arts (may be repeated to eight credits)	1-3
7800:600	Introduction to Graduate Studies in Theatre Arts (required)	1
7800:603	Special Topics in Theatre Arts/Dance	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	Audience for Arts: Research/Analysis	2
7800:666	Introduction to Arts Management	2
7800:667,8	Studies in Dramatic Practice I, II	6
7800:690	Graduate Research/Readings	1-9
7800:699	Thesis Research/Production Document	4-6
7810:601	Production Practicum/Design/Technology (may be repeated to four credits)	1-2
7810:605	Performance Practicum (may be repeated for a total of 12 credits)	1-2

- Complete an oral defense of the thesis.

Arts Management Option

- Complete a minimum of 36 credits.
- Required theatre courses:

7800:600	Introduction to Graduate Studies in Theatre Arts	1
7800:665	Audiences for the Arts: Research/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	Thesis Research/Production Document	4-6

- 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
6600:620	Strategic Marketing Management	3
6600:640	Marketing Information Systems and Research	3
6600:655	Marketing Communications	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.

- Complete an oral defense of the thesis project.

See the coordinator of Theatre Area Graduate Program regarding the M.A. in theatre.

Communicative Disorders

This program, leading to the M.A. 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 course work (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.

Social Work

There is no graduate degree in social work. A student interested in course work 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, R.N., Ph.D., *Assistant Dean, Undergraduate Program*
A. Jeanne Hoffer, R.N., Ed.D., *Assistant Dean, Graduate Programs*
Barbara E. Brown, R.N., Ed.D., *Assistant Dean, Continuing Education*

MASTER OF SCIENCE IN NURSING

Philosophy

The philosophy of graduate education in nursing evolves from the undergraduate philosophy. Undergraduate education's primary focus is 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 enfamilied 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 life span of enfamilied selves in interrelationship with the ecosystem. Family health is perceived as expansion of consciousness of enfamilied 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 within a 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 enfamilied 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 enfamilied 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 enfamilied selves. The enfamilied 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 enfamilied selves. Family-health nurses, with families and enfamilied selves, experience the dialectical process of health, through health appraisal, anticipatory dynamics, stress management, health learning and enfamilied 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.

Characteristics of the Graduate

Graduates of the program shall be able to:

- Value the ecological-phenomenological perspective, the dialectical process and the concepts health, family, family health, enfamilied self and leadership.
- Evaluate health with families and enfamilied selves through health appraisal, anticipatory dynamics, stress management, health learning and enfamilied 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.

Admission

Admission Policies

The applicants 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, or hold an advanced degree from an accredited university, or hold a nursing baccalaureate or master's degree from a foreign university which is recognized by The University of Akron;
- hold a grade-point average of 3.00 on a 4.00 scale or the equivalent from the undergraduate program. An advanced degree will take priority over undergraduate GPA;
- have satisfactorily completed Statistics for the Health Sciences course, an elementary course in research methodology or equivalent, and a basic physical assessment course;
- Have three letters of reference in relation to professional competence, personal adjustment and commitment to the nursing profession from:
  a. a recent employer,
  b. a member of the nursing profession who can attest to the applicant's scholarly abilities,
  c. a former college or school faculty member;
- Write a 300-word essay describing professional goals, nursing research interests and reasons for seeking Family-Health Nursing education at The University of Akron;

  A registered nurse who has a baccalaureate degree in a discipline other than nursing, and a registered nurse with a baccalaureate degree in nursing from a non-accredited baccalaureate program, as well as other persons who do not meet the above criteria will be considered for admission on an individual basis.

  The admissions committee may consider certain applicants at its discretion to be enrolled in the program based upon prior arrangement made between the department and prior applicants admitted as special non-degree students prior to 1985.

Grade-Point Average

- An applicant with a grade-point average of 3.00 or better in an 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.*

Admission Procedures

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 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.

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 one and one-half 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 14 credits which span both years of the curriculum. All students will take 8200:603 *Theoretical Basis for Family-Health Nursing*; 8200:619 *Family-Health Appraisal*; and 8200:621,2 *Family-Health Nursing I and II.*

Nursing Research

All students will enroll in a research core for a total of seven credits: 8200:613 *Nursing Inquiry*; and 8200:699 *Thesis Research* taken over the one and one-half years serve as a basis for understanding of research throughout the program. Statistics for the Health Sciences is a prerequisite for *Nursing Inquiry.*

Leadership Role

Options are provided for study in a leadership role, education, administration or direct care with families.

Eleven credits are allocated to the leadership role which include: seminar, practicum, colloquium and two support courses.

Electives

One elective is provided in the curriculum. Students will choose a minimum of three credits of free electives. A student is required to take a minimum 37 credits in the total program. Additional credits will provide the opportunity to individualize and strengthen the major. A four-hour statistics course is a prerequisite to *Nursing Inquiry.*

The following courses are required of all students:

		Credits
8200:603	Theoretical Basis for Family Health Nursing	3
8200:613	Nursing Inquiry	3
8200:619	Family-Health Appraisal	3
8200:622	Family-Health Nursing I	4
8200:623	Family-Health Nursing II	4
8200:689	Colloquium	1

Select one of the following three areas:

- Direct Care:

8200:680	Family-Health Nursing Leadership Seminar: Direct Care With Families	3
8200:681	Family-Health Nursing Leadership Practicum: Direct Care With Families	3
Two of the following:		
8200:624	Nursing of Families with Children	3
8200:626	Nursing of Families with Adult Members	3
8200:628	Health Perspectives of the Expanding Family	3
8200:671	Nursing of Families with Older Members	3
8200:675	Culture, Ethnicity and Health Care	3
	Elective	3
8200:699	Thesis Research	1-4

- Educational:

8200:685	Family-Health Nursing Leadership Seminar: Education	3
8200:686	Family-Health Nursing Leadership Practicum: Education	3
Two of the following:		
5100:600	Philosophies of Education	3
5100:642	Topical Seminar in Management and Evaluation	3
8200:625	Teaching Strategies in Nursing Education	3
	Elective	3
8200:699	Thesis Research	1-4

- Administration:

8200:629	Financial Management for Nursing Administration	3
8200:630	Human Resources in Nursing Settings	3
8200:687	Family-Health Nursing Leadership Seminar: Administration	3
8200:688	Family-Health Nursing Leadership Practicum: Administration	3
	Elective	3
8200:699	Thesis Research	1-4

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., L.L.M., *Dean*
Richard L. Aynes, J.D., *Associate Dean*
Robert C. Sullivan, M.Ed., *Assistant Dean for Placement and Internal Functions*
Constance L. Leistiko, J.D., *Assistant Dean For External Programs*

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 resources in 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.

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.

C. BLAKE McDOWELL LAW CENTER

The C. Blake McDowell Law Center is a modern, attractive law school building 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 unflaggingly 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.

ADMISSIONS INFORMATION

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, the student's college record and Law School Admission Test score must demonstrate that he is 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 prelaw 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.

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.

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.

Application Procedures

Submit to the School of Law:

- Application for Admission form (available upon request from the Law School).
- A nonrefundable 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

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 nonrefundable fee, a current LSDAS report must be sent to the School of Law.

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 nonrefundable 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.

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.

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.

Joint Degree Programs

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*.

ACADEMIC INFORMATION

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 course load 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 87 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.

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 more than 142,000 volumes in an attractive and pleasant reading room. The library has all the basic legal materials for conducting legal research in all 50 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 more than 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

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

Spring Semester

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 mate-

*The course work for the first year is prescribed and provides essential framework for subsequent study.

rials 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.

*Not calculated in cumulative average.

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
Summa Cum Laude	3.75 or higher
Magna Cum Laude	3.50 through 3.74
Cum Laude	3.25 through 3.49

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
Summa Cum Laude	3.80 or higher
Magna Cum Laude	3.60 through 3.79
Cum Laude	3.40 through 3.59

Withdrawal From a Course

A student may withdraw from a course for any reason up to the midpoint of a semester or summer session with the signature of a dean.

After the midpoint 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 prepare adequately 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 post-conviction 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, 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 student-run program unique 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 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.

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 outside of 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.

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 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.

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 bring in 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 24 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) advocatory 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.

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 21 $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.

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 toward 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 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 direct actively 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.

Research Centers and Institutes

Joseph M. Walton, Ph.D., *Acting Dean, Graduate Studies and Research*
Brian F. Pendleton, Ph.D., *Acting Associate Dean, Graduate Studies and Research*
John E. Mulhauser, MA., J.D., *Director of Research Services 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 graduate and undergraduate students 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 director of research services and sponsored programs and the directors of the various research institutes.

Ray C. Bliss Institute of Applied Politics

The Honorable Vernon F. Cook, *Director*

The Ray C. Bliss Institute of Applied Politics is a public education and research adjunct of The University of Akron and its Department of Political Science. The broad purposes of the institute, in keeping with the career of its namesake and the respect that he gained over many years in the political world, are: to give all citizens, and particularly young people, an opportunity to learn how to become active and competent in political life; to help maintain a tradition of ethical public service in politics; to foster useful relationships between applied politics and political science; to promote public comprehension of political organizations and the requirements for their effectiveness; to improve understanding of continuity and change in American political institutions; and to provide advanced experience in practical politics to students with primary career goals in political science.

Institute for Biomedical Engineering Research

Karen Mudry, Ph.D., *Director*

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 faculty of the Department of Biomedical Engineering in association with "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. The institute and the department occupy the third floor of the Engineering Research Center on the north edge of the campus.

Center for Economic Education

Fred M. Carr, Ph.D., *Director*

The center exists to improve the economic literacy of individuals 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.

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, the World Food Forum, and the Application of Geologic and Soils Information; workshops on energy, natural history and environmental studies in England also emphasize the interdisciplinary approach to the resolution of issues.

The center provides programs 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 in the CVNRA. Expertise provided by the Oak Hill Center has benefited thousands of youngsters.

Center for Fire and Hazardous Materials Research

Paul D. Garn, Ph.D., *Director*
David H. Hoover, B.S.Tech. Ed., *Associate Director*

One of the oldest problems facing mankind is safety from fire and hazardous materials. Inadequate resources are being devoted to this international problem even as technological advances increase both our hazards and our awareness of hazards in the environment. In the United States, the fire incidence rate per capita is the highest in the world; the fire death rate per capita is almost twice the international average. Many immediate and long-range hazards to health and environment are already recognized, but there are still many suspect materials.

In a unique approach to this problem, the Center for Fire and Hazardous Materials Research brings together University, government and industry in one comprehensive regional center to integrate research, educational programs, fire and hazardous materials training and other applications of technology. The presence on a single campus of all the elements—strong scientific and engineering programs and research, special expertise in polymers, a fire protection technology degree program of high repute, highly skilled media people and an active continuing education program—enables communication of research results not only to the fire-fighting community but also to the fire safety and design communities.

The principal paths of center activity are threefold:

- Research, conducted through research fellows appointed to the center from University and visiting faculty.
- Education, through the associate degree program in fire protection technology, through a certificate program, and through media preparation.
- Fire and hazardous materials training, through short courses and seminars, in some cases under contract with various municipalities, industries and agencies.

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.

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.

Institute for Life-Span Development and Gerontology*

Harvey L. Sterns, Ph.D., *Director*

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.

Center for Peace Studies

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.

Center for Polymer Engineering

James L. White, Ph.D., *Director*

The Center for Polymer Engineering carries out fundamental and applied research in polymer processing, engineering performance and associated characterization.

The center, founded in 1983, seeks to be a major intellectual and research resource in northeast Ohio. The center maintains up-to-date and futuristic processing and characterization laboratories, with continued interest in development investigation of new process technology and new materials. Its activities also include organization of scientific symposia and various seminars related to polymer processing and engineering.

Institute of Polymer Science

Frank N. Kelley, Ph.D., *Director*

The institute is concerned with basic and applied research in polymers. It was established in 1956 as the Institute of Rubber Research and in 1964 became the interdisciplinary Institute of Polymer Science. The University's first Ph.D. program in polymer chemistry was started in 1956 and was administered by the institute until a separate Department of Polymer Science was established in 1967. The institute maintains extensive laboratory facilities and is the principal organization responsible for external funding of research projects and graduate fellowships in polymer science.

*For a complete description of this institute, see "Education and Research in Adult Development" under Continuing Education and Public Services in this section.

Small Business Institute

Joseph C. Latona, Ph.D., *Director*

The Small Business Institute was established in 1973 and was the first Small Business Institute funded in Northern Ohio. The Small Business Institute's objective is to offer management assistance counseling to area organizations through the utilization of senior students in the College of Business Administration, working as advisers under the supervision of College of Business Administration faculty. Nearly 300 firms have been serviced by the Institute since its founding. It is an integral part of the Akron/Summit Industrial Incubator project.

Institute for Technological Assistance

Andrew L. Simon, Ph.D., *Executive Director*

The institute coordinates public service functions of the University that cut across departmental and college boundaries and facilitates the performance of unconventional projects defined by contracts or protocols with foreign or domestic clients. Some of the typical projects in the past included the complete design of curricula and physical facilities of several colleges in the Middle East and the coordination and organization of American educational visits of South American educators. In a typical current project, the institute coordinates the activities of engineering students who help the National Park Service develop facilities in the Cuyahoga Valley National Recreation Area.

Center for Urban Studies

James L. Shanahan, Ph.D., *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 T. Nichols, Ed.D., *Assistant Dean*

BACKGROUND

Continuing Education and Public Services is a catalyst, bringing together the skills and expertise of University personnel and community members to focus on the issues and problems of the urban society.

Learners from all walks of life can improve or maintain their professional competence, meet the demands of a changing career and prepare to use new skills to improve both personal and professional goals. Through instruction and research, individuals are trained to become specialists in adult development.

The Center for Continuing Education, located in the Lisle M. Buckingham Center for Continuing Education, features courses, conferences and career/life planning services in tune with today's economic, social and health issues.

HISTORY

The University of Akron has a rich history of educating adults. In 1872, Buchtel College's first class was composed of 46 regular college freshmen and 164 preparatory noncredit students, including Civil War veterans. Within a year, Buchtel College enrolled noncredit students in business courses as an outreach venture in Barberton. Adult noncredit education and outreach to the community have remained part of the University basic fabric through the years.

DEFINITION

In 1983, the Ohio Board of Regents defined noncredit Continuing Education as an institutionally sponsored offering which carries no credit toward a degree, e.g., associate, baccalaureate or higher degree. Noncredit does include, however, offerings providing Continuing Education Units (CEUs) or similar certification or diploma. Curriculum categories include:

- Skill Training and Development — Entry Level.
- Professional Updating and Inservice Programs.
- Intellectual Development of the Individual.
- Family Living and Management.
- Society, Behavior and Culture.
- Recreation, Health and Fitness of the Individual.

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 1872, year-round sessions have offered courses in both categories for adults and youth who do not prefer academic credit.

CONTINUING EDUCATION

Department of Noncredit Courses

Sandra B. Edwards, M.A., *Director*

Noncredit courses complement the credit offerings of The University of Akron by providing noncredit courses for a broad spectrum of adult and youthful learners. The department provides learning opportunities in the areas of: professional continuing education; skill development; personal and intellectual development; personal and family living; society and community awareness; and cultural and avocational activities. Courses are offered on campus as well as on-site for business and at off-campus community locations. More than 600 classes based on the educational needs of the community are enrolled each year by adults.

Noncredit course offerings provide a forum for examination of ideas and concepts and provide educational programs which lead to the awarding of Continuing Education Units (CEUs). The noncredit department meets community and regional commitments which expand educational opportunities for area adults and youth.

On-Site Training

Continuing education brings workshops and courses to local and regional business and service organizations to help them make more efficient use of training dollars. One hundred classes are held off campus on-site in business and industry. Program consultants visit the site, discuss the particular work situation, analyze needs and develop a customized training program.

The high-quality training and educational programs can be conducted on-site and are designed specifically to meet the requirements of the organization, so costs are always kept under control. Scheduling is done at the organization's convenience, and the instructors are coordinated through The University of Akron.

Continuing Education Units

All courses, seminars and conferences offered through Continuing Education awards Continuing Education Units (CEUs). A CEU is defined as "10 contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction and qualified instruction."

The availability of these useful permanent records and official recognition makes the pursuit of knowledge through continuing education more attractive and satisfying as a way of personal and professional development. A record of CEUs provides a framework within which individuals can develop and tailor their own learning programs.

Progress towards such goals, at the individual's own pace and possibly planned over a number of years, can be demonstrated and documented in terms of the record of CEUs earned.

The department strives to help the University meet the learning needs of those persons who desire credit-free learning opportunities. Homework and examinations may be given; however, certificates of satisfactory completion are awarded based on attendance. Permanent student records are kept for all persons enrolled.

Following is a representative, though partial, listing of types of subjects taught in classes:

- Fine Arts — acting, ballet, children's piano, drawing for realism, fashion illustration, jazz dancing, music reading, music theory, oil painting, piano playing, preparatory music, private music lessons, watercolor painting.
- Languages — Arabic, Chinese, French, German, Hebrew, Italian, Japanese, Slovak, Spanish, Turkish.
- Mathematics and Test Taking Skills — Algebra, ACT, GED, GMAT, GRE, LSAT, SAT, PSAT preparation, mathematics skills.
- Nursing and Community Services — Fund raising for nonprofit organizations, Greater Akron Community Cardiovascular Program, LPN pharmacology, medical terminology, understanding clinical laboratory tests and results.

- Photography — Darkroom techniques, elementary photography, videotape workshop, 35 MM photography.
- Business and Industry — Blueprint reading, bookkeeping for small business, direct mail marketing, federal income taxation, food service certification, human relations, quality control, robotics, selling, small business management, steam plant operation, supervision, technical drawing, tire mechanics.
- Communication Skills — Creative writing, effective speaking, English grammar, practical journalism, reading for better comprehension, sign language.
- Secretarial Skills — Certified Professional Secretaries review, legal secretarial skills, shorthand, typewriting.
- Computer Skills — BASIC, COBOL, computer graphics, FORTRAN, introduction to computers, word processing.
- Culinary Skills — Chinese cooking, microwave cooking, natural foods cooking, nutrition and diet.
- Electronics — Basic electronics, national electrical code, trouble-shooting techniques.
- Physical Fitness and Recreation — Aerobic exercise, golf, Korean karate, sailing, scuba diving, self-defense for women, skiing, swimming, tennis, yoga.

Department of Conferences and Seminars

William T. Nichols, Ed.D., *Assistant Dean*
Marvin E. Phillips, M.A.

The staff conducts ongoing professional education seminars and conferences and assists in program planning for University and community organizations. This department offers development of on-site training for business, industry, government, education and nonprofit organizations.

On-Site Training

Continuing education brings workshops and courses to local and regional business and service organizations to help them make more efficient use of training dollars. One hundred classes are held off campus on-site in business and industry. Program consultants visit the site, discuss the particular work situation, analyze needs and develop a customized training program.

The high quality training and educational programs can be conducted on-site and are designed specifically to meet the requirements of the organization, so costs are always kept under control. Scheduling is done at the organization's convenience, and the instructors are coordinated through The University of Akron.

Teleconferencing

Teleconferencing would make outreach programming available on academic seminars, faculty development, continuing education and research briefings; promoting the University to national/international audiences and obtaining programming worldwide.

The present facilities available include: CPT's uplink; Electronic Engineering's downlink; GSC's conference rooms; IPS' television production; and ISS' AV equipment.

Facilities to be acquired include: coaxial cable to link studio, set and satellite; telephone lines with long distance toll numbers and amplification; and cameras, monitors, microphones, and sound systems for two-way audio and two-way video.

Career Path Development

The career path development program is to develop and administer a training and career development program for support staff and general faculty personnel. The scope of these activities will range from basic information topics to technical or advanced subjects, as well as skills training.

PUBLIC SERVICES/ OUTREACH COORDINATION

Marvin E. Phillips, M.A., *Director, Public Services*

The role of Public Services and Outreach Coordination is to expand education to those needing services and educational opportunities for both the personal and professional development over an extended life span. Individuals responding to organizational and social change have a need to continue to learn. Learning is the key to productive adult development in the context of changing work and home life.

This urban institution is a contributing member of its local, state and national communities.

Some activities include the Community Ambassador Program, Weekly Current Issues Forum and radio broadcasts, Akron Film Society, academic conferences, hearings and public lectures.

Current knowledge and research are shared by developing partnerships with the public and private sectors of these communities. This interchange results in future opportunities which contribute to organizational and individual growth. These collaborative efforts of public service lead to new research, education and prototype programs applicable to a changing community.

This University meets its public service commitment through consultation, helping services, educational programming and research.

Education and Research in Adult Development

Harvey L. Sterns, Ph.D., *Director*

The Institute for Life-Span Development and Gerontology, founded in 1976, coordinates multidisciplinary credit certificate programs in Life-Span Development: Adulthood and Aging at the undergraduate and graduate levels and Life-Span Development: Gender Identity and Roles at the undergraduate level. Faculty fellows at the institute representing 15 University departments conduct research, provide special courses, workshops and seminars as well as participate in community research and demonstration projects. Students in the certificate programs carry out field placements at numerous community service settings including the Adult Resource Center.

Examples of outreach activities include the Elderhostel program, offered each summer for older adults who participate in a week-long residential learning experience and the Ohio Senior Olympics.

The institute is a member of the Northeastern Ohio Consortium on Geriatric Medicine and Gerontology, joining together with the Office of Geriatric Medicine and Gerontology, Northeastern Ohio Universities College of Medicine; Gerontology Center, Kent State University; and, Gerontology Committee, Youngstown State University.

Life and Work Planning Services

Pauline A. Russell, B.A., *Director*
Lici Calderon, B.A., *Assistant Director*

The Adult Resource Center (ARC) offers life and work planning services to individuals and organizations. Through workshops and individual assistance, 500 people monthly learn to make the most of their skills, abilities and interests. ARC helps individuals set personal, career and educational goals and makes referrals to a vast network of education, training and social services in a 10-county area.

ARC offers life- and work-planning services to business and industry. These services are designed to help employees continue to grow, to perform better on the job and to set educational goals; to help employees take charge of their own lives; and, to help organizations and employees match their interests with abilities.

All of ARC's services, based on more than a decade of research, help people take more responsibility for their own lives.

Established in 1978, the center was cited in 1982 by the American Association of State Colleges and Universities as one of the most innovative and successfully implemented programs in American higher education.

Training in the Field of Long-Term Health Care

Genevieve A. Gipson, M.S.E., *Director*

Nursing Home Training Center programming emphasizes the wellness concept for older adults by improving services in home-based and institutional health care. Serving a 15-county area, this model personnel training program is delivered in 368 long-term care facilities to administrators, staff, patients and family members. Those in training represent administrative and direct care givers for nursing homes, home health, adult day care and other long-term care facilities.

Course Numbering System*

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1030 English Language Institute

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1600 Military Science

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1830 Environmental Studies
1850 Institute for Life-Span Development and Gerontology
1860 Peace Studies
1870 Honors Program
1880 Medical Studies
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2015 Distinguished Student Program
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2220 Criminal Justice Technology
2230 Fire Protection Technology
2240 Commercial Art
2250 Public Service Technology
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2270 Labor Studies
2280 Hospitality Management
2420 Business Management Technology
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2440 Data Processing
2520 Marketing and Sales Technology
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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

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3600 Philosophy
3650 Physics
3700 Political Science
3750 Psychology
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3870 Anthropology
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4200 Chemical Engineering
4300 Civil Engineering
4400 Electrical Engineering
4450 Engineering Computer Science
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5000 Cooperative Education
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5400 Technical and Vocational Education
5550 Physical Education
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5610 Special Education
5620 School Psychology
5630 Multicultural Education
5700 Educational Administration
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6200 Accounting
6400 Finance
6500 Management
6600 Marketing
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7000 Cooperative Education
7100 Art
7400 Home Economics and Family Ecology
7500 Music
7510 Musical Organizations
7520 Applied Music
7600 Communication
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7810 Theatre Organizations
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7910 Dance Organizations

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8000 Cooperative Education
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*A more detailed explanation of the numbering system can be found in "Course Numbering Systems," **Section 3** of this *Bulletin*.

Department of Developmental Programs

DEVELOPMENTAL PROGRAMS

1020:

040 BASIC WRITING I *4 credits**
Provides intensive practice in composition skills: grammar, sentence structure, and paragraph writing.

042 BASIC WRITING II
Provides additional practice in the basic writing skills required for college composition.

050 BASIC MATHEMATICS I *4 credits**
Introduces the basic concepts of elementary algebra and provides an extensive review of arithmetic operations.

052 BASIC MATHEMATICS II
Designed to review and strengthen skills needed for credit mathematics courses.

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.

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.

1021:299 SPECIAL TOPICS: DEVELOPMENTAL PROGRAMS
Selected topics and subject areas of interest in developmental education.

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.

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.

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.

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.

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.

*Institutional credit only.

University College

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.

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.

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.

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.

120-81 PHYSICAL EDUCATION *½ 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 (170-181).**

120 ARCHERY
121 BADMINTON
122 BASKETBALL
123 BOWLING
124 CANOEING
125 DIVING
126 FITNESS
127 GOLF
128 GYMNASTICS (apparatus)
129 GYMNASTICS (tumbling)
130 HANDBALL
131 INDOOR SOCCER
132 KARATE†
133 LIFE SAVING†
134 MODERN DANCE
135 RACQUETBALL
136 RUGBY
137 SAILING
138 SCUBA
139 SELF DEFENSE†
140 SKIING (cross country)
141 SKIING (downhill)
142 SOCCER
143 SOCIAL DANCE
144 SQUARE AND FOLK DANCE
145 SQUASH RACQUETS
146 SWIMMING (beginning)
147 SWIMMING (intermediate)
148 SWIMMING (advanced)
149 TEAM HANDBALL
150 TENNIS (beginning)
151 VOLLEYBALL
152 WATER POLO
153 WATER SAFETY†
154 WRESTLING
170 VARSITY BASEBALL
171 VARSITY BASKETBALL
172 VARSITY CROSS COUNTRY
173 VARSITY FOOTBALL
174 VARSITY GOLF
175 VARSITY SOCCER
176 VARSITY SOFTBALL
177 VARSITY SWIMMING
178 VARSITY TENNIS
179 VARSITY TRACK
180 VARSITY WRESTLING
181 VARSITY VOLLEYBALL

**Varsity sports are one credit each.
†One credit each. Two periods each week.

221 NATURAL SCIENCE: BIOLOGY *3 credits*
Designed for non-science majors to illustrate fundamental concepts of living organisms with emphasis on man's position in, and influence on, the environment.

222 NATURAL SCIENCE: CHEMISTRY *3 credits*
Designed for non-science majors. Introduction to chemical principles at work in man and in the environment.

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.

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 non-science majors.

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 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.

330 EASTERN CIVILIZATIONS: CHINA *2 credits*
Prerequisite: 64 credits.

331 EASTERN CIVILIZATIONS: JAPAN *2 credits*
Prerequisite: 64 credits.

332 EASTERN CIVILIZATIONS: SOUTHEAST ASIA *2 credits*
Prerequisite: 64 credits.

333 EASTERN CIVILIZATIONS: INDIA *2 credits*
Prerequisite: 64 credits.

334 EASTERN CIVILIZATIONS: NEAR EAST *2 credits*
Prerequisite: 64 credits.

335 EASTERN CIVILIZATIONS: AFRICA *2 credits*
Prerequisite: 64 credits.

Air Force ROTC

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.

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.

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.

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

MILITARY SCIENCE

1600:

100 INTRODUCTION TO MILITARY SCIENCE I *2 credits*
Study of the organization of the Total Army to include the Active Army, the Army National Guard, the Army Reserve and the Branches of the Army. An introduction to and an application of rappelling, rifle marksmanship, to include hunter safety, and first aid. No military obligation incurred. Leadership laboratory required.

101 INTRODUCTION TO MILITARY SCIENCE II *2 credits*
Study and application of the principles and techniques of basic military leadership, land navigation/orienteering, cross-country skiing and first aid. No military obligation incurred. Leadership laboratory required.

200 BASIC MILITARY LEADERSHIP *2 credits*
Study and application of the leadership assessment program (LAP). Practical experience in rappelling, land navigation/orienteering and first aid. No military obligation incurred. Leadership laboratory required.

201 SMALL UNIT OPERATIONS *2 credits*
Study and application of the principles of war as they relate to small unit operations. Practical work with communications equipment and an introduction to writing an operations order. Training in pistol marksmanship, wilderness training and first aid. No military obligation incurred. Leadership laboratory required.

300 ADVANCED LEADERSHIP I *3 credits*
Prerequisites: 100,1; 200,1 and/or permission. Intensive investigation of the leadership process to include applicatory work emphasizing officer ethics, duties and responsibilities. Leadership laboratory required.

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. Leadership laboratory required.

400 MILITARY MANAGEMENT I *3 credits*
Prerequisites: 300,1 or permission. Study of the principles of war integrated into a military history program. Study of command and staff functions, briefing techniques and familiarization with the military justice system. Leadership laboratory required.

401 MILITARY MANAGEMENT II *3 credits*
Prerequisites: 300,1 or permission. Study of Army command and staff procedures. Examination of officer leadership and managerial responsibilities to include planning and organizing, delegation and control, and oral and written communications. Leadership laboratory required.

Interdisciplinary Programs

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.

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.

401 SEMINAR IN ENVIRONMENTAL STUDIES *2 credits*
Specific environmental topic or topics from interdisciplinary viewpoint each semester. The director of Environmental Studies coordinates course; resource persons are drawn from the University and surrounding community.

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.

602 EVALUATION OF ENVIRONMENTAL DATA *3 credits*
Prerequisites: graduate standing, one year of chemistry, physics, job experience or course work in chemical engineering. A review of environmental testing techniques in current use; emphasis on interpretation and limitations.

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.

INSTITUTE FOR LIFE-SPAN DEVELOPMENT AND GERONTOLOGY

1850:

300 INTRODUCTION TO WOMEN'S STUDIES *3 credits*
An interdisciplinary exploration of research methodology, empirical data, and theories on the history, culture, experience, accomplishments and status of women.

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.

485 SPECIAL TOPICS *1-3 credits*
Prerequisite: permission of instructor. Specialized topics and current issues in life-span development, gerontology or gender. Covers content or issues not currently addressed in other academic courses.

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.

493 INDIVIDUAL STUDIES ON WOMEN *3 credits*
Prerequisite: 300; corequisite 499.

495 PRACTICUM IN LIFE-SPAN DEVELOPMENT AND GERONTOLOGY *1-3 credits*
(May be repeated)
Prerequisite: permission. Supervised experience in research or community agency work.

499 SEMINAR IN WOMEN'S STUDIES *1 credit*
Prerequisites: 300 and nine elective credits in women's studies or instructor's permission. Selected topics in women's studies to be taken in conjunction with 493.

Graduate Courses

680 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.

685 SPECIAL TOPICS *1-3 credits*
Prerequisite: permission of instructor. Specialized topics and current issues in life-span development, gerontology or gender. Emphasis is on original source materials, critical analyses and syntheses of empirical, theoretical and applied aspects.

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.

695 PRACTICUM IN LIFE-SPAN DEVELOPMENT AND GERONTOLOGY *3 credits*
Prerequisite: permission. Supervised experience in research or community agency work.

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.

301 VALUE CONCEPTS ON PEACE AND WAR *3 credits*
Interdisciplinary study of attitudes, concepts and realities regarding war and peace issues.

350 INDEPENDENT STUDY *1-3 credits*
(May be repeated for a total of three credits)
Detailed study on selected topics related to peace.

360 THE VIETNAM WAR *3 credits*
An examination and evaluation of political, military, diplomatic and economic impact of the Vietnam War.

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.

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.

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.

260-360-460 HONORS COLLOQUIUM: SOCIAL SCIENCES *2 credits each*
Prerequisite: admission to University Honors Program. Interdisciplinary colloquium on important issues in social sciences.

270-370-470 HONORS COLLOQUIUM: NATURAL SCIENCES *2 credits each*
Prerequisite: admission to University Honors Program. Interdisciplinary colloquium on important issues in natural sciences.

MEDICAL STUDIES

1880:

201 MEDICAL SEMINAR AND PRACTICUM I *3 credits*
Prerequisites: 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.

301 MEDICAL SEMINAR AND PRACTICUM II *1-3 credits*
(May be repeated to a maximum of three credits)
Prerequisites: 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.

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.

401/501 SPECIAL TOPICS: MEDICAL EDUCATION *1-3 credits*
(May be repeated with a change of topic with a maximum of three credits count toward graduation)
Prerequisites: 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.

ENVIRONMENTAL HEALTH

1890:

300 INTRODUCTION TO ENVIRONMENTAL HEALTH *3 credits*
Prerequisite: permission. Introduction to environmental health, public health, industrial hygiene and related fields. The nature of the field, problems dealt with, the legal basis for action and career opportunities.

410 EPIDEMIOLOGY *3 credits*
Prerequisite: permission of instructor. Introduction to the study of the distribution and determinants of diseases and injuries in human populations; epidemiological statistics; research models.

437 INDIVIDUAL STUDIES OR INTERNSHIP IN ENVIRONMENTAL HEALTH *1-3 credits*
(May be repeated for a maximum of six credits)
Prerequisite: permission of instructor. An internship with an appropriate employer or approved equivalent.

450 SEMINAR IN ENVIRONMENTAL HEALTH *1 credit*
(May be repeated for a maximum of two credits)
Prerequisite: permission of instructor. Research reports by faculty, graduate students and invited speakers.

480 SPECIAL TOPICS IN ENVIRONMENTAL HEALTH *1-3 credits*
(May be repeated for a maximum of six credits)
Prerequisite: permission of instructor. Special courses offered once or occasionally in areas where no formal course exists.

Community and Technical College

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.

DISTINGUISHED STUDENT PROGRAM 2015:

150 DISTINGUISHED STUDENT COLLOQUIUM *2 credits*
Prerequisite: admission to College Distinguished Student Program. Interdisciplinary colloquium on topics and issues in the humanities, social sciences and natural sciences.

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.

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.

131 MATHEMATICAL ANALYSIS I *4 credits*
Prerequisites: 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.

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.

141 MATHEMATICS FOR DATA PROCESSING I *4 credits*
Prerequisites: two units of high school mathematics, including algebra. Numeration systems, fundamental algebraic concepts and operations, functions and graphs, systems of linear equations, determinants, matrices, factoring and algebraic fractions and quadratic equations.

142 MATHEMATICS FOR DATA PROCESSING II *3 credits*
Prerequisite: 141 or equivalent. Sets, logic, basic probability and statistics and mathematics of finance.

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.

224 WRITING FOR ADVERTISING *4 credits*
Prerequisite: 121 or 1100:111. Study of language used in advertising; practice in writing advertisements for various media.

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.

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.

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.

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.

244 DEATH AND DYING *2 credits*
Understanding of death and dying applied personally and professionally to needs of adults, children and families with respect to attitudes, feelings and communications skills.

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.

251 WORK RELATIONSHIPS *3 credits*
Examination of relationship between man and the work organization. Emphasis on involvement, sense of job satisfaction, supervision and goals of the organization.

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.

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.

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.

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 course work, 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.

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.

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.

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.

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.

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.

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.

245 INFANT/TODDLER DAY-CARE PROGRAMS *3 credits*
Survey of infant/toddler development. Principles of infant/toddler care giving. Design of environment and curriculum based on child's needs. Includes observation of children.

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.

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.

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.

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.

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.

110 SPECIALIZED INTERPRETING I *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.

150 HANDICAPPED SERVICES PRACTICUM *1-4 credits*
(Must be repeated for a total of eight credits)

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 Ameslan 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.

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.

290 SPECIAL TOPICS: HANDICAPPED SERVICES *1-3 credits*
Selected topics or subject areas of interest in handicapped services.

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.

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.

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.

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.

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.

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.

200 CRIMINAL JUSTICE THEORY AND PRACTICE *3 credits*
Prerequisite: 100. 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.

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.

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.

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.

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.

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.

FIRE PROTECTION TECHNOLOGY 2230:

100 INTRODUCTION TO FIRE PROTECTION *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.

102 FIRE SAFETY IN BUILDING DESIGN AND 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.

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.

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.

202 FIRE SUPPRESSION METHODS *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.

204 FIRE HAZARDS RECOGNITION *3 credits*
Inspection techniques and procedures; setting up a fire prevention bureau. Recognition and correction of fire hazards. Public relations and code enforcement.

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.

206 FIRE DETECTION AND SUPPRESSION SYSTEMS II *3 credits*
Prerequisite: 205. Design, installation and operation of automatic fire suppression systems. Includes sprinkler, foam, carbon dioxide, dry chemical, halogenated agent systems.

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.

254 FIRE CODES AND STANDARDS *3 credits*
Prerequisite: 104. Study of legal rights and duties, liabilities and responsibilities of fire department organizations.

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.

290 SPECIAL TOPICS: FIRE PROTECTION TECHNOLOGY *1-2 credits*
(May be repeated for a total of four credits)
Prerequisite: permission. Selected topics or subject areas of interest in fire protection technology.

295 FIRE PROTECTION INTERNSHIP *4 credits*
Prerequisites: 30 credits in program and permission of program coordinator. Supervised work experience in fire protection to increase student understanding of fire technology; analysis by student and instructor of internship experience; sharing of knowledge gained during internship.

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.

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.

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.

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.

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.

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.

247 PACKAGING DESIGN *3 credits*
Prerequisites: 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.

290 SPECIAL TOPICS: COMMERCIAL ART *1-3 credits*
Prerequisite: permission of instructor. Selected topics or subject areas of interest in commercial art.

295 PRACTICUM IN COMMERCIAL ART *1-3 credits*
(Repeatable for a maximum of nine hours.)
Prerequisite: 7100:231, 232, 233. Controlled by portfolio competition or permission of the instructor. Provides experience through an internal design and production studio. Involves responsibilities for the design and production of communication materials. Includes organizational, accounting and managerial responsibilities.

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.

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.

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.

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.

232 ADVOCACY FOR THE DISABLED *3 credits*
Working with disabled individuals. Includes legal rights, advocacy roles, civil commitment, guardianship, housing, employment and health-care needs.

240 CHEMICAL DEPENDENCY *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.

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.

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.

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.

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.

262 BASIC HELPING SKILLS IN ALCOHOL PROBLEMS *4 credits*
Prerequisite: 278. 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.

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.

278 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.

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.

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.

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.

286 COUNSELOR ASSISTANT INTERNSHIP *4 credits*
Prerequisites: 279 and permission of instructor. Integrates counselor assistant experience with fundamental concepts and skills from academic studies. Students required to complete 200 hours of supervised field experience.

290 SPECIAL TOPICS: COMMUNITY SERVICES TECHNOLOGY *1-3 credits*
Prerequisite: permission. Selected topics or subject areas of interest in community services technology.

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.

LABOR STUDIES 2270:

101 INTRODUCTION TO LABOR STUDIES *3 credits*
Overview of Trade Unionism in America from 18th 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.

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. Skills required in negotiations and union/management responsibilities to community in collective bargaining. Strikes and impasse resolution.

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.

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.

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.

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.

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.

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.

241 UNION LEADERSHIP *2 credits*
Prerequisite: 101. Specific skills related to administration of local unions structure and duties and responsibility of officers.

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.

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.

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.

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.

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.

121 FUNDAMENTALS OF FOOD PREPARATION I *4 credits*
Skills and basic knowledge of food preparation procedures in a laboratory situation.

122 FUNDAMENTALS OF FOOD PREPARATION II *4 credits*
Prerequisite: 121. Continuation of 121. Advanced food preparation techniques presented in laboratory situations.

123 MEAT TECHNOLOGY *2 credits*
Intensive examination of meat cutting, portioning, determining product yield, and calculating cost.

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.

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

152 MAINTENANCE AND ENGINEERING FOR HOTELS AND MOTELS *3 credits*
Familiarization with organization, terms, concepts, responsibilities common to engineering and building maintenance.

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.

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.

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.

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

237 INTERNSHIP *1 credit*
Prerequisite: permission. On/off campus observation/work experience integrated with academic instruction. Concepts applied to practical situations.

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.

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.

254 HOTEL/MOTEL HOUSING MANAGEMENT *3 credits*
Analysis of housekeeping procedures; organization of successful housekeeping department.

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 and internal personal and telephone selling.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

117 SMALL BUSINESS DEVELOPMENT *3 credits*
Prerequisite: 104. Fundamentals of small business operations, emphasis on small business marketing.

118 SMALL BUSINESS MANAGEMENT AND OPERATIONS *3 credits*
Prerequisite: 117. Designed to provide greater insight into the management and financial aspects of small business operations. Emphasis on small business management.

121 OFFICE MANAGEMENT *3 credits*
Survey of office administration with emphasis on management and interaction of human resources and new office technologies including information collection, processing, storage and retrieval.

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.

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.

170 BUSINESS MATHEMATICS *3 credits*
Review of fundamentals of mathematics 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.

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.

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.

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.

213 BASIC ACCOUNTING III *3 credits*
Prerequisite: 212. Study of information needs of management. Emphasis on the interpretation and use of accounting data by management in planning and controlling business activities.

214 ESSENTIALS OF INTERMEDIATE ACCOUNTING *3 credits*
Prerequisite: 212. Study of development of financial accounting theory and its application to problems of financial statement generation, account valuation, analysis of working capital and determination of net income.

216 SURVEY OF COST ACCOUNTING *3 credits*
Prerequisite: 213. Provides student with conceptual understanding of how accounting information is developed and used for product costing, decision making and managerial planning and control.

217 SURVEY OF TAXATION *4 credits*
Prerequisite: 212. Survey course of basic tax concepts, preparation of returns, supporting schedules and forms for individuals and businesses. Federal, state and local taxes are discussed. The major emphasis of this course is on business taxes.

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.

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.

227 ENTREPRENEURSHIP PROJECTS *4 credits*
Prerequisite: 118. An overview of small business management. A project course during which students create a hypothetical business.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

265 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.

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.

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 mathematics, mortgage mathematics and closing statements.

290 SPECIAL TOPICS: REAL ESTATE *1-3 credits*
Prerequisite: permission. Selected topics or subject areas of interest in real estate.

DATA PROCESSING 2440:

120 INTRODUCTION TO INFORMATION PROCESSING *2 credits*
General overview of data processing techniques providing fundamentals necessary for subsequent computer-oriented courses.

121 INTRODUCTION TO PROGRAMMING LOGIC *2 credits*
Prerequisite: 120. Introduction to fundamental concepts of problem solving and developing programming logic, with emphasis on effective design of business application programs.

130 BASIC PROGRAMMING FOR BUSINESS *3 credits*
Prerequisites: 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 time-sharing also considered.

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.

132 ASSEMBLER PROGRAMMING *3 credits*
Prerequisite: 131. Continuation of 131. Emphasis on Basic Assembler Language and practical application programming using BAL.

133 STRUCTURED COBOL PROGRAMMING *2 credits*
Prerequisites: 121 and 131. Introduction to COBOL with specific orientation toward the IBM system/370.

234 ADVANCED COBOL PROGRAMMING *3 credits*
Prerequisite: 133. Continuation of 133 including detailed applications in areas such as payroll and inventory. Disk concepts emphasized.

235 CURRENT PROGRAMMING TOPICS *2 credits*
Prerequisite: 133. 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.

239 RPG II PROGRAMMING *2 credits*
Prerequisite: 121 or permission of coordinator. Report Program Generator (RPGII) programming. Includes RPG coding and debugging with applications which lend themselves to use of RPG II.

241 DATA PROCESSING SYSTEMS *3 credits*
Prerequisite: 133. Covers all phases of business systems analysis, design, development and implementation. Such principles as system and program flowcharting, and file and document design emphasized.

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.

251 DATA PROCESSING PROJECTS *5 credits*
Prerequisites: 234 and 241. Provides workshop for the accomplished student to thoroughly apply learned material. Projects involve systems design and implementation using COBOL.

252 JOB CONTROL LANGUAGE *1 credit*
Prerequisite: 234. Explanation of JOB, EXEC and DD statements and their associated parameters. JCL procedures and overrides.

261 CICS CUSTOMER INFORMATION CONTROL SYSTEM *3 credits*
Prerequisite: 234. Basic concepts of CICS; demonstrates particular usefulness of CICS features that application programmers need.

262 COBOL EFFICIENCY *2 credits*
Prerequisite: 234. Provides students with opportunity to enhance their knowledge of COBOL language. The development of COBOL, its facility for change and its place in today's businesses.

263 DATA-BASE CONCEPTS *3 credits*
Prerequisites: 234,241. Fundamental concepts of three main types of data-base management systems, their similarities and differences. Data-base design project required. No programming.

264 PL/1 PROGRAMMING *2 credits*
Prerequisite: 133 or permission of coordinator. Basic concepts of PL/1 programming and particular usefulness of PL/1 in business applications.

265 PROGRAMMING ETHICS AND SECURITY *2 credits*
Prerequisite: 133. Legal principles specific to field of data processing; potential for computer-oriented crimes and security measures necessary for their prevention.

266 BASIC FOR PROGRAMMERS *3 credits*
Prerequisite: 133 or permission of coordinator. To familiarize students with important programming techniques and concepts in BASIC language. Emphasis on complex interactive business applications programs using microcomputers.

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.

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.

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.

201 PRINCIPLES OF WHOLESALING *2 credits*
Examination of wholesaler and wholesaling function. Attention given to buying process and relationship of ultimate consumer to wholesaler.

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.

203 FUNDAMENTALS OF INDUSTRIAL DISTRIBUTION *3 credits*
Prerequisite: 2420:101. An introductory examination of the industrial distribution network and pertinent middlemen involved. Includes wholesalers, service institutions and other channel members.

207 TECHNIQUES OF MERCHANDISING RESEARCH *2 credits*
Prerequisite: 2420:101. Introduction to merchandising research. Uses of research for merchandisers, concepts in planning research. Approaches to research in a non-mathematical approach to analysis. Case histories of small merchandisers.

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.

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.

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.

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.

OFFICE ADMINISTRATION 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.

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.

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.

130 INTRODUCTION TO INFORMATION MANAGEMENT *3 credits*
Corequisite: 150. A study of the creation, classification, encoding, encapsulating, transmission and storage of information. Emphasis on electronic storage and transmission of information.

131 COMPUTERIZED DOCUMENT CONTROL *4 credits*
Prerequisite: 130. A study of the planning and controlling of documents from the time of their creation until their final disposition with emphasis on automated storage and retrieval systems.

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 office administration.

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.

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.

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.

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.

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.

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.

243 INTERNSHIP *2 credits*
Prerequisite: permission of instructor. Work experience in office environment integrated with instruction on information management systems. Sharing of knowledge gained during internship in on-campus seminars.

247 AUTOMATED OFFICE SYSTEMS *4 credits*
Prerequisite: 131. Examination of automated methods of controlling information. Application of office information management techniques.

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 wam with a maximum of 5 errors for 5 minutes.

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.

263 BUSINESS COMMUNICATIONS *3 credits*
Prerequisites: 119 and 2020:121 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.

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 wam for 5 minutes.

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 wam.

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 wam.

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.

280 WORD PROCESSING CONCEPTS *2-3 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.

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.

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.

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.

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 office administration.

TRANSPORTATION 2560:

110 PRINCIPLES OF TRANSPORTATION *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.

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.

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.

117 WATER TRANSPORTATION *2 credits*
Prerequisite: 110. Theories, practices, regulations of inland and ocean-going water transportation including classification, rates, practices and tariffs.

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.

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.

221 TRAFFIC AND DISTRIBUTION MANAGEMENT *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.

222 MICROCOMPUTER APPLICATIONS IN TRANSPORTATION *3 credits*
Corequisite: 2440:120. Microcomputer solutions to selected transportation problems. Lease vs. buy analysis, modal selection based on cost, vehicle scheduling, use of transportation algorithms.

224 TRANSPORTATION REGULATION *3 credits*
Prerequisite: 110. 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.

227 TRANSPORTATION OF HAZARDOUS MATERIALS AND WASTES *2 credits*
Federal regulations; identification and classification of hazardous materials; handling, loading and shipping procedures.

228 INTRODUCTION TO TRAVEL *2 credits*
Travel geography, overview of passenger transportation systems, role of travel agent, discussion of trends in travel industry.

229 PASSENGER TICKETING *2 credits*
Prerequisite: 228. Use and preparation of passenger and group tickets, tour orders, ticket exchange notices, refund notices and internal documents used by travel agent organizations.

230 TOUR PLANNING AND PACKAGING *2 credits*
Prerequisite: 228. Planning and packaging of independent and escorted tours (domestic and foreign). Cost estimating, time distribution, itinerary preparation and routing.

290 SPECIAL TOPICS: TRANSPORTATION *1-3 credits*
(May be repeated for a total of four credits)
Prerequisite: permission. Selected topics, subject areas in transportation.

HISTOTECHNOLOGY 2730:

225 HISTOTECHNOLOGY PRACTICUM *5 credits*
Prerequisites: 3100:366 and permission. Instruction and practical experience in a cooperative hospital, research laboratory.

290 SPECIAL TOPICS IN HISTOTECHNOLOGY *1-2 credits*
Prerequisite: permission. Selected topics or subject areas of interest.

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.

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.

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.

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.

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.

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.

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.

250 MEDICAL ASSISTING SPECIALTIES *3 credits*
Prerequisites: 231, graduate of the program, or special permission. Provides student precise knowledge in medical specialties.

290 SPECIAL TOPICS: MEDICAL ASSISTING *1-2 credits*
Prerequisite: permission. Selected topics or workshops of interest in medical assisting technology.

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.

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.

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.

161 PHYSICAL SCIENCE FOR RADIOLOGIC TECHNOLOGY I *2 credits*
Prerequisites: 2020:131 and permission. Introduction to systems of measurement. Matter, force, motion, work, power, energy, basic electricity and magnetism.

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.

170 RADIOGRAPHIC POSITIONING I *3 credits*
Corequisite: 101. Introductory course in instructing student in basic positioning nomenclature and radiologic positions. Positioning laboratory experience included.

171 RADIOGRAPHIC POSITIONING II *3 credits*
Prerequisite: 170. Continuation of 170. Includes additional positioning and refinement of positioning strategies. Laboratory.

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 critique stressed. Observation rotation through nuclear medicine, therapy and diagnostic techniques. Largely student observation.

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.

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 non-clinical equipment utilized.

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.

272 RADIOGRAPHIC POSITIONING III *3 credits*
Prerequisite: 171. Continuation of 171. Includes additional positioning and refinement of positioning strategies. Laboratory.

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.

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.

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.

288 CLINICAL APPLICATION V *4 credits*
Prerequisite: 287. Clinical experience and minimally supervised clinical procedures of diagnostic radiography.

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.

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.

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.

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.

131 CLINICAL APPLICATION I *2 credits*
Corequisites: 100 and 121. Student assigned to surgical service of affiliated hospitals. Emphasis on aseptic techniques and skills associated with their implementation.

222 SURGICAL ASSISTING PROCEDURES II *4 credits*
Prerequisite: 121. Continuation of 121.

232 CLINICAL APPLICATION II *5 credits*
Prerequisite: 131; corequisite: 222. Student assigned to surgical service of affiliated hospitals. Emphasis on "scrubbing" on general surgery and gynecology procedures.

233 CLINICAL APPLICATION III *5 credits*
Prerequisites: 232 and 222. Student assigned to surgical service of affiliated hospitals. Emphasis on "scrubbing" in the specialty areas..

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.

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.

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.

241 SURGICAL ANATOMY *3 credits*
Prerequisites: 100 and 3100:206, 207. Surgical anatomy of the human body as it relates to the various surgical specialties.

242 SURGICAL LABORATORY PROCEDURES *2 credits*
Prerequisites: 121 and admission to program option; corequisite: 241. Classroom, laboratory instruction in surgical techniques, procedures.

243 INTRODUCTION TO MEDICINE *2 credits*
Prerequisites: 241, 242. Pathophysiology, clinical manifestations, therapeutic management of surgically related disorders.

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.

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.

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.

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.

290 SPECIAL TOPICS: SURGICAL ASSISTING *1-2 credits*
Prerequisite: permission. Selected topics or workshops of interest in surgical assisting technology.

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.

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.

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. Lecture/laboratory.

122 PATIENT CARE IN RESPIRATORY THERAPY *3 credits*
Prerequisite: 121. Covers basic hospital practices in sterile technique, suctioning and postural drainage. Lecture/laboratory.

123 MECHANICAL VENTILATORS *3 credits*
Prerequisite: 122. Introduction to different brands of ventilators and their functions. Airway and airway complications.

131 CLINICAL APPLICATIONS I *3 credits*
Prerequisites: 121 and admission to program. Introduction to work in hospital and hands-on experience on hospital equipment. Laboratory.

132 CLINICAL APPLICATIONS II *2 credits*
Prerequisites: 122, 131. First of several rotations through hospitals. Mechanical ventilation is stressed.

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.

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.

141 PHARMACOLOGY *2 credits*
Prerequisites: 2840:100 and 3100:130. Drugs administered by respiratory therapy and effect, route of action in the body. Lecture.

142 PATHOLOGY FOR RESPIRATORY THERAPY *2 credits*
Prerequisites: 201 and 3100:130. Discussion of disease processes, diseases of lung and heart, their effect on respiratory therapy.

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.

223 ADVANCED RESPIRATORY THERAPY *3 credits*
Prerequisites: 123, 141. Covers EKG, Pulmonary functions, research studies and radioactive pulmonary function studies. Lecture/laboratory.

224 PULMONARY REHABILITATION AND THE RESPIRATORY THERAPY DEPARTMENT *2 credits*
Prerequisites: 141, 142, 223. Covers area of pulmonary rehabilitation. Includes essentials of establishing a respiratory therapy department. Lecture/laboratory.

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.

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.

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.

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.

105 CHEMICAL CALCULATIONS I *1 credit*
Corequisite: 101 or permission of instructor. Calculations as applied to introductory chemistry courses. Topics include unit conversions, percentages, graphs, significant figures, moles. Suitable as a refresher course.

106 CHEMICAL CALCULATIONS II *1 credit*
Corequisite: 102 or permission of instructor. Continuation of calculations review for introductory chemistry. Chemical equilibria, concentrations, pH, solubility products, redox reactions, calorimetry.

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.

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.

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.

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.

201 QUANTITATIVE ANALYSIS *4 credits*
Prerequisite: 102. Theory of quantitative analytical chemistry including gravimetric, volumetric and electrochemical procedures. Laboratory.

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.

210 SCIENTIFIC GLASS BLOWING *1 credit*
Laboratory instruction in art of glass blowing. Fabrication and blowing of scientific glassware and chemical apparatus.

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.

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.

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.

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.

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.

ELECTRONIC TECHNOLOGY 2860:

120 DC CIRCUITS *4 credits*
Corequisite: 2020:131. Nature of electricity, current and voltage, Ohm's Law, network analysis, DC instruments, magnetism, inductance, capacitance, transients and time constants.

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.

123 ELECTRONICS I *3 credits*
Corequisite: 122. Physical theory, characteristics, operational parameters and incircuit consideration of solid-state electronic devices.

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.

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.

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.

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.

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.

242 MACHINERY AND CONTROLS *4 credits*
Prerequisites: 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, triacs, diacs. Laboratory practice with industrial machines in practical industrial circuits.

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.

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.

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.

270 SURVEY OF ELECTRONICS I *3 credits*
Corequisite: 2020:131. Fundamentals of electrical circuits. Surveys of electromechanical devices emphasizing electrical/mechanical interface. For non-electronic technology majors.

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.

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.

350 ADVANCED CIRCUITS *4 credits*
Prerequisites: 123, 242 and 2020:334. Analysis of linear circuits in frequency and time domain. Loop analysis by matrix methods, Fourier analysis of nonsinusoidal waveforms, Laplace transformations, power and power-factor correction, polyphase systems and mutual inductance.

351 INDUSTRIAL ELECTRICAL SYSTEMS *3 credits*
Prerequisites: 350 and 4100:206. Power system single-phase and three-phase analysis, balanced and unbalanced systems, fault calculations, symmetrical components with industrial applications.

352 DIGITAL SYSTEMS *4 credits*
Prerequisite: 238; corequisite: 350. 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.

353 CONTROL SYSTEMS *4 credits*
Prerequisites: 231, 350. 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.

400 DATA ANALYSIS *3 credits*
Prerequisites: 4100:206 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.

406 COMMUNICATION SYSTEMS *3 credits*
Prerequisites: 251 and 350. Antennas, transmission lines, matching networks, modulation systems, propagation, noise, radar and microwaves. Problems encountered in communication systems.

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.

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.

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.

101 INTRODUCTION TO COMPUTER-AIDED MANUFACTURING *3 credits*
Prerequisite: 100 or permission of instructor. Introduction to use of computer-controlled equipment in solution of manufacturing related problems. Concepts of NC machine operation and programming, robotics and computer-assisted parts measurement.

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.

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.

200 MANUFACTURING PROFITABILITY *3 credits*
Prerequisite: 100. Profit defined. Cost analysis and control studied. Control of price and profit within market limitations discussed.

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.

211 COMPUTERIZED MANUFACTURING I *3 credits*
Prerequisite: 100. Processing of production order by computer through requisitioning, plant loading, expediting, scheduling and shipping of product. Creation on computer of material requisitions, plant schedules, sent-to-stocks and shipping orders as by-products of processing production order.

231 PLANT LAYOUT *3 credits*
Prerequisite: 100. Solution of activities for a production facility. Optimum arrangements of factors of production: manpower, materials and equipment.

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.

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.

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.

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.

INSTRUMENTATION TECHNOLOGY

2900:

121 FUNDAMENTALS OF INSTRUMENTATION *4 credits*
Prerequisites: 2840:151 and 2860:123 or 2860:270. Study of variables encountered in process instrumentation, indicating and recording devices and applications of physical principles affecting measurement and control.

232 PROCESS CONTROL *3 credits*
Prerequisite: 2860:231. Study of analysis and design of process control systems with emphasis on techniques and instrumentation used in process control. Digital control fundamentals introduced.

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.

240 CALIBRATION AND STANDARDIZATION *1 credit*
Prerequisite: 2860:231. Laboratory experience in calibration and standardization of electrical, electronic and mechanical systems. Instrument theory, maintenance, troubleshooting, specifications, performance and safe working practices included.

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.

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.

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.

122 TECHNICAL DRAWING II *3 credits*
Prerequisite: 121. Sections and conventions; dimensioning; allowances and tolerances; threads and fasteners; descriptive geometry; intersections; developments.

242 DESIGN MATERIALS *3 credits*
Prerequisite: 2980:125; corequisite: 2980:241. Fundamental properties of materials. Material testing. Applications of methods to control material properties.

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.

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.

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.

247 TECHNOLOGY OF MACHINE TOOLS *3 credits*
Set up and operation of tool room machines: Lathe, drill press, shaper, milling machine and tool grinder. Planning operations and layout.

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.

251 FLUID POWER *2 credits*
Prerequisites: 2020:233, 2840:153. Statics and dynamics of fluids. Viscosity, energy and momentum relationships. Fluid machinery and measurements.

252 THERMO-FLUIDS LABORATORY *1 credit*
Prerequisite: 249; corequisite: 251. Laboratory experiments in applied thermal energy and fluid power.

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.

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.

335 WELDING, THEORY AND PRACTICE *3 credits*
Prerequisite: 242. Design of weldments and welding processes. Welding of ferrous, nonferrous and plastic materials.

336 WELDING PROJECTS *1 credit*
Prerequisite: 335. Individual projects containing elements of analysis, design and laboratory implementation.

339 ADVANCED TECHNOLOGY OF MACHINE TOOLS *2 credits*
Prerequisite: 247; corequisite: 242. Selected topics dealing with sophisticated metal cutting techniques.

346 MECHANICAL DESIGN II *3 credits*
Prerequisite: 245. Continuation of design of machine components. Bearings, gears, brakes, clutches. Machine vibrations and dynamic loads.

347 PRODUCTION MACHINERY AND PROCESSES *2 credits*
Prerequisites: 247, 2020:334. Study of modern production machines, processes and techniques. Casting, forging, rolling, welding, powder metallurgy, plastics molding.

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.

360 FUNDAMENTALS OF AUTOMOTIVE SYSTEMS *3 credits*
Prerequisite: 249. System function and interaction of various subsystems. Diagnosis of malfunction of important systems and use of instruments such as vacuum gauge, compression and cylinder leakage test gauges, dwell meter and ignition scope. Laboratory demonstrations with hands-on experience for student dependent on available laboratory time. Field trips to observe operation of computer controlled testing and diagnosis.

365 FUNDAMENTALS OF HEATING AND AIR CONDITIONING *3 credits*
Prerequisite: 249. Basic design knowledge of heating and air conditioning. Includes basic heat transfer concepts, heat loss and gain of buildings, human reactions to conditioned atmosphere, heating and cooling load requirements, and variations in type of performance of heating and cooling equipment.

402 MECHANICAL PROJECTS *1 credit*
Prerequisite: senior standing. Individual projects emphasizing creative technical design.

448 NUMERICAL CONTROL PROGRAMMING *3 credits*
Prerequisite: 348. Introduction to computer-assisted interactive part programming system. Writing of milling and drilling programs.

460 MECHANICAL SIMULATION *3 credits*
Prerequisite: 4100:206. Structural, thermal and dynamic aspects of mechanical systems simulated using FORTRAN. Performances studied using both deterministic and trial-and-error methods. Responses in both time and frequency domains to various forcing functions. Prediction of tolerances and performance specifications by statistically studying systems produced by simulated production line.

495 INSPECTION TOURS *1 credit*
Prerequisite: senior standing. Trips through area industrial plants and technical facilities.

497 SENIOR HONORS PROJECT IN MECHANICAL TECHNOLOGY *1-3 credits*
(May be repeated for a total of six credits)
Prerequisites: 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.

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.

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.

151 TECHNICAL COMPUTATIONS *1 credit*
Prerequisite: 2020:131; corequisite for drafting technology students only: 150. Use of computer to solve typical problems in engineering technology. Concepts of flow charting, looping, variables, arrays, subroutines, examined. BASIC computer language introduced.

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.

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.

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.

210 COMPUTER DRAFTING *3 credits*
(One hour lecture/six hours laboratory)
Prerequisite: 2920:121; corequisite: 151. Provides 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.

230 MECHANICAL SYSTEMS DRAFTING *3 credits*
(One hour lecture/six hours 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.

240 ELECTRICAL, ELECTRONIC AND INSTRUMENTATION DRAFTING *3 credits*
(One hour lecture/six hours laboratory)
Corequisite: 2920:122. Familiarizes student with terms and layouts concerning electronic, electrical and instrumentation systems.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

232 CONSTRUCTION *3 credits*
Prerequisite: 222 or permission. Planning of construction operations. Construction equipment and selection for typical jobs. Emphasis on heavy construction.

233 CONSTRUCTION ADMINISTRATION *2 credits*
Construction specifications. Office organization, preparation of construction documents. Bidding, bonds. Construction management and supervision. Agreements and contracts.

234 ELEMENTS OF STRUCTURES *3 credits*
Prerequisite: 241. Principles of stress and structural analysis, members in steel, timber and concrete connections.

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.

238 MATERIALS TESTING II *2 credits*
Prerequisite: 237; corequisite: 241. Mix design of concrete. Laboratory testing of ferrous and nonferrous metals, woods and concrete. Experiments demonstrate physical properties as related to design.

241 STRENGTH OF MATERIALS *3 credits*
Prerequisite: 125. Stress, strain and stress-strain relationships. Tension, compression, torsion, beams. Shear and moment diagrams.

245 COST ANALYSIS AND ESTIMATING *3 credits*
Quantity surveys in construction. Elements of cost in construction, determination of unit costs, analysis of cost records.

250 STRUCTURAL DRAFTING *2 credits*
Prerequisite: 2920:121. Duties of structural draftsman in preparation of detailed working drawings for steel and concrete. Emphasis on portrayal, dimensions and notes on a working drawing.

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

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.

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.

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.

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.

105 INTRODUCTION TO ECOLOGY *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.

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.

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.

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.

190/191 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.

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.

206/207 HUMAN ANATOMY AND PHYSIOLOGY *4 credits each*
Sequential. Structure and function of the human body presented in a self-paced, audio-tutorial format. Laboratory.

211 GENERAL GENETICS *3 credits*
Prerequisite: 112. Principles of heredity, principles of genetics.

212 GENETICS LABORATORY *1 credit*
Prerequisite or corequisite: 211. Fundamental principles of genetics illustrated by experiments with drosophilae and other organisms.

217 GENERAL ECOLOGY *3 credits*
Prerequisite: 112. Study of interrelationships between organisms and environment.

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.

265 INTRODUCTORY HUMAN PHYSIOLOGY *4 credits*
Study of physiological processes in human body, particularly at organ-systems level. Not open to pre-professional majors. Laboratory.

290/291 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/noncredit. Not available toward credit as major in biological sciences. Some field trips.

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.

315 EVOLUTIONARY BIOLOGY DISCUSSION *1 credit*
Prerequisite: 211. Informal discussions of various aspects of organic evolution of general or special interest.

316 EVOLUTIONARY BIOLOGY *3 credits*
Prerequisite: 211. History of evolutionary thought; Darwinian and post-Darwinian concepts, mechanisms of evolution; molecular evolution; evolutionary history of plants and animals.

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.

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.

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.

351 INVERTEBRATE ZOOLOGY* *4 credits*
Prerequisite: 112. Invertebrate groups, their classification, anatomy and life history of representative forms. Laboratory.

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.

355 PARASITOLOGY *4 credits*
Prerequisite: 112. Principles of parasitism; survey of the more important human and veterinary parasitic diseases. Laboratory.

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.

365 HISTOLOGY I *3 credits*
Prerequisite: 311. Cellular structure of organs in relation to their functional activity, life history, comparative development. Laboratory.

366 HISTOLOGY II *3 credits*
Prerequisite: 365. Microscopic study of animal tissue preparations and histochemical stains; emphasis on functional differences. Laboratory.

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.

383 LABORATORY TECHNIQUES AND INSTRUMENTATION IN BIOLOGY *2 credits*
Prerequisites: 112 and 3150:132,133,134. Instruction in techniques and instrumentation used in biological laboratories.

384 TECHNIQUES AND INSTRUMENTATION LABORATORY IN BIOLOGY *1 credit*
Prerequisite or 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.

400/500 FOOD PLANTS *2 credits*
Prerequisite: 311 or permission of instructor. A survey of the plants used for human food, including their history, structure, uses.

*Field trips involved; minor transportation costs.

422/522 CONSERVATION OF BIOLOGICAL RESOURCES* *4 credits*
Prerequisite: 217 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.

424/524 FRESHWATER ECOLOGY* *3 credits*
Prerequisite: 217. Field, laboratory study of lake ecosystems. Species composition of selected biotic communities, community energetics, nutrient cycling. Limnological survey of a local lake. Laboratory.

425/525 FRESHWATER ECOLOGY FIELD AND LABORATORY STUDIES *3 credits*
Prerequisite: 217 or permission of instructor. Field and laboratory studies of local lakes, ponds, and reservoirs. Collection, indentification, and ecology of aquatic plants and animals, especially phytoplankton, zooplankton and benthic organisms.

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.

428/528 BIOLOGY OF BEHAVIOR *2 credits*
Prerequisites: 211, 217 and 316. Biological basis of behavior: ethological theory; function, causation, significance, evolution and adaptiveness of behavior.

429/529 BIOLOGY OF BEHAVIOR LABORATORY *2 credits*
Prerequisites or corequisites: 428/528 and permission of instructor. Individualized, directed study to provide the student with firsthand experience in observing, describing and interpreting animal behavior.

431/531 BACTERIAL PHYSIOLOGY *3 credits*
Prerequisites: 331 and 3150:202. Biochemical activities in bacterial cell, emphasizing enzymatic mechanisms of metabolic transformations. Energy relationships in catabolic and biosynthetic pathways stressed.

432/532 ADVANCED GENERAL BACTERIOLOGY *4 credits*
Prerequisite: 331. Study of the groups of bacteria involved in the production of food or chemicals, those found in soil and water and those involved in microbiol biogenochemical cycles. Laboratory.

433/533 PATHOGENIC BACTERIOLOGY *4 credits*
Prerequisite: 331 and prerequisite or corequisite 437. Study of major groups of bacteria which produce infections in man. Biochemical properties of microorganisms which engender virulence and nature of host resistance. Laboratory.

435/535 VIROLOGY *4 credits*
Prerequisite: 331. Physical, chemical and biological properties of viruses including mechanisms of infection, genetics and tumor formation; methods of cultivation and identification. Laboratory.

437/537 IMMUNOLOGY *4 credits*
Prerequisite: 331; 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.

440/540 MYCOLOGY *4 credits*
Prerequisite: 112. Structure, life history, classification of representative fungi with emphasis on the importance of fungi to man. Laboratory.

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.

442/542 PLANT ANATOMY *3 credits*
Prerequisite: 112. Structure and development of cells, tissues, organs and organ systems of seed plants. Laboratory.

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.

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.

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.

449/549 PLANT BIOSYSTEMATICS *2 credits*
Prerequisites: 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.

450/550 ANIMAL PESTS AND VECTORS *3 credits*
Prerequisite: 217 or permission of instructor. Study of the biology and control of disease vectors and urban pests. Laboratory.

456/556 ORNITHOLOGY* *3 credits*
Prerequisite: 112. Introduction to biology of birds: classification, anatomy, physiology, behavior, ecology, evolution, natural history and field identification. Laboratory.

458/558 VERTEBRATE ZOOLOGY *4 credits*
Prerequisite: 316 or permission. Biology of vertebrates, except birds — evolution, ecology, behavior, systematics and anatomy. Laboratory with field trips.

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.

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.

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.

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.

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.

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.

481/581 ADVANCED GENETICS *3 credits*
Prerequisite: 211. Nature of the gene; genetic codes; hereditary determinants; mutagenesis and genes in population. Lecture and seminar.

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.

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.

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.

497,8/597,8 BIOLOGICAL PROBLEMS *1-2 credits each*
Prerequisite: permission. Honors-level work, usually consisting of laboratory investigations.

499 SENIOR HONORS PROGRAM IN BIOLOGY *1-3 credits*
(May be repeated for a total of five credits)
Prerequisites: 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.

Graduate Courses

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.

660 ENVIRONMENTAL PHYSIOLOGY *3 credits*
Prerequisites: 561, 562. Study of physiological reactions of healthy mammals to natural changes or extremes of physical environment.

681 CYTOLOGY *3 credits*
Prerequisite: 311. Structure and functional organization of cells at ultrastructural level. Three lecture hours a week.

685 ANIMAL TISSUE CULTURE *3 credits*
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.

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.

*Field trips involved; minor transportation costs.

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.

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.

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.

697,8 BIOLOGY COLLOQUIUM *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.

699 MASTER'S RESEARCH *1-6 credits*
(May be repeated)
A minimum of six credits is required for thesis option student.

BIOLOGY/NEOUCOM 3110:

620 MICROSCOPIC ANATOMY *4 credits*
Prerequisites: 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.

630 HUMAN GROSS ANATOMY AND EMBRYOLOGY *3 credits*
Prerequisites: graduate standing and permission. An intensive survey of human macromorphology.

631 HUMAN GROSS ANATOMY AND EMBRYOLOGY LABORATORY *3 credits*
Corequisite: 630. An intensive survey of human macromorphology.

641 FUNCTIONAL NEUROANATOMY *6 credits*
Prerequisite: permission or graduate standing. Study of structure and function of mammalian nervous system with emphasis on human brain and human behavior. Laboratory.

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.

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.

695 SPECIAL TOPICS: BIOLOGY/NEOUCOM *1-6 credits*
Prerequisite: permission of instructor. Advanced topics in medical education covering areas not otherwise available. May be repeated with a change in topic.

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.

410 CLINICAL ANALYSIS OF URINE AND OTHER BODY FLUIDS I *1 credit*
Prerequisites: 3100:361, 362 or equivalent. Physiology of renal system; theory of renal functions in health and disease states. Theory of other fluid systems in diagnosis of disease.

411 CLINICAL ANALYSIS OF URINE AND OTHER BODY FLUIDS II PRACTICUM *1 credit*
Prerequisites: 3100:361, 362 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.

420 CLINICAL CHEMISTRY AND BIOCHEMISTRY I *4 credits*
Prerequisites: 3100:383, 384 or equivalent; 3150:201, 202, 335, 336 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.

421 CLINICAL CHEMISTRY AND BIOCHEMISTRY II PRACTICUM *4 credits*
Prerequisites: 3100:383, 384 or equivalent; 3150:201, 202, 335, 336 or equivalent. Clinical application by various analytical techniques; clinical correlation of results with disease states.

430 CLINICAL HEMATOLOGY I *2 credits*
Prerequisites: 3100:311 and 3100:361, 362 or equivalent. Theory of blood cell formation; identification of blood and bone marrow cells; differentiation of erythrocytes, leukocytes, morphology.

431 CLINICAL HEMATOLOGY II PRACTICUM *2 credits*
Prerequisites: 3100:311 and 3100:361, 362 or equivalent. Clinical application and practice of blood cell mounting procedures using automated and manual techniques.

432 CLINICAL COAGULATION *1 credit*
Prerequisites: 3100:311 and 3100:361, 362 or equivalent. Theory of coagulation mechanisms and their relationship to disease states. Emphasis on identification of coagulation deficiencies and abnormalities.

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.

441 CLINICAL IMMUNOHEMATOLOGY II PRACTICUM *2 credits*
Prerequisites: 3100:437, 211 or equivalent. Clinical application of theory; cross matching; blood donors; blood bank management.

450 CLINICAL IMMUNOLOGY I *1 credit*
Prerequisite: 3100:437 or equivalent. Antigens and antibodies and their interaction in disease states.

451 CLINICAL IMMUNOLOGY II PRACTICUM *1 credit*
Prerequisite: 3100:437 or equivalent. Qualitative and quantitative serological laboratory procedures in immunology.

460 CLINICAL MICROBIOLOGY I *4 credits*
Prerequisites: 3100:331, 332 or equivalent. Theory of diagnosis of medical microbiology with emphasis on pathogenic bacteria and their relationship to disease.

461 CLINICAL MICROBIOLOGY II PRACTICUM *4 credits*
Prerequisites: 3100:331, 332 or equivalent. Isolation and identification of pathogenic bacteria, media making, sensitivity and antimicrobial agents, principles of sterilization and asepsis.

462 CLINICAL MYCOLOGY *1 credit*
Study of pathogenic fungi, basic methods of cultivation and identification, treatment and safety precautions.

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.

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.

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.

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 extrauterine and metastatic tumors is included.

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.

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.

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 metastic tumors and in different cytodiagnosis.

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.

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.

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.

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.

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.

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.

124 CHEMISTRY *3 credits*
Fundamentals of organic, inorganic and physiological chemistry. Discussion.

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.

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, pre-medical student and most other science majors. Laboratory.

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.

134 QUALITATIVE ANALYSIS *2 credits*
Corequisite: 133. Laboratory course applying principles of chemical equilibrium to inorganic qualitative analysis.

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.

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 and atherosclerosis. May not be used to meet undergraduate major requirements in chemistry.

263,4 ORGANIC CHEMISTRY LECTURE I, II *3 credits each*
Sequential. Prerequisite: 134 or permission. Structure and reactions of organic compounds, mechanism of reactions.

265,6 ORGANIC CHEMISTRY LABORATORY I, II *2 credits each*
Sequential. Corequisites: 263, 264. Laboratory experiments to develop techniques in organic chemistry and illustrate principles.

303,4 ELEMENTARY PHYSICAL CHEMISTRY I, II *3 credits each*
Sequential. Prerequisites: 264, 3650:262 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.

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.

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.

335,6 ANALYTICAL CHEMISTRY FOR LABORATORY TECHNICIANS I, II *4 credits each*
Sequential. Prerequisites: 133, 134 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.

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.

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.

405/505 BIOCHEMISTRY LABORATORY *2 credits*
Prerequisite: 401/501. Methods for separation and analysis of amino acids, proteins, carbohydrates, lipids, and nucleic acids and their metabolism, Chromatography, electrophoresis, centrifugation, spectrophotometry and use of radioisotopes.

408/508 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 non-chemical aspects of a chemist's profession.

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.

415/515 CHEMICAL INSTRUMENTATION *3 credits*
Prerequisite: permission. Principles and applications of electrical and electronic devices and various transducers for chemical analysis. Laboratory.

416/516 INSTRUMENTAL METHODS OF ANALYSIS *3 credits*
Prerequisite: 415/515. Principles and applications of analytical chemical techniques based on physical measurements. Laboratory.

421/521 QUALITATIVE ORGANIC ANALYSIS *4 credits*
Prerequisite: 266. Identification and characterization of organic substances, separation and identification of components of organic mixtures. Laboratory.

423 QUANTITATIVE ANALYSIS *3 credits*
Prerequisite: 134. Theoretical principles of quantitative analysis. Techniques and calculations, gravimeteric and volumetric methods.

425 QUANTITATIVE ANALYSIS LABORATORY *2 credits*
Corequisite: 423. Laboratory techniques employed in gravimetric, volumetric and instrumental analysis.

427 ANALYTICAL CHEMISTRY LECTURE *3 credits*
Prerequisites: 304 or 314, 316 or permission. Instrumental analysis with emphasis on newer analytical tools and methods.

428 ANALYTICAL CHEMISTRY LABORATORY *2 credits*
Corequisite: 427. Laboratory techniques employed in gravimetric, volumetric, instrumental analysis; emphasizes instrumental analysis.

463/563 ADVANCED ORGANIC CHEMISTRY *3 credits*
Prerequisites: 264, 304 or 314 or permission. Introduction to study of mechanisms of organic reactions.

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.

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.

497 HONORS PROJECT IN CHEMISTRY *2 credits*
(May be repeated for a total of eight credits)
Prerequisites: junior or senior standing in Honors Program and permission of department honors preceptor. Independent research leading to completion of honors thesis under guidance of honors project adviser.

498 SPECIAL TOPICS: CHEMISTRY *1-3 credits*

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.

Graduate Courses

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.

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.

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.

611 CHEMICAL BONDING AND SPECTROSCOPY *2 credits*
Prerequisite: 610. Application of quantum chemistry to elucidation of chemical bonding, structure and interpretation of molecular spectra.

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.

621 ADVANCED PREPARATIONS *1-2 credits*
Prerequisite: permission. Methods for preparing and purifying organic and inorganic compounds. Laboratory.

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.

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.

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.

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.

661 ENZYMATIC REACTIONS I *2 credits*
Prerequisites: 401, 402 or instructor's permission. General aspects of enzyme catalyzed reactions, enzyme structure, methods of determining reaction mechanisms, kinetics and solvolytic and transfer reactions of phosphorous, glycosyl and acyl groups.

662 ENZYMATIC REACTIONS II *2 credits*
Prerequisites: 401, 402 or permission of instructor. Specific bio-organic reactions continued, eliminations, oxidation/reductions, isomerizations, rearrangements, cofactors.

663 ADVANCED METABOLISM *2 credits*
Prerequisites: 401,402 or permission of instructor. Study of advanced pathways in carbohydrates, lipid and protein metabolism with emphasis placed on metabolic dysfunction.

664 MEMBRANE BIOGENESIS *2 credits*
Prerequisites: 401/501 and 402/502. Structure, function and biosynthesis of membranes, compartmentation of intracellular and secretory proteins, post-translational modiciation, mitochondrial genetics.

666 BIOINORGANIC CHEMISTRY *2 credits*
Prerequisites: 401, 402, 472 or permission of instructor. Survey of the structure and properties of metal ion complexes with amino acids, nucleotides, metabolites and macromolecules; metal ion metabolism; metals in medicine.

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.

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.

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.

673 STEREOCHEMISTRY OF ORGANIC COMPOUNDS *2 credits*
Prerequisite: 264. Stereochemistry and its application to reactions of organic chemistry.

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.

685,6 EXPERIMENTAL PHYSICAL CHEMISTRY OF POLYMERS I, II *2 credits for 685; 2-3 credits for 686*
Sequential. Prerequisites or corequisites: 674, 675, respectively. Laboratory to illustrate methods and principles discussed in 674 and 675.

692 ADVANCED INSTRUMENTATION *2 credits*
Prerequisites: 316, 428. Theory and application of instrumental measurements. Interpretation of data.

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.

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.

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.

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.

713 SPECIAL TOPICS: PHYSICAL CHEMISTRY *1-2 credits*
(May be repeated)
Prerequisite: permission. Subject from modern physical chemistry.

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.

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.

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.

786 THEORETICAL ORGANIC CHEMISTRY *2 credits*
Prerequisite: 784. Application of modern quantum chemistry and thermodynamics to problems of organic chemistry.

899 DOCTORAL RESEARCH CHEMISTRY *1-16 credits*
Open to qualified student accepted as a candidate for Doctor of Philosophy in Chemistry. Supervised original research undertaken in organic, inorganic, physical, analytical or biochemistry.

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.

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.

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.

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.

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.

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.

401,2/501,2 EGYPTOLOGY *3 credits each*
(May be repeated with change of subject)
Prerequisite: permission of instructor. Classical Egyptian (standard hieroglyphic of 18th Dynasty); history and antiquities of Egypt as far as Roman occupation.

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.

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.

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.

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.).

499 HONORS PROJECT IN CLASSICS *1-3 credits*
(May be repeated for a total of six credits)
Prerequisites: senior standing in Honors Program and permission. Independent study leading to completion of a senior honors thesis under the supervision of a member of the Department of Classics.

GREEK
3210:

121,2 ELEMENTARY GREEK *4 credits each*
Sequential. Standard language of Hellenistic times with some attention to Modern Greek.

223,4 INTERMEDIATE GREEK *3 credits each*
Prerequisites: 121, 122. A survey of readings of the less difficult authors such as Homer, certain dialogues of Plato, Herodotus, Xenophon, New Testament or the like.

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.

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.

LATIN
3220:

121,2 ELEMENTARY LATIN *4 credits each*
Sequential. Some attention to development of Romance languages, especially Italian.

223,4 INTERMEDIATE LATIN *3 credits each*
Prerequisites: 121, 122. A survey of readings of the less difficult authors such as Pliny, Caesar, Plautus, Cicero's Letters or equivalent material.

303,4 ADVANCED LATIN *3 credits each*
(May be repeated for credit with change of subject)
Prerequisites: 223, 224 or equivalent. Satirists, dramatists, philosophical, religious writers, lyric and elegiac poets, medieval writers.

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.

ECONOMICS
3250:

100 INTRODUCTION TO ECONOMICS *3 credits*
May not be substituted for 201, 202, 244. Economics primarily considered in a broad social science context. Adequate amount of basic theory introduced.

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.

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.

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, 202.

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.

330 LABOR PROBLEMS *3 credits*
Prerequisites: 201, 202. Labor economics, principles and public policy. Study of structure of labor market and impact unions have on labor management relations.

333 LABOR ECONOMICS *3 credits*
Prerequisite: 202. 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.

360 INDUSTRIAL ORGANIZATION AND PUBLIC POLICY *3 credits*
Prerequisites: 201, 202. 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.

380 MONEY AND BANKING *3 credits*
Prerequisite: 201. Institutions of money, banking and credit, monetary expansion and contraction, public policies affecting this process, development of our money and banking system.

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.

389 ECONOMICS OF ENERGY *3 credits*
Prerequisites: 201, 202 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.

400 MACROECONOMICS *3 credits*
Prerequisites: 201, 202. Changes in national income, production, employment, price levels, long-range economic growth, short-term fluctuations of economic activity.

405 PUBLIC FINANCE *3 credits*
Prerequisites: 201, 202. 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.

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.

410 MICROECONOMICS *3 credits*
Prerequisites: 201, 202. Advanced analysis of consumer demand, production costs, market structures, determinants of factor income.

420 MATHEMATICAL ECONOMICS I *3 credits*
Prerequisites: 201, 3450:147, 148, or 149 or permission of instructor. 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.

421 MATHEMATICAL ECONOMICS II *3 credits*
Prerequisite: 420 or permission of instructor. Use of calculus and linear algebra to dynamic economic analysis; solution techniques; some significant dynamic models from literature.

426 ECONOMETRIC METHODS AND APPLICATIONS *3 credits*
Prerequisites: 6500:321, 322 or the equivalent or permission of the instructor. The study and use of regression and analysis of variance in analyzing economic data. Students will learn to specify and test economic hypotheses and make economic projections. Use of the computer will be extensive.

427/527 ECONOMIC FORECASTING *3 credits*
Prerequisite: 6500:322 or permission of instructor. Study of methods for building, identifying, fitting and checking dynamic economic models and the use of these models for forecasting. Emphasis is on the application of available computer software systems.

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.

431 LABOR AND THE GOVERNMENT *3 credits*
Prerequisite: 330. Development of public policy for control of industrial relations, from judicial control of 19th Century to statutory and administrative controls of World War II and postwar periods.

432 THE ECONOMICS AND PRACTICE OF COLLECTIVE BARGAINING *3 credits*
Prerequisite: 202. 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.

435/535 THE DEVELOPMENT OF AMERICAN CORPORATE STRUCTURE *3 credits*
Traces evolution of American corporate structure from late 19th Century to present. Explains and analyzes changing dimensions of corporate structure and response of government. Case studies analyzed.

440/540 SPECIAL TOPICS: ECONOMICS *3 credits*
Prerequisite: permission. Opportunity to study special topics and current issues in economics.

450/550 COMPARATIVE ECONOMIC SYSTEMS *3 credits*
Prerequisites: 201, 202 or permission of instructor. Systems of economic organization, ranging from the theoretical extreme of a perfectly free market economy to the socialist varieties. Historical evolution of economic systems covering problems in theory and practice.

460/560 ECONOMIC DEVELOPMENT AND PLANNING FOR UNDERDEVELOPED COUNTRIES *3 credits*

Prerequisites: 201, 202. 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.

461 PRINCIPLES OF INTERNATIONAL ECONOMICS *3 credits*

Prerequisites: 201, 202. International trade and foreign exchange, policies of free and controlled trade, international monetary problems.

475/575 DEVELOPMENT OF ECONOMIC THOUGHT *3 credits*

Prerequisites: 201, 202. Evolution of theory and method, relation of ideas of economists contemporary to conditions.

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.

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.

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.

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.

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.

Graduate Courses

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.

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.

603 MACROECONOMIC ANALYSIS II *3 credits*

Prerequisite: 602. Macrodynamic economics and stability analysis of closed and open Keynesian systems. Inclusive coverage of post-Keynesian theories of economic growth.

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.

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.

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.

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.

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.

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.

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.

620 APPLICATIONS OF MATHEMATICAL MODELS TO ECONOMICS *3 credits*

Prerequisites: courses in 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.

621 APPLICATION OF LINEAR MODELS IN ECONOMIC ANALYSIS *3 credits*

Prerequisites: courses in 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.

626 STATISTICS FOR ECONOMETRICS *3 credits*

Prerequisites: courses in elementary differential and integral calculus, 6500:321, 322 or equivalent. A review of statistical theory and its application to research in economics. Emphasis is on estimation and hypothesis testing as a prelude to econometrics.

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.

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.

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.

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.

635 LABOR LAW *3 credits*

Evaluation of labor relations laws. Public policy affecting public, private worker organizations; collective bargaining; strikes; picketing.

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.

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.

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.

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.

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.

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.

670 INTERNATIONAL MONETARY ECONOMICS *3 credits*

International financial relations. Foreign exchange market and exchange rate adjustments. Balance of payments adjustment policies. International monetary system.

671 INTERNATIONAL TRADE *3 credits*

Traditional trade theory. Recent developments in trade theory, policy implications in trade relations among developed and developing economics.

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.

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.

699 RESEARCH AND THESIS *3 credits*

(May be repeated for a total of six credits)

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.

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.

277 INTRODUCTION TO POETRY WRITING *3 credits*
Practice in writing poems. Study of techniques in poetry, using contemporary poems as models. Class discussion of student work. Individual conferences with instructor to direct student's reading and writing.

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.

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.

280 POETRY APPRECIATION *3 credits*
Close reading of a wide selection of British and American poems with emphasis on dramatic situation, description, tone, analogical language, theme and meaning.

281 FICTION APPRECIATION *3 credits*
Close reading of modern masters of short story and novel.

282 DRAMA APPRECIATION *3 credits*
(May be repeated for credit as a text or a film appreciation course)
Close reading and analysis of a variety of plays.

283 FILM APPRECIATION *3 credits*
Introduction to dramatic choices made by filmmakers in scripting, directing, editing and photographing narrative films; and qualities of reliable film reviews.

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.

302 ENGLISH LITERATURE II *4 credits*
Studies in English literature from 1800 to present. Emphasis will be given to cultural and intellectual backgrounds and to the development of various modes and genres.

315 SHAKESPEARE: THE EARLY PLAYS *3 credits*
Introduction to early drama of Shakespeare with close reading of tragedies, histories and comedies. Includes explanatory lectures of both the plays and their backgrounds.

316 SHAKESPEARE: THE MATURE PLAYS *3 credits*
Study of Shakespeare's plays after 1598, beginning with mature comedies. Concentration on major tragedies and romances.

341 AMERICAN LITERATURE I *3 credits*
Historical survey of major and minor American writers to 1865.

342 AMERICAN LITERATURE II *3 credits*
Readings in major and minor American writers from 1865 to present.

350 BLACK AMERICAN LITERATURE *3 credits*
Survey of representative black American writers from the 19th Century to present, with particular attention to historical and social backgrounds.

354 FICTION OF THE SOUTH *3 credits*
A study of novels and short stories by major Southern authors such as Faulkner, O'Connor and Styron.

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.

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.

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.

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.

376 LEGAL WRITING *3 credits*
Intensive practice in writing for prelaw students through assignments based on actual legal situations and real cases. Particular attention to stating legal issues, writing persuasively, applying rules of law, and other topics that will help those preparing for law school and the profession.

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.

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.

380 FILM CRITICISM *3 credits*
Application of literary critical theory to the study of film.

386 WOMEN IN MODERN NOVELS *3 credits*
Students will read various modern novels to increase their awareness of how these texts reflect, reinforce, but more often challenge traditional attitudes towards women, their places and circumstances.

389 SPECIAL TOPICS: LITERATURE AND LANGUAGE *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 this *General Bulletin*, generally constructed around theme, genre and language study.

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.

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.

399 THE GOTHIC IMAGINATION *3 credits*
A loosely chronological study of major British, American, and European authors in the Gothic tradition, from the 18th Century to the present. Attention will be paid to the literary conventions of Gothic fiction, to the "popular" nature of the literature and to its major themes/motifs.

400/500 ANGLO SAXON *3 credits*
Studies in Old English language and Old English prose and poetry, including Beowulf.

403/503 DEVELOPMENT OF THE ARTHURIAN LEGEND *3 credits*
Traces evolution of Arthurian materials from 540 to 1500 and beyond, with emphasis on characters, themes, events and treatments.

406/506 CHAUCER *3 credits*
Close study of Chaucer's major works — *The Canterbury Tales* and *Troilus and Criseyde* in Middle English.

407/507 MIDDLE ENGLISH LITERATURE *3 credits*
Study of genres, topics, styles and writers of the Middle English literary works from 12th to 15th Centuries. Readings in Middle English.

412/512 SPENSER *3 credits*
Close reading of major narrative and lyric poems and selections from the minor works, all studied in the context of Elizabethan aesthetic theory, learning and politics.

416/516 METAPHYSICAL POETS *3 credits*
Selected 17th-Century British poets exclusive of John Donne. The course examines the particular styles and themes of the secular and sacred poets who wrote in the metaphysical mode. Particular emphasis is placed on Herbert, Crashaw, Vaughan, Traherne, Marvell, Cowley, Cleveland, Southwell and King.

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.

421/521 SWIFT AND POPE *3 credits*
An intensive study of the major satires of Swift and Pope. Concentration on the rhetorical strategies of each author within the context of the shifting intellectual and cultural milieu at the end of the 17th and beginning of the 18th Centuries.

424/524 EARLY ENGLISH FICTION *3 credits*
Development of English novel before 1830. Focus on works of Defoe, Richardson, Fielding, Smollett, Sterne, Austen and Scott.

425/525 STUDIES IN ROMANTICISM *3 credits*
Literary, philosophical, psychological and social revolutions of romantic period as reflected in works of such major writers as Wordsworth, Byron and Keats.

430/530 VICTORIAN POETRY AND PROSE *3 credits*
Poetry, prose of the late 19th Century, excluding fiction, with attention to Tennyson, Browning, Arnold, Carlyle, Ruskin and other major writers.

431/531 VICTORIAN FICTION *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.

434/534 CHARLES DICKENS *3 credits*
Growth of Dickens as a novelist, with attention to the social and political backgrounds of the novels and changes in their structure and treatment of character.

435/535 20TH 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.

436/536 BRITISH FICTION: 1900-1925 *3 credits*
Study of Conrad, Joyce, D. H. Lawrence and Virginia Woolf, with attention to their innovations in narrative and style, their psychological realism and symbolism. Brief consideration of other important fiction writers of the period, including Wells, Bennett and Mansfield.

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.

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.

443/543 MELVILLE *3 credits*
A study of Herman Melville's life and works. Primary emphasis will be on Melville's major fiction (e.g., *Moby Dick, The Confidence Man, Billy Budd*), but some attention will also be given to his poetry and travel sketches.

446/546 AMERICAN AUTOBIOGRAPHY *3 credits*
An inquiry into the nature of autobiographical writing, with particular attention to the ontology of the "autobiographical self." Includes such authors as Henry Adams, Sherwood Anderson, Mark Twain, Gertrude Stein, Langston Hughes, William Carlos Williams, Loren Eiseley and Maya Angelou.

448/548 AMERICAN ROMANTIC FICTION *3 credits*
Examination of early American fiction, tracing its genesis, romantic period and germinal movements toward realism. Writers discussed include Cooper, Poe, Hawthorne and Melville.

449/549 AMERICAN FICTION: REALISM AND NATURALISM *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.

450/550 MODERN AMERICAN FICTION *3 credits*
Study of significant American short and long fiction from World War I to the present.

451/551 AMERICAN POETRY TO 1900 *3 credits*
Survey of American poetry of the 17th, 18th and 19th Centuries.

452/552 MODERN AMERICAN POETRY *3 credits*
Survey of 20th Century American poetry beginning with Edwin Arlington Robinson and ending with contemporary poets.

453/553 AMERICAN WOMEN POETS *3 credits*
Study of modern poets' uses and revisions of tradition, treatment of relationships between women and men and between women, conceptions of art and of the artist-as-woman, and confrontation of the debate between "public" and "private" poetry. Poets to be discussed include Dickinson, Plath, Brooks, Levertov and Rich.

454/554 20TH CENTURY AMERICAN DRAMA *3 credits*
Examination of major, established playwrights (including O'Neill, Miller and Williams) and sampling of new and rising ones.

455/555 THE AMERICAN SHORT STORY *3 credits*
A study of the development of the short story as a particularly American genre, from Washington Irving to the present.

458/558 FAULKNER *3 credits*
An in-depth study of William Faulkner's major novels and short stories, primarily those set in the imaginary Yoknapatawpha region.

467/567 MODERN EUROPEAN FICTION *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.

469/569 EROS AND LOVE IN EARLY WESTERN LITERATURE *3 credits*
An analysis of the use of sex and love in the literature of the Western World from Greco-Roman times to 1800, with special emphasis on how sexuality and "romantic" love are used as allegorical, satiric, fantastic or realistic devices.

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.

471/571 U.S. DIALECTS: BLACK AND WHITE *3 credits*
Study of differences in pronunciation, vocabulary and grammar among U.S. language varieties. Origins, regional and social dimensions are explored. Correctness, focusing on black English and Appalachian speech explored.

473/573 SEMINAR IN TEACHING ESL: THEORY AND METHOD *3 credits*
Theoretical issues in linguistic description and language acquisition as relevant to learning of a second language. Elaboration of principles for the teaching of English as a second language based on research in linguistics, psycholinguistics and second language pedagogy.

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.

476/576 THEORY AND TEACHING OF BASIC COMPOSITION *3 credits*
Review of current research and exploration of specific instructional methods for teaching basic composition.

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.

483/583 FANTASY AND SCIENCE FICTION *3 credits*
Selected British and American fantasy and science fiction from the 1880s to the present.

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.

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.

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.

Graduate Courses

600 TEACHING COLLEGE COMPOSITION PRACTICUM *2 credits*
Prerequisite: teaching assistantship. Orientation and weekly analysis of teaching rationale and practice, limited to teaching assistants in the Department of English.

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.

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.

627 KEATS AND HIS CONTEMPORARIES *3 credits*
Writings of John Keats, studied against background of romantic poetic theory and poetry of Keats' contemporaries.

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.

642 SEMINAR IN DICKINSON *3 credits*
An in-depth study of Dickinson's poetry, with special attention to her varied poetic identities and their relationships to her life, and an examination of some of the major critical approaches to her poetry.

643 SEMINAR IN JAMES *3 credits*
A study of Henry James' life and works. Primary emphasis will be on James' fiction, both long and short, early and late; but some attention will also be given to his literary criticism, travel pieces and plays.

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.

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.

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.

674 RESEARCH METHODOLOGIES IN COMPOSITION *3 credits*
Research methoodologies in composition and their application. Students will define research areas, summarize and evaluate work already done, and propose and complete semester research projects.

675 WRITING FOR MBAs *3 credits*
Emphasizes managerial writing. Writing tasks are presented as decision-making tools, and students develop strategies for messages to subordinates, analytical reports and messages to outside audiences.

679 SCHOLARLY WRITING *3 credits*
Study of composing, analyzing and evaluating academic arguments. Practice in specific forms of academic writing such as reviews of research, articles and book reviews.

683 SEMINAR IN SATIRE *3 credits*
A study of satire from the middle ages through the late 20th Century, with particular attention to techniques of satiric attack, modes of comedy and irony and literary criticism.

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.

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.

698 INDIVIDUAL READING IN ENGLISH *1-3 credits*
Individual study under guidance of professor who directs and coordinates student's reading and research.

699 THESIS *1-6 credits*
Original work in the field of literature and language and completion of graduate student's required thesis.

GEOGRAPHY

3350:

100 INTRODUCTION TO GEOGRAPHY *3 credits*
Analysis of world patterns of population characteristics, economic activities, settlement features, landforms, climate as interrelated.

310 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.

314 CLIMATOLOGY *3 credits*
Prerequisite: 310 or permission. Analysis and classification of climates, with emphasis on regional distribution. Basic techniques in handling climatic data.

320 ECONOMIC GEOGRAPHY *3 credits*
Geographical basis for production, exchange, consumption of goods. Effect of economic patterns on man's culture and politics.

326 ENERGY AND ECOLOGY *3 credits*
Prerequisite: 320 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.

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.

335 RECREATION RESOURCE PLANNING *3 credits*
Prerequisite: 330 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.

340 CARTOGRAPHY *3 credits*
Use of graphic/cartographic principles and techniques as a means of presenting information.

341 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.

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.

351 OHIO: ENVIRONMENT AND SOCIETY *3 credits*
Regional and topical analysis of cultural, economic and environmental patterns; also in comparison with other states.

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.

356 EUROPE *3 credits*
Prerequisite: 100 or permission. Regional and topical analysis of cultural, economic and environmental patterns, excluding U.S.S.R.

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.

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.

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.

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.

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.

405/505 GEOGRAPHIC INFORMATION SYSTEMS *3 credits*
Prerequisites: six credits of advanced geography courses at the 300 level or above, but not including regional courses; or permission. Requirements and techniques for using all types of Geographic Information Systems (GIS). For students wishing to become applied geographers, physical and social scientists, resource managers, planners, environmental analysts.

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.

428/528 INDUSTRIAL AND COMMERCIAL SITE LOCATION *3 credits*
Prerequisite: 320 or permission. Relationship between land, resources, population, transportation and industrial and commercial location process.

433/533 URBAN, REGIONAL AND RESOURCE PLANNING *3 credits*
Prerequisite: 330 or permission. Role of geographic investigation in city, regional and resource planning.

436/536 URBAN LAND USE ANALYSIS *3 credits*
Prerequisite: 330 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.

438/538 WORLD METROPOLITAN AREAS *3 credits*
Prerequisite: 330 or permission. Comparative analysis of metropolitan regions. Urbanism, land use, housing, transportation, population and role of cities in economic development in different cultures.

442/542 THEMATIC CARTOGRAPHY *3 credits*
Prerequisite: 341 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.

444/544 MAP COMPILATION AND REPRODUCTION *3 credits*
Prerequisite: 341 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.

447/547 INTRODUCTION TO REMOTE SENSING *3 credits*
Prerequisite: 341 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.

448/548 AUTOMATED COMPUTER MAPPING *3 credits*
Prerequisite: 341 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.

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.

450/550 DEVELOPMENT PLANNING IN THE THIRD WORLD *3 credits*
A study of planning concepts and techniques for developing countries, including growth and development, planning agencies, regional inequities and alternative approaches.

471/571 MEDICAL GEOGRAPHY AND HEALTH PLANNING *3 credits*
Spatial analysis of diseases; their socioeconomic correlates; diffusion pattern of infectious diseases with particular reference to North America; health-planning processes and spatial analysis of health-care delivery systems.

481/581 GEOGRAPHIC RESEARCH METHODS *3 credits*
Prerequisites: 12 credits in geography. Techniques in geographic research. Library resources, techniques of professional writing.

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.

489/589 SPECIAL TOPICS IN GEOGRAPHY *1-2 credits*
(May be repeated)
Selected topics of interest in geography.

490/590 WORKSHOP IN GEOGRAPHY *1-3 credits*
(May be repeated for a total of six credits)
Group studies of special topics in geography.

495/595 SOIL AND WATER FIELD STUDIES *3 credits*
Prerequisite: 310 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.

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.

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.

Graduate Courses

600,1,2 SEMINAR *3 credits each*
(May be repeated for a maximum of six credits each)
Prerequisite: permission. Investigation and analysis of selected topics in particular fields of geography. Specialization indicated by second portion of title.

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.

685 PLANNING: FIELD EXPERIENCE *2 credits*
Prerequisite: permission. Individual experience in selected planning agencies for supervised performance in professional planning work.

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.

698 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.

699 THESIS RESEARCH *2 credits*
(May be repeated twice)
Prerequisite: permission of department head. Supervised original research.

GEOLOGY 3370:

100 EARTH SCIENCE *3 credits*
Introduction to earth science for non-science majors. Survey of earth in relation to its physical composition, structure, history, atmosphere, oceans; and relation to solar system and universe.

101 INTRODUCTORY PHYSICAL GEOLOGY *4 credits*
Comprehensive survey of minerals, rocks, structures and geologic processes of solid earth. Laboratory.

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.

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.

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.

202 GEOLOGY OF THE NATIONAL PARKS *3 credits*
Prerequisite: 1100:223, or 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.

210 GEOMORPHOLOGY *3 credits*
Prerequisite: 101. Landforms of the earth. Emphasis on origins, geologic processes and distributions. Laboratory.

230 CRYSTALLOGRAPHY AND NON-SILICATE MINERALOGY *3 credits*
Morphological crystallography and crystal chemistry of minerals, followed by physical and chemical properties, crystal structure, occurrence and uses of the common non-silicate minerals. Laboratory.

231 SILICATE MINERALOGY AND PETROLOGY *3 credits*
Physical and chemical properties, crystal structure, occurrence, and uses of common silicate minerals, followed by megascopic identification, classification, and petrogenesis. Laboratory.

271 OCEANOGRAPHY *3 credits*
Prerequisite: 101. Introduction to physical processes, geologic history and development of marine areas.

324 SEDIMENTATION AND STRATIGRAPHY *3 credits*
Prerequisites: 102 and 231. 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.

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.

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.

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.

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.

410/510 REGIONAL GEOLOGY 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.

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.

421/521 COASTAL GEOLOGY *3 credits*
Prerequisites: 101, 324 or permission of instructor. Study of the origins and evolution of coasts and coastal deposits with particular attention paid to the interaction of waves and currents with sediment, and the development of associated sedimentary features.

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.

432/532 OPTICAL AND X-RAY METHODS *3 credits*
Prerequisites: 230 and 231. Techniques for the study of minerals and rocks using the petrographic microscope and x-ray diffraction equipment. Laboratory.

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. Laboratory.

435/535 PETROLEUM GEOLOGY *3 credits*
Prerequisite: 350 or permission; recommended: 324. Natural occurrences of petroleum. Characteristics, origin, entrapment and exploration methods. Laboratory.

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.

437/537 ECONOMIC GEOLOGY *3 credits*
Prerequisites: 231 and 350. Study of metallic and nonmetallic mineral deposits emphasizing paragenesis and exploration. Laboratory.

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.

446/548 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.

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.

463/563 MICROPALEONTOLOGY *3 credits*
Prerequisite: 360 or permission. Introduction to techniques of micropaleontology evolution and paleoecology of selected microfossil groups. Laboratory.

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.

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.

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.

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.

496/596 GEOLOGY FIELD CAMP *6 credits*
Prerequisites: 350 and permission; recommended: 231, 324, 395. Emphasis on collection, recording and interpretation of field data; detailed structural and stratigraphic field study.

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.

498 SPECIAL TOPICS *1-3 credits*
Prerequisite: permission of instructor. Special lecture courses offered once or only occasionally in areas where no formal course exists.

499 RESEARCH PROBLEMS *1-3 credits*
(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.

Graduate Courses

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

645 TERRESTRIAL HEAT FLOW *3 credits*
Prerequisites: 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.

649 BOREHOLE GEOPHYSICS *3 credits*
Prerequisite: 446/546 or permission of instructor. Basic principles and techniques of geophysical well logging with emphasis on electrical, radioactive and sonic measures and their quantitative evaluation. Applications in oil, gas and groundwater exploration. Laboratory.

656 GLOBAL TECTONICS *3 credits*
Prerequisites: 350, 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.

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.

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.

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.

680 SEMINAR IN GEOLOGY *2 credits*
(May be repeated for a total of six credits)
Selected topics with reference material from original sources.

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.

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, post-trip examination and/or written report. Student will bear trip expenses.

698 GRADUATE RESEARCH PROBLEMS *1-3 credits*
(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.

699 THESIS RESEARCH *1-6 credits*
Independent and original investigation. Must be successfully completed, report written and defended before a committee.

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.

202 UNITED STATES HISTORY SINCE THE CIVIL WAR *4 credits*
Survey of United States history from Civil War Era to present.

207 EUROPE: RENAISSANCE THROUGH THE 18TH CENTURY *4 credits*
Survey from Renaissance, Reformation; development of nation states, religious wars, Age of Louis XIV and Enlightenment.

208 EUROPE: 19TH AND 20TH CENTURIES *4 credits*
Survey of European history from French Revolution and Napoleon; 19th Century "isms," formation of Germany and Italy, the two world wars, totalitarian dictatorship and postwar age.

220 BLACK PEOPLE OF THE UNITED STATES *3 credits*
Survey of social, economic, political and cultural history of Afro-Americans from 17th Century to present.

232 EVOLUTION OF AMERICAN BUSINESS *3 credits*
An examination of the development of the American business system from the Colonial era to the present.

304 THE ANCIENT NEAR EAST *3 credits*
Mesopotamia, Egypt; Israel, her neighbors to Persian Empire.

305 GREECE *3 credits*
Minoans and Mycenaeans; classical Greece to triumph of Macedon.

306 ROME *3 credits*
Rome and Hellenistic East to end of classical times.

307 THE EASTERN ROMAN EMPIRE (324-1453) *3 credits*
Byzantine culture and history from 324 to the fall of 1453.

335 SPORTS IN AMERICAN HISTORY SINCE 1865 *3 credits*
An examination of the reciprocal relationship between sports and various institutions of society: culture, religion, politics, education, economics, race, ethnicity, diplomacy and gender.

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.

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.

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.

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.

340 PEACE AND WAR: THE HISTORICAL PERSPECTIVE *3 credits*
Historical examination of theories of war and peace, including study of leaders, groups and ideas for peace.

341 SOVIET AND UNITED STATES WOMEN IN THE 20TH 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.

350 SELECTED TOPICS IN HISTORY *3 credits*
Includes experimental offerings such as those crossing subject of chronological lines, and subjects not listed in this *General Bulletin*. See departmental office for current subject.

360 THE VIETNAM WAR *3 credits*
An examination and evaluation of all aspects of the war in Vietnam, political, military, diplomatic and economic, including its impact domestically then and later.

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.

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.

402/502 SPECIAL STUDIES IN HISTORY *3 credits*
Includes experimental and interdisciplinary studies, as well as those subjects that are not listed in this *General Bulletin*. See departmental office for information on particular offerings.

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.

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.

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.

406/506 THE AMERICAN REVOLUTIONARY ERA: POLITICAL, MILITARY, AND CONSTITUTIONAL ASPECTS *3 credits*
The struggle for the rights of Englishmen and independence; the impact of war on American society and the creation of republican institutions.

407/507 UNITED STATES DIPLOMACY TO 1919 *3 credits*
Establishment of basic policies, diplomacy of expansion and emergence of a world power.

408/508 UNITED STATES DIPLOMACY SINCE 1914 *3 credits*
Responses of government and public to challenges of war, peace making and power politics.

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.

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.

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.

414/514 HISTORY OF CANADA *3 credits*
Survey of Canadian history from the age of the explorers to the present. Special emphasis will be placed on the history of French-Canadians, on economic development and on Canadian-American relations.

415/515 LATIN AMERICA: ORIGINS OF NATIONALITY *3 credits*
Pre-Columbian civilizations, discovery and conquests; colonialism, struggle for independence and formation of new societies.

416/516 LATIN AMERICA: THE 20TH CENTURY *3 credits*
Social revolution, political ideology and contemporary problems.

417/517 THE UNITED STATES, LATIN AMERICA AND IMPERIALISM *3 credits*
Inter-American relations, militarism, dependency, Marxism and recent international and ideological trends.

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 20th Century Mexican revolution.

419/519 CENTRAL AMERICA AND THE CARIBBEAN *3 credits*
Selected aspects of the histories of Central American and Caribbean countries with emphasis on populist and peasant movements, political reform, social revolution, economic and underdevelopment, and relations with the United States.

421/521 THE AMERICAN COLONIES IN THE 17TH CENTURY, 1607-1713 *3 credits*
Establishment of European colonies in America with special emphasis on English settlements and evolution of the first British Empire to 1713.

422/522 THE 18TH CENTURY COLONIES AND FOUNDING OF THE UNITED STATES, 1713-1800 *3 credits*
Colonial life from the Glorious Revolution to the founding of the United States. Major movements (wars, religious revivals, economic growth) and political controversies.

424/524 AGE OF JEFFERSON AND JACKSON, 1800-1850 *3 credits*
The evolution of the republic in its formative stages from Jefferson through Jackson to the Compromise of 1850. Emphasis upon political, social, intellectual and Constitutional developments.

425/525 THE CIVIL WAR AND RECONSTRUCTION, 1850-1877 *4 credits*
Sectionalism, slavery and the causes of the Civil War; wartime activities of the Union and Confederacy; leading personalities; problems of reconstruction and the new Union.

428/528 THE ORIGINS OF MODERN AMERICA, 1877-1917 *3 credits*
United States from Reconstruction Era to World War I (1877-1920); emphasis on politcal responses to rise of an industrialized-urbanized society, the populist and progressive movements.

429/529 AMERICA IN WORLD WARS AND DEPRESSION, 1917-1945 *3 credits*
World War I and Versailles; the 1920s, the Great Depression and the New Deal; World War II.

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.

431/531 HISTORY OF AMERICAN TRANSPORTATION *3 credits*
A survey of development of major transportation forms, water, road, rail and air. Special emphasis on technological change, social and economics trends, and government support and control.

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.

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.

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.

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.

436/536 THE AMERICAN CITY *3 credits*
Development of urbanization and its consequences from colonial period to present.

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.

438/538 BRONZE AGE AND ARCHAIC GREECE (3000-480 BC) *3 credits*
An intensive survey of the history of Greece from the Neolithic period to the Persian Wars. Attention will be given to the nature of the source material, ancient historiography, text criticism and the like.

439/539 CLASSICAL AND HELLENISTIC GREECE (480-146 BC) *3 credits*
Prerequisite: 438/538. An intensive survey of the history of Greece from 480 B.C. to the Hellenistic Age. Attention will be given to the nature of the source material, ancient historiography, text criticism and the like.

440/540 THE ROMAN REPUBLIC *3 credits*
An intensive survey of the Roman Republic. Attention will be given to the nature of the source material, ancient historiography, text criticism and the like.

441/541 THE ROMAN EMPIRE *3 credits*
Prerequisite: 440/540. An intensive survey of the Roman Empire. Attention will be given to the nature of the source material, ancient historiography, text criticism and the like.

442/542 MEDIEVAL EUROPE, 400-1200 *3 credits*
Migration of peoples, Carolingian revival, renewed invasions; social, economic and intellectual stirrings leading to "birth of Europe."

443/543 MEDIEVAL EUROPE, 1200-1500 *3 credits*
Middle Ages and the middle class; economic and political change, international wars, social unrest and religious crosscurrents.

445/545 THE RENAISSANCE *3 credits*
The European Renaissance (1350-1600). Economic and political trends with special emphasis on Protestant, Anglican and Catholic reformations.

446/546 THE REFORMATION *3 credits*
Europe in 16th Century; its religious, cultural, political and diplomatic development, with special emphasis on Protestant, Anglican and Catholic reformations.

447/547 EUROPEAN ABSOLUTISM AND THE ENLIGHTENMENT, 1648-1789 *3 credits*
Constitutional, diplomatic, cultural, intellectual and social developments of 17th Century Europe.

448/548 EUROPE IN THE FRENCH REVOLUTIONARY ERA, 1789-1815 *3 credits*
Development of Revolution; Napoleon's regime and satellites.

451/551 19TH CENTURY EUROPE, 1815-1871 *3 credits*
Europe in the century of change; revolution, romanticism, industrialization, democratization, first wars of the Industrial Age.

452/552 19TH CENTURY EUROPE, 1871-1914 *3 credits*
Socialism, imperialism, nationalism and the great war. The *belle epoque* and contemporary artistic and intellectual currents.

454/554 20TH CENTURY EUROPE, 1914-1939 *3 credits*
Europe between world wars; Russian revolution, fascism and national socialism; plight of democracies.

455/555 20TH CENTURY EUROPE SINCE 1939 *3 credits*
Europe in World War II, the cold war and attempts at unity.

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.

459/559 RUSSIA SINCE 1801 *3 credits*
Survey of 19th and 20th Centuries. Special emphasis on problems of modernization, the revolution and development of communism.

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.

470/570 ENGLAND TO 1688 *3 credits*
Survey of English history from the Anglo-Saxon conquest to the Revolution of 1688. Medieval and early modern institutions, social and cultural life.

471/571 ENGLAND SINCE 1688 *3 credits*
Survey of English history from 1688 to the present. The reform of English institutions and life, modernization of the economy, the welfare state, society and war.

472/572 TUDOR AND STUART ENGLAND, 1485-1714 *3 credits*
Emphasis on social, economic and cultural topics, including literature, art and architecture.

477/577 WESTERN SCIENCE TO 1800 *3 credits*
Science in Greek, Roman, Islamic, European societies with special emphasis on the scientific revolution of the 16th and 17th Centuries.

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.

479/579 WESTERN TECHNOLOGY *3 credits*
Technology in Mesopotamia, Egypt, Greece, Rome, Islam, medieval Europe; first and second industrial revolutions in Europe, America.

480/580 TRADITIONAL CHINA *3 credits*
Selective study of institutional, intellectual, political and artistic developments in Chinese civilization from antiquity to 18th Century. Emphasis on general features of traditional Chinese culture.

481/581 MODERN CHINA *3 credits*
Survey of China since 18th Century with focus on process of modernization. Background of contemporary scene stressed.

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.

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.

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.

Graduate Courses

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.

623 WRITING SEMINAR IN ANCIENT HISTORY *4 credits*
Prerequisite: 622. Research and writing in selected topics of ancient history, particularly Greek and Roman eras.

625 READING SEMINAR IN MEDIEVAL HISTORY *4 credits*
Study of historical literature, sources of materials and major interpretations of medieval European history.

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.

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.

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.

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 19th Century.

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.

640 READING SEMINAR IN HISTORY OF SCIENCE *4 credits*
Study of historical literature, sources of materials and major interpretations in history of science.

641 WRITING SEMINAR IN HISTORY OF SCIENCE *4 credits*
Research and writing in selected topics in history of science.

651 READING SEMINAR IN THE HISTORY OF ENGLAND AND THE EMPIRE *4 credits*
Study of historical literature, sources of materials and major interpretations of English and British imperial history.

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.

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.

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.

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.

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.

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.

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.

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.

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.

694 THESIS RESEARCH *3 credits*
Research for Master of Arts degree thesis.

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.

699 THESIS WRITING *3 credits*
Prerequisite: 694. Writing of Master of Arts degree thesis.

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.

898 DISSERTATION RESEARCH *1-12 credits*
Research for Doctor of Philosophy degree dissertation.

899 DISSERTATION WRITING *1-12 credits*
Prerequisite: 898. Writing of Doctor of Philosophy degree dissertation.

MATHEMATICS 3450:

111-38 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.

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.

111 ALGEBRA *1 credit*
Prerequisite: placement. Sets, signed numbers, algebraic expressions, factoring, exponents, radicals, binomial theorem.

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.

113 COMBINATORICS AND PROBABILITY *1 credit*
Prerequisite: 112. Permutations, combinations, sample spaces, events; simple, compound and conditional probability; Bernoulli trials, expectations and odds.

114 MATRICES *1 credit*
Prerequisite: 112. Nomenclature, operations, inverse, solution of m linear equations in n variables using elementary row operations.

115 LINEAR PROGRAMMING *1 credit*
Prerequisite: 114 or equivalent. Minimizing and/or maximizing a linear function subject to a system of linear inequalities (geometrically and simplex method); introduction to game theory.

117 INTRODUCTION TO TRIGONOMETRY *1 credit*
Prerequisite: 112. Definitions of trigonometric functions, identities, solving right triangles, applications.

118 TRIGONOMETRIC FUNCTIONS AND GRAPHING *1 credit*
Prerequisite: 117. Graphing, identities, solving triangles, applications.

121 ANALYTIC GEOMETRY *1 credit*
Prerequisite: 112. Cartesian coordinate system; rational, logarithmic, exponential functions; sequences, series, limits, definition of series.

122 DIFFERENTIAL CALCULUS *1 credit*
Prerequisite: 121. Differentiation of algebraic, logarithmic and exponential functions, higher derivatives, partial derivatives, applications.

123 INTEGRAL CALCULUS *1 credit*
Prerequisite: 122. Indefinite and definite integral differentials, change of variable, numerical integration, improper integrals, double integral.

124 CALCULUS WITH TRIGONOMETRY *1 credit*
Prerequisites: 118, 123. Differentiation and integration of trigonometric functions, trigonometric substitution, applications.

131 NUMBER SYSTEMS *1 credit*
Prerequisite: 112. Ancient number systems, number bases, Euclidean algorithm, modular arithmetic.

132 ELEMENTARY GEOMETRY *1 credit*
Prerequisite: 112, Definitions and measure of line segments, angles and triangles in Euclidean plane geometry; Hilbert's axioms.

136 SYSTEMS OF MEASUREMENT *1 credit*
English and metric systems of weights and measures. Troy, avoirdupois and apothecaries' systems.

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.

147 ELEMENTARY FUNCTIONS I *3 credits*
Prerequisite: placement. Real numbers, equations and inequalities, radicals, absolute value, relations and functions, linear and quadratic functions, system of equations, matrices and determinants, complex numbers.

148 ELEMENTARY FUNCTIONS II *3 credits*
Prerequisite: placement. Exponential and logarithmic functions, exponential and logarithmic equations, trigonometric functions, reduction formulas, trigonometric identities, arithmetic and geometric sequences and series, mathematical induction.

149 PRECALCULUS MATHEMATICS *4 credits*
Prerequisite: placement. 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.

211 CALCULUS FOR THE LIFE SCIENCES I *3 credits*
Prerequisite: 149 or equivalent or placement. A calculus course for students majoring in the biological and health sciences. Functions, limits and continuity, differentiation, applications of derivatives, exponential and logarithmic functions, integration.

212 CALCULUS FOR THE LIFE SCIENCES II *3 credits*
Prerequisite: 211. A calculus course for students majoring in the biological and health sciences. Trigonometric functions, applications of derivatives of differentiation and integration, differential and difference equations, functions of several variables, infinite series, vectors and matrices.

215 CONCEPTS OF CALCULUS I *4 credits*
Prerequisite: 149 or equivalent or placement. 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.

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.

221 ANALYTIC GEOMETRY-CALCULUS I *4 credits*
Prerequisite: 149 or equivalent or placement. Real numbers, analytic geometry, limits, continuity, 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.

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.

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.

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.

289 SELECTED TOPICS IN MATHEMATICS *1-3 credits*
Prerequisite: permission. Selected topics of interest in mathematics.

301 HISTORY OF MATHEMATICS *2 credits*
Prerequisite: 222. Origin and development of mathematical ideas.

311 ABSTRACT ALGEBRA *3 credits*
Prerequisite: 222. Introduction to groups, rings, integral domains; axiomatic foundation: natural, integer, rational, real, complex number systems.

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.

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.

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.

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.

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.

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.

427/527 INTRODUCTION TO NUMERICAL ANALYSIS *3 credits*
Prerequisites: 223 and 3460:201 or 4100:206. Mathematical analysis of numerical methods for solving equations, interpolating function values, approximating derivatives and integrals, approximating functions.

428/528 NUMERICAL LINEAR ALGEBRA *3 credits*
Prerequisites: 223 and 3460:201 or 4100:206. Mathematical analysis of numerical methods for solving systems of linear equations, eigenvalue problems, nonlinear systems, unconstrained minimization problems.

429/529 NUMERICAL METHODS IN DIFFERENTIAL EQUATIONS *3 credits*
Prerequisites: 427 and 3460:201 or 4100:206. Mathematical analysis of numerical methods for solving ordinary differential equations, systems of ordinary differential equations, partial differential equations.

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.

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.

435/535 SYSTEMS OF ORDINARY DIFFERENTIAL EQUATIONS *3 credits*
Prerequisites: 235 and either 312 or 428 or permission. Analysis, solution of systems of equations, linear, nonlinear. Topics: stability theory, perturbation methods, asymptotic methods, applications from physical, social sciences.

436/536 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.

438/538 ADVANCED ENGINEERING MATHEMATICS I *3 credits*
Prerequisite: 235. Linear algebra, vector analysis, Laplace transforms, systems of differential equations, related numerical methods — applied to typical engineering problems. Does not satisfy elective requirements for mathematical sciences degree.

439/539 ADVANCED ENGINEERING MATHEMATICS II *3 credits*
Prerequisites: 438/538 or both 235 and 312. Complex analysis, series solutions to differential equations, special functions, Fourier series transforms, partial differential equations — applied to engineering problems. Does not satisfy elective requirements for mathematical sciences degree.

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.

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.

445/545 INTRODUCTION TO TOPOLOGY *3 credits*
Prerequisite: 312 or permission. Introduction to topological spaces and topologies, mappings, cardinality, homeomorphisms, connected spaces, metric spaces.

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

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.

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.

498 SENIOR HONORS PROJECT *1-3 credits*
Prerequisite: 489 (honors). Directed study for senior student in the Honors Program who has completed 489 (honors). An introduction to research problems in mathematical sciences under the guidance of selected faculty.

Graduate Courses

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.

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.

611,2 ALGEBRAIC THEORIES I AND II *3 credits each*
Prerequisites: 311 and either 312 or 610. Sequential. In-depth analysis of algebraic theory — monoids, groups, rings, modules, vector spaces, field extensions, lattices and algebras.

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.

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.

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.

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-optional problems, the connective between classical theory and the maximality principle.

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.

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.

635 OPTIMIZATION *3 credits*
Prerequisite: 422/522 or permission. Unconstrained and constrained optimization theory and methods in applied problems.

636 ADVANCED COMBINATORICS AND GRAPH THEORY *3 credits*
Prerequisite: 235. Theory and techniques of combinatorics as applied to network problems and graph theoretic problems.

642 DIFFERENTIAL GEOMETRY *3 credits*
Prerequisite: 422/522. Analytic representation of space curves, surfaces; intrinsic geometry of surface; geometry of surfaces in large.

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.

689 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.

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.

695 PRACTICUM IN MATHEMATICS AND STATISTICS *1-3 credits*
Prerequisite: graduate teaching assistant or permission. Training and experience in college teaching of mathematical sciences. May not be used to meet degree requirements. May be taken only on a credit/noncredit basis.

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.

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.

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.

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.

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 non-majors.

128 ADVANCED BASIC PROGRAMMING *1 credit*
Prerequisite: 126 or equivalent. A continuation of 126 to include such topics as arrays, files, graphics, simulations, subroutines, top-down programming, control structures and applications. Hands-on experience in the Apple Lab will be scheduled.

201-7 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.

201 INTRODUCTION TO FORTRAN PROGRAMMING *2 credits*
Prerequisites: 3450:111, 112, 114 or 147 or equivalent. Does not meet computer science major, minor and/or certificate requirements.

202 INTRODUCTION TO COBOL PROGRAMMING *2 credits*
Prerequisites: 3450:111, 112, 114 or equivalent. Does not meet computer science major, minor and/or certificate requirements.

203 INTRODUCTION TO APL PROGRAMMING *2 credits*
Prerequisites: 3450:111, 112, 114 or equivalent.

204 INTRODUCTION TO PL/1 PROGRAMMING *2 credits*
Prerequisites: programming experience and 3450:111, 112, 114 or 147 or equivalent.

205 INTRODUCTION TO PASCAL PROGRAMMING *2 credits*
Prerequisites: programming experience and 3450:111, 112, 114 or 147 or equivalent. Does not meet computer science major, minor and/or certificate requirements.

206 INTRODUCTION TO C PROGRAMMING *2 credits*
Prerequisites: programming experience and 3450:111, 112, 114 or 147 or equivalent. Provides the student with additional programming skills allowing access to assembly or high-level macros.

207 INTRODUCTION TO SAS PROGRAMMING *2 credits*
Prerequisites: programming experience and 3450:111, 112, 114 or 147 or equivalent. Programming in the SAS language including SAS procedures to information storage and retrieval, data modification and programming, report writing and file handling.

209 COMPUTER PROGRAMMING I *3 credits*
Prerequisite: 3450:149 or equivalent. An introduction to problem-solving methods and algorithm development. Programming in a high-level language including how to design, code, debug and document programs using techniques of good programming style.

210 COMPUTER PROGRAMMING II *3 credits*
Prerequisites: 209 and 3450:221 or 3450:215. 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.

302 PROGRAMMING APPLICATIONS WITH COBOL *3 credits*
Prerequisite: 210. Applications of COBOL, JCL and file manipulation; intended to introduce business data processing techniques to the business option computer science major. Does not meet major requirements for mathematics option computer science students.

306 ASSEMBLY LANGUAGE PROGRAMMING *3 credits*
Prerequisite: 210. Basic computer organization and data representation. Programming in assembly language on a typical digital computer Subroutine linkage and macro instructions.

307 APPLIED SYSTEMS PROGRAMMING *3 credits*
Prerequisite: 306. Introduction to systems programming using OS/370, Job Control Language, loaders and compilers, utilities. Stresses actual systems programming.

316 INTRODUCTION TO DATA STRUCTURES *3 credits*
Prerequisites: 210 and 3450:222 or 3450:216 or permission. Standard data structures: stacks, queues, deques, trees, graphs, vectors, arrays, files; searching, sorting.

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.

420/520 STRUCTURED PROGRAMMING *3 credits*
Prerequisite: 316. Techniques of block programming using a structured programming language, program readability, program verification and program design.

425/525 INTRODUCTION TO SOFTWARE SYSTEMS *3 credits*
Prerequisite: 210. Introduction to software systems: operating systems, input/output systems, languages and their processors; memory management; software engineering principles.

426/526 OPERATING SYSTEMS *3 credits*
Prerequisites: 307 and 316. Introduction to various types of operating systems: batch processing systems, multiprogramming systems and interacting processes; storage management; process and resource control; deadlock problem. Course is independent of any particular operating system.

430/530 THEORY OF PROGRAMMING LANGUAGES *3 credits*
Prerequisite: 316. More advanced concepts underlying programming languages and their applications, formal definitions of programming languages, Backus Normal Form, semantics, compiler design.

435/535 ANALYSIS OF ALGORITHMS *3 credits*
Prerequisites: 316 and 418. Design and analysis of efficient algorithms for random access machines; derivation of pattern classification algorithms.

440/540 COMPILER DESIGN *3 credits*
Prerequisites: 307 and 316. Techniques used in writing and modifying compilers including translation, loading, execution, symbol tables and storage allocation; compilation of simple expressions and statements. Organization of a compiler for handling lexical scan, syntax scan, object code generation, error diagnostics and code optimization. Use of compiler writing languages and boot-strapping. The course requires a project involving compiler writing.

455/555 DATA COMMUNICATIONS *3 credits*
Prerequisite: 210. Introduction to data communications, teleprocessing networks: codes, modes of transmission, errors, protocol.

457/557 COMPUTER GRAPHICS *3 credits*
Prerequisite: 210. Topics in vector graphics, scan line graphics, representations and languages for graphics.

460/560 ARTIFICIAL INTELLIGENCE AND HEURISTIC PROGRAMMING *3 credits*
Prerequisite: 316. Study of various programs which have displayed some intelligent behavior. Exploration of level at which computers can display intelligence.

465/565 COMPUTER ORGANIZATION *3 credits*
Prerequisite: 306. An introduction to the hardware organization of the computer at the register, processor and systems level. An in-depth study of the architecture of a particular computer systems family.

470/570 AUTOMATA, COMPUTABILITY AND FORMAL LANGUAGES *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.

475/575 DATA-BASE MANAGEMENT *3 credits*
Prerequisite: 316. Fundamentals of data-base organization, data manipulations and representation, data integrity, privacy.

489/589 TOPICS IN COMPUTER SCIENCE *1-3 credits*
(May be repeated for a total of six credits)
Prerequisite: permission of instructor. Selected topics in computer science at an advanced level.

491/591 WORKSHOP IN COMPUTER SCIENCE *1-3 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.

497/597 INDIVIDUAL READING IN COMPUTER SCIENCE *1-3 credits*
(May be repeated)
Prerequisite: permission. Computer science major only. Directed studies designed as introduction to research problems, under guidance of designated faculty member.

498 SENIOR HONORS PROJECT *1-3 credits*
Prerequisite: 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.

STATISTICS
3470:

251-7 INTRODUCTION TO STATISTICS
Introduction to fundamental ideas of statistics at precalculus level including topics from the following:

251 DESCRIPTIVE STATISTICS AND PROBABILITY *1 credit*
Prerequisite: one semester of college algebra or equivalent.

252 DISTRIBUTIONS *1 credit*
Prerequisite: 251.

253 HYPOTHESIS TESTING (PARAMETRIC) *1 credit*
Prerequisite: 252.

254 HYPOTHESIS TESTING (NONPARAMETRIC) *1 credit*
Prerequisite: 253.

255 REGRESSION AND CORRELATION *1 credit*
Prerequisite: 253

256 EXPERIMENTAL DESIGN *1 credit*
Prerequisite: 253.

257 TIME SERIES AND INDEX NUMBERS *1 credit*
Prerequisite: 255.

258 STATISTICAL COMPUTATIONS ON THE MICROCOMPUTER *1 credit*
Prerequisites: 254, 255, 256 and 3460:126. The utilization and generation of computer programs in the BASIC language to implement algorithms for the solution of a variety of statistical problems.

259 EXPLORATORY DATA ANALYSIS *1 credit*
Prerequisites: 251, 252, 253, 255. Topics to include Stem and Leaf displays; letter-value displays, graphical description of data; resistant line; smoothing data (optional); two-way tables (optional).

450/550 PROBABILITY *3 credits*
Prerequisite: 3450:221. Introduction to probability, random variables and probability distributions, expected value, sums of random variables, Markov processes.

451,2/551,2 THEORETICAL STATISTICS I AND II *3 credits each*
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.

461/561 APPLIED STATISTICS *4 credits*
Prerequisite: 3450:223 or 216 or permission. 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.

463/563 EXPERIMENTAL DESIGN *4 credits*
Prerequisite: 461/561 or 661 or equivalent. Analysis of variance; crossed, nested designs; multiple comparisons; power considerations; randomized blocks, repeated measure designs, latin squares, random and fixed effects, analysis of covariance, applications.

465/565 DESIGN OF SAMPLE SURVEYS *3 credits*
Prerequisite: 251-253 or equivalent. Design and analysis of frequently used sample survey techniques.

480/580 STATISTICAL COMPUTER APPLICATIONS *3 credits*
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.

489/589 TOPICS IN STATISTICS *1-3 credits*
(May be repeated for a total of six credits)
Prerequisite: permission. Selected topics in advanced statistics, including quality control, reliability, sampling techniques, decision theory, advanced inference, stochastic processes and others.

491/591 WORKSHOP IN STATISTICS *1-3 credits*
(May be repeated with change of topic)
Group studies of special topics in statistics. May not be used to meet undergraduate or graduate major requirements in mathematics and statistics. May be used for elective credit only.

497 INDIVIDUAL READING *1-2 credits*
(May be repeated for a total of four credits)
Prerequisites: senior standing and permission. Directed studies in statistics designed as introduction to research problems under guidance of selected faculty member.

498 SENIOR HONORS PROJECT *1-3 credits*
Prerequisite: 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.

Graduate Courses

620 APPLICATIONS OF MATRICES TO STATISTICS *3 credits*
Prerequisite: 461/561 or equivalent. Matrices, introduction to multivariate normal distribution, applications of matrices to linear models.

644 ADVANCED EXPERIMENTAL DESIGN *2 credits*
Prerequisite: 463/563. An extension and continuation of 563 to include topics from confounding, fractional factorial designs, split plot designs, analysis of covariance, unequal subclass frequencies, tests of assumptions, applications.

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.

651 PROBABILITY AND STATISTICS *4 credits*
Prerequisites: 561 or 661 or equivalent and 3450:601 or equivalent. Probability, random variables, moments and generating functions, random vectors, special distributions, limit theorems, sampling, point estimation, hypothesis testing, confidence estimation.

652 ADVANCED MATHEMATICAL STATISTICS *2 credits*
Prerequisite: 651. Moment generating functions; convergence: in distribution, in probability, almost everywhere; estimation: properties and criteria; likelihood; test construction; order statistics and nonparametric methods; bivariate normal distribution.

655 LINEAR MODELS *3 credits*
Prerequisites: 620 and 651. General linear model in matrix notation, general linear hypothesis, regression models, experimental design models, analysis of variance and covariance, variance components.

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.

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.

665 REGRESSION AND CORRELATION *3 credits*
Prerequisites: 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.

666 NONPARAMETRIC STATISTICS-METHODS *2 credits*
Prerequisites: 256, 662 or permission. Theoretical bases and relationships among various nonparametric techniques compared with parametric ones.

667 FACTOR ANALYSIS *2 credits*
Prerequisite: 661 or permission. Theory and techniques in identifying variables through use of factor analysis.

668 MULTIVARIATE STATISTICAL METHODS *3 credits*
Prerequisite: 463/563, or 662 or equivalent. Multivariate techniques including distance concept, Hoteling 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.

689 ADVANCED TOPICS IN STATISTICS *1-3 credits*
(May be repeated for a total of six credits)
Prerequisite: 651. Selected topics in statistics including concepts in order, statistics, advanced inference, sequential analysis, stochastic processes, reliability theory, Bayesian statistics and regression.

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.

MODERN LANGUAGES
3500:

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.

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.

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.

490/590 WORKSHOP *2 credits*
(May be repeated)
Group studies of special topics in modern languages.

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 permission. Open only to language major enrolled in Honors Program. Independent study leading to completion of senior honors thesis or other original work.

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.

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.

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.

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.

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.

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.

312 INDIVIDUAL SUMMER STUDY ABROAD *2 credits*
Prerequisites: 202 or equivalent and permission of instructor.

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.

351,2 TRANSLATION: FRENCH *3 credits each*

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.

403,4 ADVANCED FRENCH COMPOSITION AND CONVERSATION *3 credits each*
Prerequisite: 302 or equivalent. Thorough analysis of syntax, morphology, phonetic principles and grammatical structure.

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.

411/511 17TH 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.

415/515 18TH CENTURY FRENCH LITERATURE *4 credits*
Prerequisite: 302 or 306 or permission. Reading and discussion of selected authors; emphasis on the *Philosophies*. Conducted in French.

419/519 19TH 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.

427/527 20TH CENTURY FRENCH LITERATURE *4 credits*
Prerequisite: 302 or 306 or permission. Reading and discussion of the most representative works of period. Conducted in French.

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.

471/571 FRENCH LANGUAGE READING PROFICIENCY *4 credits*
Designed to develop proficiency in reading comprehension.

497,8 INDIVIDUAL READING IN FRENCH *1-3 credits each*

Graduate Courses

601 ADVANCED FRENCH GRAMMAR *4 credits*
Advanced study of normative French grammar with emphasis on syntax, morphology, grammatical structure and phonetic principles.

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.

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.

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.

641 SEMINAR: FRANCOPHONE LITERATURE, CULTURE AND CIVILIZATION *2 credits*
Study of various aspects of culture, civilization and literature of French expression outside of France.

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.

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.

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.

699 THESIS WRITING *4 credits*

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.

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.

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.

250 20TH 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.

251 19TH 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.

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.

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.

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.

351,2 TRANSLATION: GERMAN *3 credits each*

403,4 ADVANCED GERMAN CONVERSATION AND COMPOSITION *3 credits each*
Prerequisite: 302 or equivalent. Thorough analysis of syntax, morphology, phonetic principles and grammatical structure.

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.

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, Kloptock, Herder, the young Goethe and others. Conducted in German.

420/520 THE AGE OF GOETHE II *3 credits*
Prerequisites: 302, 306 or permission. Faust, selections from parts I and II. Ballads of Goethe and Schiller. Conducted in German.

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.

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.

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.

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.

439/539 20TH 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.

440/540 20TH 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.

471/571 GERMAN LANGUAGE READING PROFICIENCY *4 credits*
Designed to develop proficiency in reading comprehension.

497,8 INDIVIDUAL READING IN GERMAN *1-3 credits each*
Prerequisite: permission.

ITALIAN
3550:

101,2 BEGINNNING 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.

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.

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.

250 GENIUS OF ITALIAN LITERATURE IN TRANSLATION *2 credits*
Reading and discussion of works of Dante, Petrarca, Boccaccio, Ariosto, Machiavelli, Cellini, Tasso, Bruno and Pirandello De Fillippo.

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.

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.

497 INDIVIDUAL READING IN ITALIAN *1-3 credits*
Prerequisite: permission.

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.

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.

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.

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.

305,6 INTRODUCTION TO RUSSIAN LITERATURE *3 credits each*
Prerequisite: 202 or equivalent. Reading and class discussion in Russian of representative works.

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.

351,2 TRANSLATION: RUSSIAN *3 credits each*

403,4 ADVANCED RUSSIAN COMPOSITION AND CONVERSATION *3 credits each*
Prerequisite: 302 or equivalent. Thorough analysis of syntax, morphology, phonetic principles and grammatical structure.

411,2 SCIENTIFIC RUSSIAN *3 credits each*
Prerequisite: 202 or equivalent. Intensive reading of scientific articles in chemistry, physics, mathematics, biology and medicine.

420,1 RUSSIAN LITERATURE OF THE 19TH CENTURY: ROMANTICISM AND REALISM *3 credits each*
Prerequisites: 301 or 302 or permission. Readings from representative authors such as Pushkin, Lermontov, Gogol, Turgenev, Dostoyevsky, Tolstoy, Goncharov and others.

427,8 RUSSIAN LITERATURE OF THE 20TH CENTURY *3 credits each*
Prerequisite: 202 or equivalent. Reading and discussion of selected literary works from Gorky to Solzhenitsyn.

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.

497,8 INDIVIDUAL READING IN RUSSIAN *1-3 credits each*
Prerequisite: permission.

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.

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.

207,8 INTERMEDIATE SPANISH I AND II READING OPTION *3 credits each*
Sequential. Prerequisites: 102 or equivalent and permission. Reading of texts in Spanish dealing with culture of Spanish-speaking people. Not open to majors.

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.

305 INTRODUCTION TO HISPANIC LITERATURE *4 credits*
Prerequisite: 202 or equivalent. Reading and discussion of works written in Spanish with emphasis on the literature of contemporary authors. Conducted in Spanish.

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.

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.

351,2 TRANSLATION: SPANISH *3 credits each*

401,2 ADVANCED COMPOSITION AND CONVERSATION *3 credits each*
Prerequisites: 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.

403 ADVANCED GRAMMAR *3 credits*
Prerequisite: 302 or equivalent. Thorough analysis of syntax, morphology, phonetic principles and grammatical structure.

407/507 MEDIEVAL AND RENAISSANCE SPANISH LITERATURE *4 credits*
Prerequisite: 305 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.

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.

411/511 SPANISH LITERATURE OF THE GOLDEN AGE *4 credits*
Prerequisite: 305 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 16th and 17th Centuries studied. Conducted in Spanish.

412/512 CERVANTES: DON QUIJOTE *4 credits*
Prerequisite: 305 or permission of the Instructor. Reading and analysis of Don Quijote as the first modern novel in the historical context of Renaissance and Baroque esthetics. Conducted in Spanish.

415/515 18TH AND 19TH CENTURY SPANISH DRAMA AND POETRY *4 credits*
Prerequisite: 305 or permission. Reading, discussion and lectures. Study of Neoclasicismo and Romanticismo. Conducted in Spanish.

416/516 19TH CENTURY SPANISH PROSE *4 credits*
Prerequisite: 305 or permission. Reading, discussion and lectures. Study of Realismo, Naturalismo and La Generacion del 98. Conducted in Spanish.

418/518 20TH CENTURY SPANISH PROSE *4 credits*
Prerequisite: 305 or permission of the instructor. Reading and analysis of representative writers of prose fiction with a selection of works that illustrates major developments and themes. Conducted in Spanish.

419/519 20TH CENTURY SPANISH DRAMA/POETRY *4 credits*
Prerequisite: 305 or permission of the instructor. Reading and analysis of representative writers of drama and poetry with a selection of works that illustrates the major developments and themes in both genres. Conducted in Spanish.

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.

423/523 SPANISH-AMERICAN LITERATURE BEFORE 1900 *4 credits*
Prerequisite: 305 or permission. Reading of representative Spanish-American literature from the discovery to 1900. Oral and written reports. Conducted in Spanish.

424/524 20TH CENTURY SPANISH-AMERICAN LITERATURE *4 credits*
Prerequisite: 305 or permission. Reading and analysis of selected dramas, essays, poems and short fiction written by outstanding Spanish-American authors of this century. Conducted in Spanish.

425/525 20TH CENTURY SPANISH-AMERICAN NOVEL *4 credits*
Prerequisite: 305 or permission. Reading and discussion of representative contemporary Latin American novels. Conducted in Spanish.

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.

430/530 WOMEN IN 20TH CENTURY HISPANIC LITERATURE *4 credits*
Prerequisite: 305 or permission. Reading and analysis of selected works from the 20th Century that depict women in Hispanic countries. Methodologies of feminist criticism will be studied. Conducted in Spanish.

471/571 SPANISH LANGUAGE READING PROFICIENCY *4 credits*
Designed to develop proficiency in reading comprehension.

497 INDIVIDUAL READING IN SPANISH *1-3 credits*
Prerequisite: permission.

Graduate Courses

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.

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.

609,10 SEMINAR ON SPANISH LITERATURE OF THE GOLDEN AGE: SEMINAR ON 18TH AND 19TH 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.

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.

617 SEMINAR ON 20TH CENTURY SPANISH-AMERICAN LITERATURE *4 credits*
Reading and discussion of contemporary writers with emphasis on theatre, novel and short story. Conducted in Spanish.

621 SEMINAR ON 20TH 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.

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.

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.

699 THESIS WRITING *4 credits*

PHILOSOPHY 3600:

101 INTRODUCTION TO PHILOSOPHY *3 credits*
Introduction to philosophic problems and attitudes through acquaintance with thoughts on some leading thinkers of Western tradition.

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."

125 THEORY AND EVIDENCE *3 credits*
An investigation of the concept of evidence and the criteria for the evaluation of theories in various areas of study including the natural sciences, the social sciences and philosophy. The role of scientific information in the formation and justification of value judgments.

170 INTRODUCTION TO LOGIC *3 credits*
Introduction to logic and critical thinking. Includes such topics as meaning, informal faliacies, propositional logic, predicate and syllogistic logic and nature of induction.

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.

216 AMERICAN PHILOSOPHY *3 credits*
Prerequisite: one course in philosophy or permission of instructor. Movement of ideas in American from Royce to present.

232 PHILOSOPHY OF RELIGION *3 credits*
Prerequisites: two philosophy courses. Discussion, analysis of problems of theology, nature of religious experience, God's nature, existence; immortality, sin, faith, reason; holy revelation, redemption.

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.

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.

313 HISTORY OF MODERN PHILOSOPHY *3 credits*
Analysis of major philosophical issues of 17th and 18th Centuries from Descartes through Kant. Readings of primary sources in translation.

314 19TH 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.

323 ADVANCED TOPICS IN ETHICS *3 credits*
Prerequisite: one course in philosophy or permission of instructor. An examination of selected topics in Ethical Theory such as the Naturalistic Fallacy, Ethical Non-Cognitivism, Prescriptivism, Theories of Rights, Theories of Punishment, Nihilism, Relativism, Moral Skepticism. Specific topics will be announced in the course schedule.

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.

332 DIALECTICAL MATERIALISM *3 credits*
Prerequisite: 324 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.

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.

371 PHILOSOPHY OF MIND *3 credits*
Nature of mind and the relationship between mind and body. Specific topics such as the limits of human reason, personal identity, the role of human thought in action and whether machines can think are also considered.

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.

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.

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.

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.

418/518 ANALYTIC PHILOSOPHY *3 credits*
Prerequisites: 211, 312 and 313 or permission of instructor. Study of ideal and ordinary language movements in 20th Century British and American philosophy. Deals with such figures as Russell, Carnap, Ayer, Moore, Wittgenstein, Ryle and Austen.

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.

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.

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 Leibnitz.

424/524 EXISTENTIALISM *3 credits*
Prerequisites: 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.

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.

432/532 ARISTOTLE *3 credits*
Prerequisites: 211, 312 and 313 or permission of instructor. Detailed study of Aristotle's metaphysics, philosophy of nature, philosophy of man and ethics. Taught in alternate years.

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.

444/544 PROBLEMS IN PHILOSOPHY *3 credits*
Prerequisites: two courses in philosophy or permission of instructor. Thorough, critical examination of one major philosophical problem.

462/562 THEORY OF KNOWLEDGE *3 credits*
Prerequisites: three courses in philosophy. Examination of nature of knowledge; theories of perception, conception and truth; problem of induction and relation of language to knowledge.

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.

471/571 METAPHYSICS *3 credits*
Prerequisites: 211, 312 and 313 or permission of instructor. Theories about ultimate nature and ultimate explanation of reality. Uses readings from classical and contemporary sources.

480/580 SEMINAR *3 credits*
(May be repeated)
Prerequisite: permission of instructor.

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.

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 as 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.

497/597 INDIVIDUAL STUDY *1-3 credits*
(May be repeated for a total of six credits)
Prerequisites: 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.

Graduate Courses

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.

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.

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.

680 SEMINAR *3 credits*
(May be repeated for a total of nine credits)

699 SEMINAR: THESIS SUPERVISION *2 credits*
(May be repeated)

PHYSICS
3650:

130 DESCRIPTIVE ASTRONOMY *3 credits*
Qualitative and non-mathematical introduction to subjects of astronomy and astrophysics, intended primarily as a first science course for students not majoring in physical science.

133 MUSIC, SOUND AND PHYSICS *3 credits*
Qualitative introduction to sound production, perception and reproduction, with emphasis on music.

137 LIGHT *3 credits*
Introductory, qualitative course dealing with nature of light, and interaction of light with material objects to produce common visual effects.

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.

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.

160 PHYSICS IN SPORTS *3 credits*
An introduction to physics, particularly mechanics. Athletic activities utilized to illustrate principles.

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.

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.

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.

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.

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.

293,4 PHYSICS COMPUTATIONS I AND II *1 credit each*
Corequisite: 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.

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.

310 ELECTRONICS *3 credits*
Prerequisite: 262 or 292. AC and DC circuit theory, digital integrated logic circuits, counters, digital waveshaping. A to D and D to A conversion and applications.

320 OPTICS *3 credits*
Prerequisites: 262 or 292 and 3450:223. Geometric optics: reflection, mirrors, refraction, lenses, optical instruments. Physical optics: waves, superposition, coherence, lasers, interference, diffraction, absorption and scattering, dispersion, double refraction, polarization, optical activity.

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.

322,23 INTERMEDIATE LABORATORY I AND II *2 credits each*
Prerequisite: 262 or 292. Laboratory course stressing measurement techniques with contemporary laboratory apparatus. Experiment design, instrument calibration and reporting emphasized. Modern physics experiments and measurement of fundamental natural constants.

325 LABORATORY DATA ANALYSIS *3 credits*
Prerequisites: 292 and 3460:209. Numerical methods for analysis of laboratory data. Computer methods and programs to draw correct inferences and maximize usefulness of laboratory data.

331,2 ASTROPHYSICS I AND II *3 credits each*
Prerequisite: 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.

340 THERMAL PHYSICS *3 credits*
Prerequisite: 262 or 292. Basic principles of thermal and statistical physics. Ensembles, laws of thermodynamics, equilibrium, irreversibility, equipartition theorem, canonical distribution, Maxwell distribution, phase changes, cyclic processes, transport processes.

350 COMPUTATIONAL PHYSICS *3 credits*
Prerequisites: 292, or 262 and 3450:221; and 3460:201, 3460:210, or 4100:206. Numerical techniques for computer solutions to physics problems, including mechanics, gravitation, electricity and magnetism, and modern physics.

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.

400/500 HISTORY OF PHYSICS *3 credits*
Prerequisite: 262 or 292. Study of origin and evolution of major principles and concepts characterizing contemporary physics.

406/506 WAVES *3 credits*
Prerequisite: 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.

431/531 MECHANICS I *3 credits*
Prerequisites: 292 and 3450:235. Mechanics at intermediate level. Newtonian mechanics, motion of a particle in one dimension, central field problem, system of particles, conservation laws, rigid bodies, gravitation.

432/532 MECHANICS II *3 credits*
Prerequisite: 431/531. Advanced mechanics at the senior or beginning graduate level, moving coordinate systems, mechanics of continuous media, Lagrange's equations, tensor algebra and stress analysis, rotation or rigid bodies, vibration theory.

436/536 ELECTROMAGNETISM I *3 credits*
Prerequisites: 292, 3450:235 or permission of instructor. Electricity and magnetism at intermediate level. Electrostatics and magnetostatics, electric field, scalar potential, dielectrics, Laplace's and Poisson's equations, currents, magnetic field, vector potential, magnetic materials, inductance.

437/537 ELECTROMAGNETISM II *3 credits*
Prerequisite: 436/536. Special relativity, four vectors, Maxwell's equations in covariant form; propogation, reflection and refraction of electromagnetic waves; multipole radiation.

438/538 METHODS OF APPLIED PHYSICS *3 credits*
Topics: design, performance, interpretation, reporting of physical measurements; the scientific method, measurements, their uncertainties, principles of experimentation, measurement devices, data resolution and analysis, inference.

441/541 QUANTUM PHYSICS I *3 credits*
Prerequisites: 301 and 3450:235. Laboratory course stressing measurement techniques with contemporary laboratory apparatus. Experiment design, instrument calibration and reporting emphasized. Modern physics experiments and measurements of fundamental natural constants.

442/542 QUANTUM PHYSICS II *3 credits*
Prerequisite: 441/541. Applications of quantum mechanics to atomic, nuclear and solid state physics. Tunneling and alpha decay, periodic potential, Hydrogen and Helium atoms, interatomic forces, quantum statistics.

451,2/551,2 ADVANCED LABORATORY I AND II *2 credits each*
Prerequisite: 323 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.

468/568 DIGITAL DATA ACQUISITION *3 credits*
Prerequisite: 262 or 292. Designed to introduce science and mathematics students to use of digital techniques of interfacing instruments to microcomputers. Physical measurements and device control are emphasized.

470/570 INTRODUCTION TO SOLID-STATE PHYSICS *3 credits*
Prerequisite: 441 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.

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.

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. Vectors, generalized coordinates, tensors, calculus of variations, vector spaces, linear transformations, matrices, eigenvalues. Hilbert space, boundary value problems, transcendental functions, complex variables, analytic functions, Green's functions, integral equations.

487/587 LABORATORY PROJECTS *1-3 credits*
(May be repeated)
Prerequisite: permission. Design of laboratory apparatus experiments, techniques or demonstrations.

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.

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.

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.

Graduate Courses

605 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.

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.

615 ELECTROMAGNETIC THEORY I *3 credits*
Prerequisite: 437/537 or permission of instructor. Electrostatics and magnetostatics at advanced level for graduate students, boundary value problems, dielectrics, multipole expansions, time-varying fields, Maxwell's equations and electromagnetic waves, reflection, refraction, wave guides and cavities.

616 ELECTROMAGNETIC THEORY II *3 credits*
Prerequisite: 615. Scattering and diffraction, plasma physics, special theory of relativity, dynamics of relativistic particles in fields, collisions of charged particles, radiation from moving charges, bremsstrahlung, multipole fields.

625 QUANTUM MECHANICS I *3 credits*
Prerequisites: 441/541, 481/581 or permission of instructor. Basic concepts of quantum mechanics, representation theory, particle in a central field, addition of angular momenta and spins, Clebsch-Gordon coefficients, perturbation theory, scattering, transition probabilities.

626 QUANTUM MECHANICS II *3 credits*
Prerequisite: 625. Foundations of relativistic quantum mechanics. Klein-Gordon and Dirac equations, spin-zero particle and spin-1/2 particles in electromagnetic field, second quantization of bosons and fermions, superfluidity and superconductivity.

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.

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.

635,6 PHYSICS OF POLYMERS LABORATORY I AND II *2 credits each*
Prerequisite: 291; corequisites: 631, 632. Selected laboratory experiments illustrating principles and methods discussed in 631, 632.

641 LAGRANGIAN MECHANICS *3 credits*
Prerequisite: 432/532 or permission of instructor. Principle of least action and Lagrangian equation of motion, conservation laws, integration or equation of motion, collisions, small oscillations, Hamilton's equations, canonical transformations.

661 STATISTICAL MECHANICS *3 credits*
Prerequisite: 442/542 or permission of instructor. Fundamental principles of statistical mechanics, Gibbs, Fermi and Bose Statistics, solids, liquids, gases, phase equilibrium, chemical reactions.

684 ADVANCED NUCLEAR PHYSICS *3 credits*
Prerequisite: 626. Quantum mechanics applied to nucleus. Interaction of radiation with nucleus, nuclear scattering, nuclear reactions; energy levels of nuclei.

685 SOLID-STATE PHYSICS I *3 credits*
Prerequisites: 470, 625 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.

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.

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 course work.

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.

691 SEMINAR IN THEORETICAL PHYSICS *1-3 credits*
(May be repeated)
Prerequisite: permission.

692 SEMINAR IN NMR SPECTROSCOPY *1-3 credits*
(May be repeated)
Prerequisite: permission.

693 SEMINAR IN SOLID-STATE PHYSICS *1-3 credits*
(May be repeated)
Prerequisite: permission.

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.

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.

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.

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).

120 CURRENT POLICY ISSUES *3 credits*
Survey of contemporary public policy issues by applying a broad conceptual framework. Cannot be used for credit toward major in political science.

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.

201 INTRODUCTION TO POLITICAL RESEARCH *3 credits*
Introduction to the research process in political science through an introduction to the logic of social science inquiry and contemporary techniques of analysis.

210 STATE AND LOCAL GOVERNMENT AND POLITICS *3 credits*
Examination of institutions, processes and intergovernmental relations at state and local levels.

220 AMERICAN FOREIGN POLICY *3 credits*
Examination of American foreign policy-making process; public opinion and other limitations on policy; specific contemporary problems in selected areas.

302 AMERICAN POLITICAL IDEAS *3 credits*
Study of major thinkers and writers of American political thought.

303 INTRODUCTION TO POLITICAL THOUGHT *3 credits*
Survey of major ideas and concepts of Western political theory from pre-Socrates through period of Enlightenment.

304 MODERN POLITICAL THOUGHT *3 credits*
Examination of central concepts of political thought from 19th Century to present. Modern liberalism, communism, fascism and totalitarianism emphasized.

310 INTERNATIONAL POLITICS AND INSTITUTIONS *4 credits*
Relations among nations examined in political context.

320 BRITAIN AND THE COMMONWEALTH *3 credits*
Description and analysis of government and politics of Great Britain and leading nations of the Commonwealth.

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.

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.

323 POLITICS OF CHINA AND JAPAN *3 credits*
Examination of governmental structures and political processes of China and Japan.

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.

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.

327 AFRICAN POLITICS *3 credits*
Examination of patterns of government and politics of nations south of Sahara.

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.

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.

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.

342 MINORITY GROUP POLITICS *3 credits*
Examination of political behavior of racial, religious and ethnic minority groups in the United States.

350 THE AMERICAN PRESIDENCY *3 credits*
The presidency as focal point of politics, policy and leadership in American political system.

360 THE JUDICIAL PROCESS *3 credits*
Role of police, lawyers, courts and judges in context of American political process. Structure and process of judicial policy making and limitations on judicial power.

370 THE AMERICAN BUREAUCRACY *4 credits*
Examination of implementation of public policy. Administrative organization and principles stressed.

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.

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.

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.

391 HONORS IN POLITICAL SCIENCE *3 credits*
Prerequisites: at least 17 credits and a 3.25 average in political science and permission of adviser.

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.

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).
Prerequisites: two courses in political science or permission of instructor. Supervised individual placement with political officeholders, party groups, governmental agencies, interest groups.

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.

402 POLITICS AND THE MEDIA *3 credits*
Examination of relationships between the press, the news media and political decision makers.

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.

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.

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.

425/525 LATIN AMERICAN POLITICS *3 credits*
Prerequisite: 200 or permission of instructor. Examination of patterns of government and politics in Latin American area.

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.

441/541 THE POLICY PROCESS *3 credits*
Prerequisites: 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.

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.

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.

480/580 POLICY PROBLEMS *3 credits*
(May be repeated for a total of six credits)
Prerequisite: 380 or permission. Intensive study of selected problems in public policy.

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.

497 SENIOR HONORS PROJECT IN POLITICAL SCIENCE *1-3 credits*
(May be repeated for a total of six credits)
Prerequisites: senior standing in Honors Program and permission. Open only to a political science major in Honors Program. Independent study leading to completion of senior honors thesis or other original work.

Graduate Courses

600 SCOPE AND THEORIES OF POLITICAL SCIENCE *3 credits*
Prerequisites: six credits of political science or permission of instructor. Emphasis on the nature, scope and content of political theory; theory construction and validation in political science.

601 RESEARCH METHODS IN POLITICAL SCIENCE *3 credits*
Prerequisites: six credits of political science, including 440 (or a satisfactory equivalent) or permission of instructor. Techniques of quantitative research methodology in political science; utility and limitations of quantitative analysis.

610 SEMINAR IN INTERNATIONAL POLITICS *3 credits*
Prerequisites: six credits of political science or permission. Analysis of current problems in theory and practice of politics and organization.

620 SEMINAR IN COMPARATIVE POLITICS *3 credits*
Prerequisites: six credits of political science or permission. Research on selected topics in comparative politics. Comparative method.

626 SEMINAR IN POLITICS OF DEVELOPING NATIONS *3 credits*
Prerequisites: six credits of political science or permission. Selected topics investigated. Emphasis on theories of political development.

630 SEMINAR IN NATIONAL POLITICS *3 credits*
Prerequisites: 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.

641 SEMINAR IN INTERGOVERNMENTAL RELATIONS *3 credits*
Prerequisites: 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.

660 SEMINAR IN CIVIL LIBERTIES AND THE JUDICIAL PROCESS *3 credits*
Prerequisites: six credits of political science or permission. Civil liberties and judicial process viewed in political context. Readings and research on selected topics.

668 SEMINAR IN PUBLIC POLICY AGENDAS AND DECISIONS *3 credits*
Prerequisites: six credits of political science or permission. Reading and research on the development of public policy issues and modes of decision making used by policy makers.

670 SEMINAR IN THE ADMINISTRATIVE PROCESS *3 credits*
Prerequisites: six credits of political science or permission. Intensive examination of administrative implementation of public policies. Readings and research on selected topics.

680 SEMINAR IN URBAN AND REGIONAL POLITICS *3 credits*
Prerequisites: 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.

690 SPECIAL TOPICS IN POLITICAL SCIENCE *1-3 credits*
Prerequisites: six credits of political science or permission. Graduate-level examination of selected topics in American politics, comparative politics, international politics or political theory.

695 INTERNSHIP IN POLITICAL SCIENCE *3 credits*
Prerequisite: permission of graduate adviser. Field experience: student is placed with office-holders, government agencies or political groups for research or practical experience of relevance to program.

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.

699 THESIS *2-6 credits*

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.

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.

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.

130 DEVELOPMENTAL PSYCHOLOGY *4 credits*
Prerequisite: 100. Determinants and nature of behavioral changes from conception to death.

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.

300 ADVANCED EXPERIMENTAL PSYCHOLOGY *4 credits*
Prerequisite: 120. Scientific methods and design in experimental investigation of human behavior. Emphasis on exposure to and performance on all aspects of a single, in-depth research project in which student applies the lecture information.

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.

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.

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.

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.

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.

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.

370 RESEARCH DESIGN AND ANALYSIS IN PSYCHOLOGY *3 credits*
Prerequisites: 100 and 110 or 3470:251-257 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.

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.

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, attitude and opinion analysis.

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.

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 psychology. Behavioral data and treatment approaches emphasized.

440/540 INTRODUCTION TO CLINICAL METHOD *3 credits*
Prerequisites: 100 and 420. Review of tests, interviews and personal data in human assessment.

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.

460/560 HISTORY OF PSYCHOLOGY *3 credits*
Prerequisite: 100. Psychology in pre-scientific period and details of development of systematic viewpoints in 19th and 20th Centuries.

470 ADVANCED INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY *4 credits*
Prerequisite: 140 or permission. Application of psychology to organizational theory, leadership, management, personnel selection, engineering psychology, person-machine systems and consumer behavior.

475 PSYCHOLOGY OF ADULTHOOD AND AGING *4 credits*
Prerequisite: 100. Psychological aspects of human development from adolescence to older adulthood including age-related changes in socialization, personality, intelligence, sensation, perception learning, memory and clinical application.

480 SPECIAL TOPICS IN PSYCHOLOGY *1-4 credits*
(May be repeated)
Prerequisite: 100 or permission. Comprehensive survey of contemporary status of specialized topics and issues in psychology. Emphasis on original source materials, critical analysis and synthesis of empirical and theoretical aspects.

488,9 HONORS PROJECT 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.

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.

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.

Graduate Courses

610 PSYCHOLOGY CORE I: ORGANIZATIONAL, SOCIAL AND APPLIED *4 credits*

Prerequisite: graduate standing in psychology or the joint doctoral program in counseling psychology or permission based on a psychology undergraduate major or an appropriate background for the course as determined by the instructor. Survey of the social bases of behavior, group process, systems theory and motivation, application of industrial/organizational psychology to industry, business and government including organizational theory, differential psychology, personnel selection and training, consumer behavior and engineering psychology, research methodology, applied psychometrics, professional and ethical issues. Topics are considered within an historical perspective.

620 PSYCHOLOGY CORE II: DEVELOPMENTAL, PERCEPTUAL AND COGNITIVE *4 credits*

Prerequisite: graduate standing in psychology or the joint doctoral program in counseling psychology or permission based on a psychology undergraduate major or an appropriate background for the course as determined by the instructor. Survey of theoretical, methodological, and empirical aspects of human development, perception, learning and memory, cognition and information processing including an historical perspective.

630 PSYCHOLOGY CORE III: COUNSELING, INDIVIDUAL AND ABNORMAL *4 credits*

Prerequisite: graduate standing in psychology or the joint doctoral program in counseling psychology or permission based on a psychology undergraduate major or an appropriate background for the course as determined by the instructor. Survey of techniques of an approach to the study, evaluation and modification of normal and abnormal behavior. Includes study of individual differences, personality theories, adaptive and maladaptive behaviors, counseling theories, research methods and professional issues within an historical perspective.

640 PSYCHOLOGY CORE IV: SENSORY, BIOPSYCHOLOGICAL AND EXPERIMENTAL *4 credits*

Prerequisite: graduate standing in psychology or the joint doctoral program in counseling psychology or permission based on a psychology undergraduate major or an appropriate background for the course as determined by the instructor. Survey of the biological foundations of behavior including sensory processes, psychophysics and scaling, perception (from a comparative and evolutionary perspective), animal learning and the evolution of intelligence, behavior genetics, neuroanatomy and neurophysiology, psychopharmacology, and the physiological bases of psychological processes such as emotion, motivation, learning, laterality differences, intelligence and consciousness. Topics are considered within an historical perspective.

653 GROUP COUNSELING *4 credits*

Prerequisites: 5600:643, 645; or 3750:671, 710; or permission of instructor. Emphasis is placed on providing the student with the knowledge and understanding of theory, research and techniques necessary for conducting group counseling sessions.

671 PRE-PRACTICUM IN COUNSELING PSYCHOLOGY *2 credits*

Prerequisites: 630, graduate standing in psychology and permission of instructor. Introduction to and training in skills used in process of counseling and psychotherapy. This course is a preparation for actual client contact in subsequent practica.

672 COUNSELING PRACTICUM *4 credits*

Prerequisites: 630, 671, graduate standing in psychology and permission of instructor. Extension and development of therapeutic skills and intervention techniques, with supervised training in counseling clients in the Psychology Department Counseling Clinic.

673 COUNSELING ASSESSMENT PRACTICUM *4 credits*

Prerequisites: 630, 671, 672, graduate standing in psychology and permission of instructor. Instruction and supervised experience with the use of assessment devices as part of a counseling treatment program.

674 PERSONNEL PRACTICUM *1-4 credits*

(May be repeated)
Prerequisites: 610, graduate standing in psychology, 14 credits of graduate psychology and departmental permission. Supervised field experience in industrial/organizational psychology in settings including business, government or social organizations. The field experience requires the application of industrial/organizational psychological theories and techniques.

675 DEVELOPMENTAL PRACTICUM *1-4 credits*

(May be repeated)
Prerequisites: 610, graduate standing in psychology, 14 credits of graduate psychology and departmental permission. Supervised field experience and developmental psychology to provide the student with the opportunity to apply skills and knowledge acquired in the academic setting and to obtain knowledge about community programs and agencies which focus on developmental processes.

699 THESIS RESEARCH *1-4 credits*

(May be repeated)
Prerequisite: departmental permission. Research analysis of data and preparation of thesis for master's degree.

700 SURVEY OF PROJECTIVE TECHNIQUES *4 credits*

Prerequisite: 630 or instructor's permission. Introduction to rationale, assumptions and ethics, and research of projective testing. Elementary administration, scoring and interpretation of Rorschach; and survey of other important contemporary projective instruments.

701 PSYCHODIAGNOSTICS *4 credits*

Prerequisite: 700. Application of psychological 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.

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.

706 CURRENT ISSUES IN COUNSELING *4 credits*

Prerequisite: 630. Advanced study of the background, theoretical foundations, techniques, research and applications of counseling psychology as a science and profession.

707 SUPERVISION IN COUNSELING PSYCHOLOGY I *3 credits*

Prerequisite: doctoral standing or permission. Instruction and experience in supervising graduate students in counseling.

710 THEORIES OF COUNSELING PSYCHOLOGY *4 credits*

Prerequisite: 630 or departmental permission. Theories of individual psychotherapy including Freudian, Jungian, Alderian, Rogerian and other major systems. Consideration given to ancillary therapeutic techniques such as group therapy and psychtropic medication. Important research findings are reviewed and contemporary problems in evaluation are discussed. Ethics of psychotherapy is also covered.

711 VOCATIONAL BEHAVIOR *4 credits*

Prerequisite: 630 or departmental 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 applieo research.

712 PRINCIPLES AND PRACTICE OF INDIVIDUAL INTELLIGENCE TESTING *4 credits*

Prerequisites: 630 or graduate standing in school psychology, and instructor's permission. History, principles and methodology of intelligence testing, supervised practice in administration, scoring and interpretation of individual intelligence tests for children and adults.

713 ADVANCED SEMINAR IN COUNSELING *4 credits*

Prerequisite: doctoral standing or permission. A study of legal, ethical and personal and professional issues in counseling.

714 OBJECTIVE PERSONALITY EVALUATION *4 credits*

Prerequisites: completion of 3750:400/500, 3750:420/520; and 3750:750 or 5600:645; or permission of instructor. Study of the development, administration, and interpretation of objective instruments for personality assessment (MMPI, CPI, MBTI, 16 PF and selected additional inventories).

715 RESEARCH DESIGN IN COUNSELING I *3 credits*

Prerequisite: doctoral standing or permission. Study of research designs, statistical models and review of current research in counseling.

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.

726 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.

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.

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.

730 THEORIES OF LEARNING *4 credits*

Prerequisite: 620 or departmental permission. Contemporary review of research and theory in language and memory. Process-oriented approach adopted with emphasis on developmental issues.

731 COGNITIVE DEVELOPMENT *4 credits*

Prerequisite: 620 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.

733 DEVELOPMENTAL BIOPSYCHOLOGY *4 credits*

Prerequisites: 620, 640 and graduate standing in psychology or permission of instructor. 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.

736 THE PSYCHOLOGY OF MENTAL RETARDATION *4 credits*

Prerequisite: 620 or graduate standing in psychology or permission of instructor. Current knowledge about the cognitive and social development of retarded individuals is examined. The first half of the course is a broad survey emphasizing methodology and findings about the mentally retarded. The second half involves an in-depth exploration of selected applied and basic research topics such as reaction to failure, mainstreaming, sexuality, training, behavioral problems, knowledge and thinking.

737 THE PSYCHOLOGY OF LEARNING DISABILITIES *4 credits*

Prerequisite: 620 or graduate standing in psychology or permission of instructor. Examination of the theories and research regarding learning and reading disabilities. Emphasis is on a critical evaluation of the research which investigates hypothesized process differences between learning-disabled and normal-achieving children.

738 APPLIED DEVELOPMENTAL PSYCHOLOGY *4 credits*

Prerequisites: 620 and graduate standing in psychology or permission of instructor. Examination of methodologies and research utilized in applied developmental settings. Topics include field methodologies, evaluation, child abuse, early intervention, day care, kibbutzim, social networks, subcultural variations and hospice/dying.

740 INDUSTRIAL GERONTOLOGY *4 credits*
Prerequisites: 610 and 620, graduate standing in psychology or departmental permission to students who have completed 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.

741 SURVEY OF COUNSELING METHODS *4 credits*
Prerequisites: 620 and 630; graduate standing in psychology or permission of instructor. An experiential survey of treatment methods from a variety of theoretical approaches. Approaches include, but are not limited to, behavioral, gestalt, cognitive and psychodynamic methods.

750 ADVANCED PSYCHOLOGICAL TESTS AND MEASUREMENTS *4 credits*
Prerequisites: 610 and graduate standing in psychology or departmental permission to students who have completed 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.

751 ORGANIZATIONAL PSYCHOLOGY *4 credits*
Prerequisites: 610 and graduate standing in psychology or departmental permission for other students who have completed 610. Applies the general systems theory framework to the study of the relationships between organizational characteristics and human behavior, the internal processes of organizations and the relationships between organizations and their environment.

752 PERSONNEL SELECTION AND PERFORMANCE EVALUATION *4 credits*
Prerequisites: 610 and graduate standing in psychology or permission to students who have completed 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.

753 TRAINING AND ORGANIZATIONAL DEVELOPMENT *4 credits*
Prerequisites: 610 and graduate standing in psychology or permission to students who have completed 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.

754 RESEARCH METHODS IN PSYCHOLOGY *2-4 credits*
Prerequisites: 610, 620 and graduate standing in psychology or permission to student. 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.

755 COMPUTER APPLICATIONS IN PSYCHOLOGICAL RESEARCH *4 credits*
Prerequisites: 610 and graduate standing in psychology or permission to students who have completed 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.

756 ROLE OF ATTITUDES AND VALUES IN INDUSTRIAL/ ORGANIZATIONAL PSYCHOLOGY *4 credits*
Prerequisites: 610 and graduate standing in psychology or departmental permission to students who have completed 610. Consideration of the role of attitudes and values in the prediction of behavior including consumer psychology, explaining attitude changes, measurement of attitudes and the use of survey methodology.

757 ORGANIZATIONAL MOTIVATION AND LEADERSHIP *4 credits*
Prerequisites: 610 and graduate standing in psychology or departmental permission to students who have completed 610. Survey of theories of motivation specifying both the intrinsic and extrinsic determinants of worker motivation. The leadership process and its relation to motivation, group performance and attributions is also analyzed.

758 ENGINEERING PSYCHOLOGY AND JOB DESIGN *4 credits*
Prerequisites: 610 and graduate standing in psychology or permission to students who have completed 610. Survey of field of engineering psychology. Covers such topics as job design, task analysis, man-machine systems analysis, working conditions and accidents.

759 JOB EVALUATION AND EQUAL PAY *4 credits*
Prerequisite: 610. Major job evaluation systems will be reviewed and critiqued. Issues such as minimum qualifications for a job will be reviewed. Advantages and disadvantages of various job evaluation systems will be compared. Issues concerning federal regulation including the Equal Pay Act, comparable worth and other issues will be discussed. Regression approaches to job evaluation and applicable court cases will be reviewed.

780 GRADUATE SEMINAR IN PSYCHOLOGY *1-4 credits*
(May be repeated)
Prerequisites: graduate standing in psychology and permission. Special topics in psychology.

795 ADVANCED COUNSELING PRACTICUM *4 credits*
(May be repeated)
Prerequisites: 671, 672, 673 and permission of instructor. This course provides graduate students in counseling with actual client contacts and supervisory experiences under faculty supervision.

796 COUNSELING PSYCHOLOGY PRACTICUM *4 credits*
(May be repeated)
Prerequisite: 795 (eight hours) or 5600:675 (five hours). Advanced counseling psychology students will have supervised training with clients in a variety of settings and will focus on supervised development of specialized theoretical applications.

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.

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.

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.

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.

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.

302 METHODS OF SOCIAL RESEARCH II *3 credits*
Prerequisite: 301. Continuation of 301. Required of majors. Lecture/ laboratory.

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.

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.

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.

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.

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.

330 CRIMINOLOGY *3 credits*
Prerequisite: 100. Major focus on interrelationships and analysis of crimes, criminals, criminal justice systems and society. Lecture.

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.

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.

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, work force characteristics, work values and orientations, the nature of work. Lecture.

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.

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.

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.

343 THE SOCIOLOGY OF AGING *3 credits*
Prerequisite: 100 or permission. Examination of process of aging from perspective of behavioral and sociological aspects. Lecture.

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.

365 SPECIAL TOPICS IN SOCIOLOGY *1-3 credits*
(May be repeated)
Prerequisite: permission. Special topics of interest to sociology major and non-major not covered in regular course offerings.

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.

403/503 HISTORY OF SOCIOLOGICAL THOUGHT *3 credits*
Prerequisite: 100 or permission. Examination of major scholars in the classical sociological tradition. Lecture.

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.

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.

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.

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.

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.

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.

429/529 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.

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.

431/531 CORRECTIONS *3 credits*
Theories, belief systems, correctional practices and effectiveness as related to offender groups. Lecture/discussion/field experience.

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.

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.

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.

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.

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.

444/544 SOCIAL ISSUES IN AGING *3 credits*
Prerequisite: 100 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.

450/550 SOCIOLOGY OF MENTAL ILLNESS *3 credits*
Prerequisite: 100 or permission. The social history of the mental hospital, theories and epidemiology of mental illness, community-based treatment models, the organization of mental health services, the role of personal social networks and mutual support groups.

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.

495 RESEARCH INTERNSHIP *2-4 credits*
(May be repeated for credit)
Prerequisites: 301, 302 and permission of a faculty supervisor. 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.

496 SENIOR HONORS PROJECT *1-3 credits*
(May be repeated for a total of six credits)
Prerequisites: 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.

Graduate Courses

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.

603 SOCIOLOGICAL RESEARCH METHODS *3 credits*
Advanced research methods including advanced statistical techniques. (Same as KSU 72211) Lecture/laboratory.

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.

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.

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.

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.

617 SOCIOLOGICAL THEORY *3 credits*
Examination of the classical theoretical statements that form the foundation of sociological theory. Emphasis on classic sociological theory and its contributions to contemporary theory and research. (Same as KSU 72106) Seminar.

620 GENERAL SYSTEMS THEORY *3 credits*
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.

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.

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.

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.

635 SOCIOLOGY OF COMMUNICATION *3 credits*
Examination of communication media, content, audiences and impact within sociological context. (Same as KSU 72434) Seminar.

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.

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.

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.

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.

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.

649 SOCIOLOGY OF WORK *3 credits*
Examination of work as behavioral phenomenon in human societies; contrasts with non-work and leisure; significance of occupations, professions and work types in organization of work. (Same as KSU 72542) Seminar.

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.

652 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.

656 MEDICAL SOCIOLOGY *3 credits*
Prerequisite: permission of instructor. A general survey of the field of medical sociology with special emphasis on application of sociological concepts and methods as tools to aid in the analysis of health and health care in the contemporary urban United States.

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.

658 FIELD RESEARCH IN URBAN LIFE STYLES *3 credits*
Prerequisite: permission. Examination of various life styles in contemporary urban society. Explores issues of theory and methodology in urban life-styles research through evaluation of both classic and contemporary studies. Includes application of concepts and techniques in actual field research. Seminar.

663 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.

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.

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.

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.

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.

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.

679 POLITICAL SOCIOLOGY *3 credits*
Description, analysis and interpretation of political behavior through application of sociological concepts. (Same as KSU 72544) Seminar.

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.

681 CROSS CULTURAL PERSPECTIVES IN AGING *3 credits*
Prerequisite: permission. A comparison of aging in various cultures and societies around the world.

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.

687 SOCIAL CHANGE *3 credits*
Advanced seminar in theories of social change. (Same as KSU 72320) Seminar.

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.

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.

697 READINGS IN CONTEMPORARY SOCIOLOGICAL LITERATURE *1-3 credits*
Prerequisites: seven 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.

698 DIRECTED RESEARCH *1-3 credits*
(May be repeated)
Prerequisite: Permission. Empirical research to be conducted by the student undergraduate faculty supervision.

699 THESIS *2-6 credits*
(May be repeated for a total of six credits)
Prerequisite: permission. Supervised thesis writing.

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.

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.

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)

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.

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.

709 ANALYSIS OF SOCIOLOGICAL DATA *3 credits*
Prerequisite: 706 or permission. Critical examination of data analysis techniques having particular relevance to research problems in sociology. (Same as KSU 82121) Seminar.

710 SOCIAL SAMPLING *3 credits*
Prerequisites: 603, 604 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.

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.

712 EXPERIMENTAL AND QUASI-EXPERIMENTAL RESEARCH IN SOCIOLOGY *3 credits*
Prerequisites: 603, 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.

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.

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.

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.

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.

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.

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.

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

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

791 RESEARCH IN SOCIAL CHANGE *1 credit*
Prerequisite: 687. Continuation of 687. Student prepares a major research paper based on theoretical material covered in 790 and presents it for discussion to the seminar. (Same as KSU 72321) Research.

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.

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)

899 DISSERTATION *1-10 credits*
(Must be repeated for a minimum of 30 credits)
Dissertation. (Same as KSU 82899)

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.

151 EVOLUTION OF MAN AND CULTURE *3 credits*
Biological and cultural evolution of *Homo sapiens;* comparative study of Primates; human variation; Old World archaeology. Lecture.

270 CULTURES OF THE WORLD *3 credits*
Prerequisite: 150 or permission of instructor. An examination of diversity in pre-industrial cultures; the ways in which cultures differ and the major processes which produce cultural differences.

355 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.

356 ARCHAEOLOGY OF THE AMERICAS *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.

357 MAGIC, MYTH AND RELIGION *3 credits*
Prerequisite: 150 or 3850:100. Analysis and discussion of the data concerning the origins, roles and functions of magic and religion in a broad range of human societies, with emphasis on the non-Western, pre-industrial societies. Examination of belief and ritual systems of such societies.

358 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.

397 ANTHROPOLOGICAL RESEARCH *1-3 credits*
(May be repeated)
Prerequisite: permission. Individual study of problem areas of specific interest to an individual student under guidance of a faculty member.

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.

457/557 CULTURE AND MEDICINE *3 credits*
Prerequisite: 150 or permission of instructor. Analyzes various aspects of Western and non-Western medical systems from an anthropological perspective. Compares traditional medical systems around the world.

461/561 LANGUAGE AND CULTURE *3 credits*
Prerequisite: 150 or permission. Examination of language structure and interaction of language, cognition and culture. Lecture.

463/563 SOCIAL ANTHROPOLOGY *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.

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 course work not presently offered by department on regular basis.

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.

Graduate Courses

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.

697 INDIVIDUAL INVESTIGATION *1-3 credits*
Prerequisites: 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.

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.

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.

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 recoroing research data in a scientific manner.

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.

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.

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.

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.

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.

415 MOLECULAR STRUCTURE AND PHYSICAL PROPERTIES OF POLYMERS LABORATORY *2 credits*
Prerequisite: 413 or permission. Laboratory experiments involving the topics covered in the prerequisite course.

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.

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.

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.

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.

Graduate Courses

601 POLYMER CONCEPTS *2 credits*
Prerequisites: 3150:264 and 3150:314 or equivalent courses or permission of instructor. Introduction to basic concepts in polymer science, including polymerization, copolymerization processes and naturally occurring polymers. Polymer nomenclature, definitions and classifications. Polymer stereochemistry and structure-property relationships.

602 SYNTHESIS AND CHEMICAL BEHAVIOR OF POLYMERS *2 credits*
Prerequisite: 601 or instructor's permission. Introduction to fundamentals and practical aspects of polymer synthesis and reactions of polymers; general knowledge of laboratory and commercial methods for polymer preparation; practical examples.

604 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.

605 POLYMER CHEMISTRY LABORATORY *2 credits*
Prerequisites: basic knowledge of organic chemistry and 602 or equivalent. The preparation and identification of polymers to illustrate different methods of polymerization such as step reactions and chain reaction.

607,8 POLYMER SCIENCE SEMINAR I AND II *1 credit each*
Prerequisite: limited to first- and second-year resident graduate students. Participants are to present a 25-minute lecture on some aspect of polymer science and to participate in discussions of lectures presented by other seminar participants.

610 INORGANIC POLYMERS *2 credits*
Prerequisite: 3150:472/572 or 3940:601 or permission. Survey course designed to broaden outlook of typical graduate student beyond chemistry and physics of carbon chains.

613 POLYMER SCIENCE LABORATORY *2 credits*
Prerequisites or corequisites: 701, 3150:601 or permission of instructor. Laboratory experiments in synthesis, characterization, physical properties and processing and testing of polymers.

631 PHYSICAL PROPERTIES OF POLYMERS I *2 credits*
Prerequisite: permission of instructor. Thermodynamic and molecular basis of rubber elastic behavior; time-dependent mechanical properties of polymeric materials; melt-flow and entanglements; the morphology of crystalline polymeric materials; fracture of polymers.

632 PHYSICAL PROPERTIES OF POLYMERS II *2 credits*
Prerequisite: 631 or permission of instructor. Normal-coordinate theories of molecular motion and applications to time-dependent mechanical, electrical, and scattering properties of polymeric systems; time-temperature superposition; free volume, WLF relation; fracture; glass transition.

649 SYNTHESIS AND TECHNOLOGY OF ELASTOMERS *2 credits*
Prerequisites: 3150:264 or equivalent; permission of instructor. The preparation of both natural and synthetic elastomers. Emphasis on polymerization methods, polymer structure and methods of vulcanization. The modification of vulcanizates and these effects on physical characteristics of the elastomers described.

674 POLYMER STRUCTURE AND CHARACTERIZATION *2 credits*
Prerequisites: 3150:313 and 3150:314 or permission of instructor. Presentation of statistical description of polymer molecular properties including chain polymerization and degradation, characterization of conformation, molecular weight, local structure, crystal structures and ordering.

675 POLYMER THERMODYNAMICS *2 credits*
Prerequisite: 674 or permission of instructor. Presentation of the theories and experiments concerning polymer solutions, polymer phase equilibria, and polymeric phase transitions and dilute solution steady-state transport.

676 POLYMER CHARACTERIZATION LABORATORY *2 credits*
Prerequisite: 675 or permission of instructor. Laboratory analysis of polymers by fractionation, osometry, swelling, x-ray diffraction, microscopy, thermal analysis, spectroscopy and chromatography.

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.

681 DESIGN OF RUBBER COMPONENTS *2 credits*
Prerequisite: 4600:337 or equivalent. Principles of design of elastomeric products, emphasizing analytical treatments of elastic behavior and mechanisms of failure of resilient mountings, springs, seats, bearings and tires.

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.

701 POLYMER TECHNOLOGY I *2 credits*
Principles of compounding and testing, processing principles and types of operation, design principles.

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.

703 POLYMER TECHNOLOGY III *2 credits*
Prerequisite: 702 or permission of instructor. Flow properties, extrusion, calendering and milling, molding, mixing, bond operations, engineering properties, rubber springs, viscoelastic analysis design consideration. Lecture/laboratory.

704 CONDENSATION POLYMERIZATION *2 credits*
Prerequisite: 3150:463/563 or permission of instructor. Survey of the theory and practice of condensation polymerization. Numerous commercial examples are presented with special emphasis being placed on the properties and applications of polymers prepared by this technique. Structure-property relationships are highlighted for each major polymer class.

705 FREE RADICAL REACTIONS IN POLYMER SCIENCE *2 credits*
Prerequisite: 3150:463/563 or permission of instructor. Covers the kinetics and mechanisms of free radical initiated reactions encountered in polymer science, including polymerization methods, detailed considerations of the initiation, propagation and termination steps in vinyl polymerizations and copolymerization, preparation of block and graft copolymers by free radical initiated reactions and the mechanisms of free radical induced polymer degradation reactions.

706 IONIC AND MONOMER INSERTION REACTIONS *2 credits*
Prerequisite: 3150:463/563 or permission of instructor. Covers the scope, kinetics and mechanisms of polymerizations initiation by anions, carbenium ions and onium ions as well as polymerizations induced by coordination catalysts. Living polymerizations, molecular weights, molecular weight distributions, stereo-chemistry, solvent effects, counter-ion effects, temperature effects, Ziegler-Natta catalysis, olefin metathesis, functionalization of polymers, graft and block copolymer synthesis.

707 KINETICS OF POLYMERIC PROCESSES *2 credits*
Prerequisites: 632 and 675 or permission of instructor. Principles of kinetic theory and statistical mechanics are applied to apolymer diffusion, polymerization kinetics, polymer adsorption, membrane transport, polymeric phase transformations, gel formation and colloidal destabilization.

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.

709 MACROMOLECULAR CHAIN STRUCTURE *3 credits*
Prerequisite: 708 or permission. Continuation of topics in 708 including experimental techniques used in elucidation of chain structure.

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.

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.

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.

899 DOCTORAL RESEARCH IN POLYMER SCIENCE *2-16 credits*
Open to properly qualified student accepted as candidate for of Doctor of Philosophy in Polymer Science, depending on availability of staff and facilities.

URBAN STUDIES 3980:

Graduate Courses

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.

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.

601 ADVANCED RESEARCH AND STATISTICAL METHODS *3 credits*
Prerequisite: 600. Extends study of social science to include more advanced research designs and multivariate statistical techniques.

602 AMERICAN URBAN DEVELOPMENT *3 credits*
Examination of major literature on processes of urbanization in United States and selected facets of urban institutional development.

610 URBAN POLITICS *3 credits*
Prerequisite: permission. Empirical analysis of urban political structure and major political problems.

611 URBAN ADMINISTRATION *3 credits*
Prerequisite: permission. Organization and management characteristics of various types of governmental units examined within framework of organization and management theory.

612 NATIONAL URBAN POLICY *4 credits*
Prerequisite: permission. Major federal policies that relate to urban problems examined in regard to policy-making processes, implementation and impact.

613 INTERGOVERNMENTAL MANAGEMENT *3 credits*
Prerequisite: permission. Examines the field of intergovernmental relations as it applies to urban administration and management.

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.

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.

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.

630 INTRODUCTION TO PLANNING PRACTICE AND THEORY *3 credits*
Introduction to the history, theories and forms of urban planning.

631 FACILITIES PLANNING *3 credits*
Study of need, process and limitation of urban facilities planning.

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.

636 PARKS AND RECREATION *3 credits*
Prerequisite: permission. Deals with theory, practice, evaluation of recreational administration, planning parks planning.

637 FIELD METHODS IN URBAN AND REGIONAL PLANNING *3 credits*
Prerequisite: 630. Taught jointly with 638 to provide students with extensive experience in applying the quantitative methods and analytic procedures of urban planning to actual public policy issues.

638 FIELD METHODS IN URBAN AND REGIONAL PLANNING/LABORATORY *3 credits*
Prerequisite: 630. This course is taught jointly with 637 to provide students with extensive experience in applying methods and analytic procedures to urban planning to actual public policy issues.

640 FISCAL ANALYSIS *3 credits*
Prerequisite: permission. Study of revenue and expenditure patterns of the city's government.

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.

642 MUNICIPAL BUDGETING *3 credits*
Prerequisite: permission. Theories, premises, assumptions, methodologies upon which municipal budgeting are based.

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.

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.

670 RESEARCH FOR FUTURES PLANNING *3 credits*
Prerequisites: 600 and 601 and completion of eight credits of core curriculum in urban studies. An overview of the techniques associated with the field of futures research and their application to long-term urban planning.

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.

672 ALTERNATIVE URBAN FUTURES *3 credits*
Overview of topics and issues associated with alternative urban futures and their implications for planning and public policy in urban communities.

680,1 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.)

690 URBAN STUDIES SEMINAR *3 credits*
Prerequisites: 16 credits of urban studies core plus quantitative methods. Urban research methods applied to specific urban research area. Comprehensive paper required.

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.

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.

700 ADVANCED RESEARCH METHODS I *3 credits*
Prerequisite: master's level satisfied or permission. Introduction to statistical techniques and methodologies in doctoral and postdoctoral research. Emphasis on conceptual and mathematical interrelationships.

701 ADVANCED RESEARCH METHODS II *3 credits*
Prerequisite: 700 or equivalent. Continuation of 700. Emphasis placed upon conceptual and mathematical interrelationships of multivariate statistical techniques as well as application of these techniques through computer analysis of urban data sets.

702 URBAN POLICY: THE HISTORICAL PERSPECTIVE *3 credits*
Prerequisite: permission. Critical examination of major ideas about the city from Aristotle to 20th Century and of impact of urbanization on society and public policy.

703 SYSTEMS AND PROCESSES OF POLICY DEVELOPMENT *3 credits*
Analysis of administrative process within public organizations, federal, state and local, in United States, emphasis on urban community.

704 BUREAUCRACY AND URBAN CONSTITUENCIES *3 credits*
Prerequisite: permission. Seminar designed to analyze public bureaucracy and public interest as central phenomena of contemporary public administration in urban America.

705 ECONOMICS OF URBAN POLICY *3 credits*
Prerequisite: master's level knowledge of macroeconomics and microeconomics or special permission. Use of research tools of economic analysis in seminar format to examine options available to urban policy makers in operation of public services and economic development of cities.

706 PROGRAM EVALUATION *3 credits*
Prerequisite: permission. Provides concepts for student in evaluation of programs, both external and internal, to work settings.

707 URBAN PLANNING AND MANAGEMENT STRATEGIES *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.

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.

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

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.

201 ENERGY AND ENVIRONMENT *2 credits*
Interactions between energy production, consumption and environment. Case studies. Not for engineering, chemistry or physics majors.

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.

206 FORTRAN (SCIENCE/ENGINEERING) *2 credits*
Prerequisite: 2020:334 or 3450:221. 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.

300 COOPERATIVE EDUCATION WORK PERIOD *0 credit*
Elective for cooperative education student who has completed sophomore year. Practice in industry and comprehensive written reports of this experience.

301 COOPERATIVE EDUCATION WORK PERIOD *0 credit*
Required for cooperative education student only. Practice in industry and comprehensive written reports of this experience. Offered spring semester of third year.

302 COOPERATIVE EDUCATION WORK PERIOD *0 credit*
Required for cooperative education student only. Practice in industry and comprehensive written reports of this experience. Offered fall semester of fourth year.

403 COOPERATIVE EDUCATION WORK PERIOD *0 credit*
Required for cooperative education student only. Practice in industry and comprehensive written reports of this experience. Offered summer after fourth year.

CHEMICAL ENGINEERING 4200:

120 ENGINEERING FUNDAMENTALS *1 credit*
Introduction to problem solving and format, computational exercise, dimensions, units physical measurements.

200 MATERIAL AND ENERGY BALANCES *4 credits*
Prerequisites: 120, 4100:206, 3450:221 and 3150:134. Introduction to material, energy balance calculations applied to solution of chemical problems.

225 EQUILIBRIUM THERMODYNAMICS *4 credits*
Prerequisites: 200 and 3450:222. 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.

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.

321 TRANSPORT PHENOMENA I *3 credits*
Prerequisites: 200 and 3450:222. 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.

322 TRANSPORT PHENOMENA II *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.

330 CHEMICAL REACTION ENGINEERING *3 credits*
Prerequisite: 225. Nonequilibrium processes including chemical reaction mechanisms, rate equations and ideal reactor design applied to homogeneous and heterogeneous systems.

351 FLUID AND THERMAL OPERATIONS *3 credits*
Prerequisite: 321. Applications of fluid mechanics including piping, pumping, compression, metering, agitation and separations. Applications of heart transfer by conduction, convection and radiation to design of process equipment.

352 TRANSPORT LABORATORY *2 credits*
Prerequisites: 322 and 351. Experiments in fluid, heat and mass transfer. Data collection, analysis and reporting in various formats. Relationships to theory emphasized.

353 MASS TRANSFER OPERATIONS *3 credits*
Prerequisites: 225, 351 and 322. Theory and design of staged operations including distillation, extraction, absorption. Theory and design of continuous mass transfer devices.

408 POLYMER ENGINEERING *3 credits*
Prerequisite: permission or senior standing. Commerical polymerization, materials selection and property modification, polymer processing, applied rheology and classification of polymer industry.

435 PROCESS ANALYSIS AND CONTROL *3 credits*
Prerequisites: 330, 353. Response of simple and chemical processes and design of appropriate control systems.

441 PROCESS ECONOMICS AND DESIGN *4 credits*
Prerequisites: 330, 351, 353. Economic evaluation of chemical plants including justification, profitability, capital investment and operating costs. Design of chemical process equipment.

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.

454 OPERATIONS LABORATORY *1 credit*
Prerequisites: 352, 353. Comprehensive experiments and analysis in combined heat and mass transfer, thermodynamics and reaction kinetics. Comprehensive reports.

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.

463/563 POLLUTION CONTROL *3 credits*
Prerequisite: 353 or permission. Air and water poilution sources and problems. Engineering aspects and methodology.

466/566 DIGITIZED DATA AND SIMULATION *3 credits*
Prerequisite: permission. Data acquisition and analysis by digital devices, digital control applications and design.

470/570 ELECTROCHEMICAL ENGINEERING *3 credits*
Prerequisites: 322, 330. Chemical engineering principles as applied to the study of electrode processes and to the design of electrochemical reactors. Topics include electrochemical thermodynamics, cell polarizations, Faraday's Laws, electrode kinetics, transport processes in electrochemical systems, current distributions, reactor design, experimental methods, commercial processes, and batteries and fuel cells.

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.

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.

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.

Graduate Courses

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.

605 CHEMICAL REACTION ENGINEERING *3 credits*
Prerequisite: 330 or permission. Kinetics of homogeneous and heterogeneous systems. Reactor design for ideal and non-ideal flow systems.

610 CLASSICAL THERMODYNAMICS *3 credits*
Prerequisite: 225. Discussion of laws of thermodynamics and their application. Prediction and correlation of thermodynamic data. Phase and reaction equilibria.

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.

631 CHEMICAL ENGINEERING ANALYSIS *3 credits*
Prerequisites: 322, 225, 330. Mathematical analysis of problems in transport processes, chemical kinetics and control systems. Solution techniques for these problems and their practical significances are stressed. Hueristic proofs will be given for necessary theory developments.

635 ADVANCED POLYMER ENGINEERING *3 credits*
Prerequisite: 322 or 600 or permission. Reactors for polymerization, polymer characterization, polymer processing, polymer rheology.

640 ADVANCED PLANT DESIGN *3 credits*
Prerequisite: permission. Topical treatment of process and equipment design, scale-up, optimization, process syntheses, process economics. Case problems.

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.

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 course work. Credit dependent upon nature and extent of project as determined by faculty member and department head.

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.

701 ADVANCED TRANSPORT PHENOMENA *3 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.

702 MULTIPHASE TRANSPORT PHENOMENA *3 credits*
Prerequisite: 600. General transport theorem, kinematics, Cauchy's lemmas and the jump boundary conditions are developed followed by the theory of volume averaging. The single phase equations are then volume averaged to obtain the multiphase equations of change. The technique for using these equations and their practical significance is also covered.

706 ADVANCED REACTION ENGINEERING *3 credits*
Prerequisite: 605. Kinetics of heterogeneous systems, steady and unsteady state mathematical modeling of chemical reactors, fluidization and additional topics drawn from current literature.

711 ADVANCED CHEMICAL ENGINEERING THERMODYNAMICS *3 credits*
Prerequisite: 610. Advanced topics in thermodynamics, including phase and reaction equilibria at high pressures, phase equilibrium for multiphase systems, reaction equilibria in multiphase systems, thermodynamics of surfaces, thermodynamics of systems under stress, non-equilibrium thermodynamics and current topics from literature.

715 MOMENTUM TRANSPORT *3 credits*
Prerequisite: 600. Discussion of potential flow, boundary layer formation and turbulent flow phenomena for Newtonian fluids.

716 NON-NEWTONIAN FLUID MECHANICS *3 credits*
Prerequisite: 600. Tensor and curvilinear coordinates. Newtonian viscometrics. Development of non-Newtonian constitutive equations. Special and general flows of various constitutive models.

720 ENERGY TRANSPORT *3 credits*
Prerequisite: 600. Conduction, natural and forced convection, and radiation heat transfer starting with equations of continuity, motion and energy.

721 TOPICS IN ENERGY TRANSPORT *3 credits*
Prerequisite: 720. Advanced analytical and graphical methods for solving complex heat transfer problems found in chemical engineering.

725 MASS TRANSFER *3 credits*
Prerequisite: 600. Theory of mass transfer with applications to absorption, adsorption, distillation and heterogeneous catalysis.

731 PROCESS CONTROL *3 credits*
Prerequisite: 630. Introduction to modern control theory of chemical processes including cascade control, multivariate control and data sampled control.

736 POLYMER ENGINEERING TOPICS *3 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.

750 POLLUTION CONTROL ENGINEERING *3 credits*
Prerequisite: 463 or permission. Advanced waste treatment methods as applied to chemical process industries.

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.

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.

899 DOCTORAL DISSERTATION *1-15 credits*
(May be taken more than once)
Prerequisites: completion of preliminary examination and approval of Advisory Committee. Original research by Ph.D. candidate.

CIVIL ENGINEERING 4300:

130 INTRODUCTION TO ENGINEERING *0 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.

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.

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; indeterminate beams; columns.

230 SURVEYING *3 credits*
Basic tools and computations for surveying: measurement of distance elevation and angles; traverse surveys. Laboratory field practice.

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.

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.

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 and behavior.

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.

341 HYDRAULIC ENGINEERING *3 credits*
Flow in pipelines and pipe networks, pumps and pumping stations, seepage, elements of hydrology, flow in open channels, design of hydraulic structures, water resources engineering.

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.

380 ENGINEERING MATERIALS LABORATORY *2 credits*
Prerequisite: 202. Study of laboratory instrumentation and standard techniques in testing of engineering materials. Data analysis.

401 STEEL DESIGN *3 credits*
Prerequisite: 306. Tension, compression members; openweb joists; beams; bearing plates; beam-columns; bolted, welded connections.

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.

404 ADVANCED STRUCTURAL DESIGN *3 credits*
Prerequisites: 401, 403. Composite design; plate girders; plastic design; cantilever retaining walls; torsion in R/C members; deflection of R/C members; continuous girder bridge design.

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.

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.

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.

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.

424 WATER-WASTEWATER LABORATORY *1 credit*
Corequisite: 323 or permission. Analysis of water and wastewater.

426/526 ENVIRONMENTAL ENGINEERING DESIGN *3 credits*
Prerequisite: 323. An introduction to the physical, chemical and biological processes utilized in the treatment of water and wastewater, with design parameters emphasized.

427/527 WATER QUALITY MODELING AND MANAGEMENT *3 credits*
Prerequisite: 323. Analysis and simulation of the physical, chemical and biochemical processes affecting stream quality. Development of management strategies based upon the application of water quality modeling techniques to environmental systems.

428/528 HAZARDOUS AND SOLID WASTES *3 credits*
Prerequisite: senior standing or permission of instructor. Hazardous and solid waste quantities, properties and sources are presented. Handling, processing, storage and disposal methods are discussed with non-technical constraints outlined.

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.

443/543 APPLIED HYDRAULICS *3 credits*
Prerequisite: 341. Review of design principles: urban hydraulics, steam channel mechanics, sedimentation, coastal engineering.

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.

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.

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.

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.

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.

453/553 OPTIMUM STRUCTURAL DESIGN *3 credits*
Prerequisite: 306. Basic concepts in structural optimization. Mathematical programming methods including unconstrained minimization, multidimensional minimization and constrained minimization.

463/563 TRANSPORTATION PLANNING *3 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.

464 HIGHWAY DESIGN *3 credits*
Prerequisite: 361. Step-by-step study of modern highway design techniques and construction practices.

465/565 PAVEMENT ENGINEERING *3 credits*
Prerequisite: 361. Theories of elasticity, of viscoelasticity and of layered systems as applied to pavements. Pavement materials characterization; pavement design, pavement restoration for rigid and flexible pavements.

466/566 TRAFFIC ENGINEERING *3 credits*
Prerequisite: 361. Vehicle and urban travel characteristics, traffic flow theory, traffic studies, accidents and safety, traffic signs and marking, traffic signal planning, traffic control and transportation administration.

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.

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.

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.

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.

481 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.

482 SPECIAL PROJECTS *1-3 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.

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 civil engineering, supervised by faculty member of the department.

Graduate Courses

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. Castighano's theorems. Analytical and numerical solutions to column buckling and beam-column problems.

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.

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.

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.

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; pretensioned, post-tensioned; continuous girders; corbels; volume-change forces; connections.

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.

609 FINITE ELEMENT ANALYSIS I *3 credits*
Prerequisite: 601. 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.

610 INTRODUCTION TO COMPOSITE MECHANICS *3 credits*
Prerequisite: 601 or equivalent. Fundamental concepts of composites, composite micromechanics, macromechanics and laminate theory are discussed from geometric relationships to laminate analysis for stiffness and strength. The geometric, mechanical, hygral and thermal behavior or composites will be described in terms of corresponding properties of the constituents. Emphasis is placed on the physics of composite behavior; design and analysis of fiber composite laminates subjected to mechanical and environmental loading conditions.

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.

612 ADVANCED SOIL MECHANICS *3 credits*
Prerequisite: 314. 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.

613 ADVANCED GEOTECHNICAL TESTING *3 credits*
Prerequisites: 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.

614 FOUNDATION ENGINEERING I *3 credits*
Prerequisite: 313 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.

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.

618 ROCK MECHANICS *3 credits*
Prerequisite: 601 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.

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.

621 WATER AND WASTEWATER LABORATORY *2 credits*
Prerequisite: 426 or permission of instructor. Conduction of laboratory experiments related to the design and operation of water and wastewater treatment processes. Experimental design, data collection, analysis and report preparation.

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.

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.

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 applicable to water utility systems.

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.

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 stablization, sludge dewatering processes emphasized.

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.

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.

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.

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.

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.

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.

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. Theoretical relationships. Mathematical formulation of constitutive relations.

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.

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.

686 EXPERIMENTAL METHODS IN STRUCTURAL MECHANICS *3 credits*
Prerequisite: 601. Electrohydraulic closed-loop test systems. Methods for specimen heating. Strain measurement techniques for room and elevated temperatures. Design of computer controlled experiments investigating deformation and failure under complex stress states.

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.

698 SPECIAL PROBLEMS *1-2 credits*
Prerequisites: 697 and permission. Continuation of 697. Individual research should lead to final report of publishable quality.

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.

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.

702 PLATES AND SHELLS *3 credits*
Prerequisites: 601 and 3450:531. Navier and Levy solutions for rectangular plates. Approximate methods, including finite differences. Forces in middle plant. Large deflections. Differential geometry of a surface. Shells of revolution.

703 APPLICATION IN PLASTICITY AND VISCOELASTICITY *3 credits*
Prerequisite: 601. 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.

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.

710 ADVANCED COMPOSITE MECHANICS *3 credits*
Prerequisite: 610. Analysis of short-fiber composites and statistical behavior, bending, buckling and vibration of laminated plates and shells. Advanced topics involving stress concentration, residue stress, fatigue, fracture toughness, nonlinear and viscoelastic stress-strain formulations, solutions of nonlinear problems.

712 DYNAMIC PLASTICITY *3 credits*
Prerequisite: 683 or 703. Impulsive and transient loading of structures and structural elements (beams, plates, shells, etc.) in which inelastic deformation occurs. Topics include: longitudinal and transverse plastic wave propagation in thin rods, propagation of plastic hinges, rate-dependent viscoplastic waves, transverse impact on beams and plates, high-rate forming, blast loading, plate perforation, shock waves in solids.

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.

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.

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.

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.

899 DOCTORAL DISSERTATION *1-15 credits*
(May be taken more than once)
Prerequisites: completion of preliminary examination and approval of Advisory Committee. Original research by Ph.D. candidate.

ELECTRICAL ENGINEERING 4400:

101 INTRODUCTION TO ELECTRICAL ENGINEERING *1 credit*
Corequisites: 1100:111 and 3450:149. Introduction of freshman engineering student to problem-solving techniques. Required of all entering electrical engineering freshmen.

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.

232 CIRCUITS II *3 credits*
Prerequisite: 231; corequisite: 3450:235. Network theorems, Fourier methods, transfer functions. Laplace and Fourier transforms and their use in analyzing dynamic operation of circuits.

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.

333 CIRCUITS III *3 credits*
Prerequisites: 232, 3450:235, 4100:206. 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.

334 ACTIVE CIRCUITS *3 credits*
Prerequisite: 333. Applications of operational amplifiers including bilinear transfer functions, scaling, cascade design, biquad circuits, lowpass, high pass, bandpass-filters, Chebyshev response, sensitivity, delay filters, frequency transformations, ladder design, simulated element design, leapfrog simulation and switched-capacitors.

343 ELECTRICAL MEASUREMENTS *4 credits*
Prerequisite: 231; corequisite: 232. Study of DC and AC meters and bridges. Evaluation of errors involved in measurements.

344 INSTRUMENTATION *3 credits*
Prerequisites: 343, 362. Analysis and characteristics of transducers, indicating instruments and recorders used in electrical measurements.

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.

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.

362 ELECTRONIC CIRCUITS *4 credits*
Prerequisites: 333, 363. Equivalent circuits for electronic devices. Time and frequency domain analysis. Rectification, voltage and power amplification, feedback, oscillators, linear IC's.

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.

365 MICROPROCESSOR SYSTEM *3 credits*
Prerequisite: 363. Consideration of microcomputer hardware and software components. Microprocessor and peripheral devices. Instructions set of selected microprocessor. Introduction to microcomputer software.

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.

380 ILLUMINATION *2 credits*
Fundamentals of illumination and principles underlying specifications and design for adequate electrical lighting.

383 APPLICATION OF MOTORS *3 credits*
Prerequisite: 386. Apparatus and circuits for control of electric motors. Calculation of accelerating and decelerating time and duty cycles. Selection of motors for various applications.

384 ENERGY CONVERSION I *3 credits*
Prerequisites: 231, 353. Required for all EE students. Magnetic circuits, transformers, electromagnetic forces and torques, electromechanical energy conversion, d.c. and a.c. machine characteristics applications.

385 ENERGY CONVERSION LABORATORY *1 credit*
Prerequisite: 384. Required for all EE students. A laboratory course to follow 384. Electromagnetic forces and torques, electromechanical energy conversion, d.c. and a.c. machine characteristics.

386 ENERGY CONVERSION II *3 credits*
Prerequisite: 384. A continuation of 384. Synchronous machines, single phase motors, motor and load characteristics, machine and transformer harmonics.

387 ADVANCED MACHINERY *3 credits*
Prerequisite: 386. d-q transformation. Reactance of synchronous machines. Parallel operation of transformers. Synchronous-induction motors. Machine saturation and harmonics.

388 MODERN POWER SYSTEMS *3 credits*
Prerequisite. 384; corequisite: 371. Power system generation, operation and control.

391 PROBLEMS *1-3 credits*
(May be taken more than once)
Prerequisite: permission of department head. Select comprehensive problems, supervised discussions and computation periods.

421/521 ENGINEERING ECONOMY *2-3 credits*
Prerequisites: 3250:244 and senior standing in engineering. Presents engineering economics as distinguished from classical economic theory.

445 COMMUNICATION SYSTEMS *3 credits*
Prerequisites: 333, 353, 362. Communications systems; equipment; noise; modulation; antennas, propagation; electronic communication circuits; frequency standards generation; communication satellites.

446 ELECTRONIC SYSTEMS *3 credits*
Study of specific state-of-the-art electronic systems: video systems, magnetic and optical recording systems, optical communication links, frequency synthesis, frequency and time standards, special electronic circuits and systems.

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.

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.

449/549 ENGINEERING OF DATA COMMUNICATION SYSTEMS *3 credits*
Prerequisites: 362, 363, 445. Data communication systems engineering design and operation: digital data codes, error-checking and error-correction methods, digital modulation methods and transmission media, data links, protocol models, data networks, monitoring and testing methods.

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.

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.

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.

461 PHYSICS OF ELECTRONIC DEVICES *3 credits*
Prerequisites: 3650:301, 353, 362. 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.

464 PULSE ELECTRONICS *4 credits*
Prerequisites: 333, 362. Waveshaping circuits, nonsinusoidal waveform generation and relaxation circuits. Pulse transformers. Application of pulse and switching circuits.

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.

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 pnpn diode and Gunn effect oscillator.

469 INDUSTRIAL ELECTRONICS *3 credits*
Prerequisites: 362, 386. Application of electronic devices at power levels. Intended for those specializing in power area of electrical engineering rather than electronic areas.

470 MICROPROCESSOR INTERFACING *3 credits*
Prerequisites: 362, 363. Microprocessor structure, Bus Interface. Digital controller devices and their relationship to both the microcomputer and physical environment.

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.

480/580 SYMMETRICAL COMPONENTS *3 credits*
Prerequisite: 386. Per unit method as applied to power system calculations. Fundamental principles of symmetrical components as applied to analysis of electrical circuits and machines.

481 ELECTRICAL POWER SYSTEMS I *3 credits*
Prerequisite: 386. Introduction to electricity utility load flow, faulty analysis, stability, surge protection and relaying.

482 ELECTRICAL POWER SYSTEMS II *3 credits*
Prerequisite: 386. Introduction to industrial power systems. Local generation, power factor correction, conductor selection code requirements, coordination of protective devices.

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.

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.

Graduate Courses

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.

641 RANDOM SIGNAL ANALYSIS *3 credits*
Prerequisite: 447. Analysis, interpretation and smoothing of engineering data through application of statistical and probability methods.

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.

646 DIGITAL SIGNAL PROCESSING *3 credits*
Prerequisites: calculus, operational transform techniques. Modern signal processing techniques including FIR, IIR filter design, spectral estimation (FFT algorithm and maximum entropy method).

651 ELECTROMAGNETIC FIELDS *3 credits*
Prerequisite: graduate standing in electrical engineering. Introduction to advanced electromagnetic concepts at graduate level.

652 ADVANCED ELECTROMAGNETICS *3 credits*
Prerequisite: 651. Application of Maxwell's equations. Propagation equations and antenna analysis.

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.

662 TOPICS IN ELECTRONICS *3 credits*
Prerequisite: permission of department head. Discussions of recent advances in electronics.

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.

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.

675 SYSTEM SIMULATION *3 credits*
Prerequisite: 472 or permission of the instructor. This course is designed to provide the control engineer with tools necessary to simulate continuous systems on a digital computer. Topics include linear multistep methods, nonlinear methods, stiff systems, optimization, parallel computing and simulations languages.

676 RANDOM PROCESS ANALYSIS *3 credits*
Prerequisite: 674. Analysis and design of control systems with stochastically defined input. Introduction to estimation filters.

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.

682 POWER SYSTEM STABILITY *3 credits*
Prerequisite: 681. Steady state and transient stability of power systems with emphasis on computer solution.

683 ECONOMICS OF POWER SYSTEMS *3 credits*
Prerequisite: 681. Analysis and operation of power system for economic dispatching using a computer.

684 PROTECTIVE RELAYING *3 credits*
Prerequisite: 480. Principles and application of relays as applied to protection of power systems.

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.

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.

699 MASTER'S THESIS *1-6 credits*
Prerequisite: permission of department head. Research and thesis on some suitable topic in electrical engineering.

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.

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.

777 OPTIMAL CONTROL II *3 credits*
Prerequisite: 776. Sensitivity problem in optimal control, system identification. Implementation and application of adaptive control.

778 ADAPTIVE CONTROL *3 credits*
Prerequisite: 671 or permission of instructor. This course will provide the advanced graduate student with the techniques required for the control of time-varying nonlinear and stochastic systems. Topics include minimum prediction error control, least squares estimation, certainty equivalence adaptive control, Kalman filtering, minimum variance control, LQG control and stochastic adaptive control.

779 ADVANCED TOPICS IN CONTROL *3 credits*
Prerequisite: 776. Discussions of recent advances in control systems.

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.

898 PRELIMINARY RESEARCH *1-15 credits*
(May be repeated)
Prerequisites: completion of qualifying examination and approval of Student Advisory Committee. Preliminary investigation of Ph.D. dissertation subject.

899 DOCTORAL DISSERTATION *1-15 credits*
(May be repeated)
Prerequisites: completion of candidacy examination and approval of Student Advisory Committee. Original research by a Ph.D. candidate.

ENGINEERING COMPUTER SCIENCE 4450:

410 COMPUTER METHODS *3 credits*
Prerequisites: 4100:206 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.

420/520 SOFTWARE ENGINEERING *3 credits*
Prerequisites: 3460:209 and instructor's permission. Software life cycle. Specification, design and implementation of team projects.

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.

470/570 INTEGRATED SYSTEM DESIGN *3 credits*
Prerequisite for 470: 4400:465. Prerequisite for 570: 4400:565. Introduction to computer structures, design methods and development tools for VLSI systems, nMOS devices and fabrication. Processing and control design. Layout methods and tools. Design systems.

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.

Graduate Courses

606 COMPUTER ARCHITECTURE *3 credits*
Prerequisite: 4400:363 or equivalent. Historical development of computer architecture. Design methodologies. Processor organization and design of instruction sets. Parallel processing. Control section implementations. Memory organization. System configurations.

610 COMPUTER ALGORITHMS I *3 credits*
Prerequisites: 4100:206 and 3450:235. Organization of scientific and engineering problems for computer solutions. Analysis of error and convergence properties of algorithms.

611 COMPUTER ALGORITHMS II *3 credits*
Prerequisite: 610 or permission. Data structures and algorithm design for minimum execution time and memory requirements.

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.

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.

MECHANICAL ENGINEERING 4600:

125 ENGINEERING GRAPHICS *2 credits*
Freehand sketching techniques. Orthographic projection and pictorial representation of typical machine elements.

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.

203 DYNAMICS *3 credits*
Prerequisite: 4300:201. Kinematics and kinetics of particles and rigid bodies. Principles of work, energy, momentum and impulse.

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.

301 THERMODYNAMICS II *3 credits*
Prerequisites: 300 and 310. Thermodynamics of state, gas mixtures and gas-vapor mixtures. Combustion. Thermodynamics of gas flow.

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.

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.

315 HEAT TRANSFER *3 credits*
Prerequisites: 160, 300, 310, or 4100:206. Fundamentals of heat transfer by conduction, convection and radiation.

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.

336 ANALYSIS OF MECHANICAL COMPONENTS *3 credits*
Prerequisites: 160, 4300:202, or 4100:206. Analysis of stress and strain at a point. Mohr's circles, shear centers, elastic instability. Stresses in thick and thin cylinders. Fatigue analysis.

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.

360 ENGINEERING ANALYSIS *3 credits*
Prerequisites: 160, 3450:235, or 4100:206. Analytical and numerical methods of solution of mechanical engineering problems.

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.

393 INTERNAL COMBUSTION ENGINES LABORATORY *1 credit*
Prerequisite: 301. Study of application and performance in reciprocating and rotary engines.

396 COMPUTER METHODS LABORATORY *1 credit*
Prerequisites: 160, 3450:235, or 4100:206. 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.

400/500 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.

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.

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.

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.

412/512 FUNDAMENTALS OF FLIGHT *3 credits*
Prerequisite: 310 or equivalent or permission of instructor. Introduction to basic aerodynamics, airplane performance, stability and control, astronautics and propulsion. Design considerations are emphasized.

415/515 ENERGY CONVERSION *3 credits*
Prerequisites: 301, 315. Topics from fields of internal combustion engines, cycle analysis, modern conversion devices.

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 magneto-hydrodynamic systems.

420 INTRODUCTION TO FINITE ELEMENT METHOD *3 credits*
Prerequisite: 336. Introduction to matrix and finite element methods in mechanical engineering. Stiffness and flexibility formulations in both solid mechanics and thermal sciences. Basic finite element methods and its implementation. Application of NASTRAN program. Pre- and post-processing using interactive computer graphics.

422/522 EXPERIMENTAL STRESS ANALYSIS I *3 credits*
Prerequisite: 336 or 4300:202. Experimental methods of determining stress or strain: brittle lacquer, strain gages, photoelasticity.

426/526 INDUSTRIAL NOISE CONTROL *3 credits*
Prerequisite: 431 or permission. Theory of propagation, transmission and reflection of plane waves. Psychological acoustics. Noise control regulations and criteria. Techniques of identification, instrumentation and control of noise sources.

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.

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.

432/532 VEHICLE DYNAMICS *3 credits*
Application of dynamic systems analysis techniques to road vehicles. Newtonian and Lagrangian methods. Tire/road interface. Ride characteristics, handling and stability. Digital simulation.

440/540 SYSTEM DYNAMICS AND CONTROL *4 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.

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.

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.

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.

461 DESIGN OF MECHANICAL SYSTEMS *2 credits*
Prerequisites: 321, 431, 460. Detailed mechanical design project and case studies.

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.

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.

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.

485 MECHANICAL ENGINEERING PROBLEMS *1-2 credits*
Prerequisite: permission. Investigation of a project by individual or small student groups. Detailed formal report required.

486 SPECIAL TOPICS *1-3 credits*
Prerequisite: permission. Brief description of current content to be announced in schedule of classes.

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.

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.

Graduate Courses

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.

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.

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.

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.

611 COMPUTATIONAL FLUID MECHANICS *3 credits*
Prerequisite: 610 or permission of instructor. Study of numerical methods in fluids; numerical errors and stability, finite differencing, nonlinear convection terms, Poisson equations, boundary conditions, turbulence, spectral and finite element techniques.

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.

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.

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.

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.

620 EXPERIMENTAL STRESS ANALYSIS II *2 credits*
Prerequisite: 422/522. Dynamic strain gage methods, transducer design, Moire fringe techniques and topics in photoelasticity.

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.

622 CONTINUUM MECHANICS *3 credits*
Prerequisite: 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.

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.

624 FUNDAMENTAL OF FRACTURE MECHANICS *3 credits*
Prerequisite: 622 or permission of instructor. Methods of stress analysis in elastic media containing holes and cracks. Theories of brittle fracture. Dynamic crack propagation. Fatigue fractures. Finite element approaches to fracture mechanics.

625 ANALYSIS OF MECHANICAL COMPONENTS *3 credits*
Prerequisite: 337 or equivalent. Theories of failure and plastic flow. Fatigue, creep analysis and introduction to fracture mechanics.

629 NONLINEAR ENGINEERING PROBLEMS *3 credits*
Prerequisite: 622. Study of nonlinear ordinary and partial differential equations governing phenomena of mechanics. Analysis of phasespace trajectories, singularities and stability. Development of approximate analytical methods.

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.

631 KINEMATIC DESIGN *3 credits*
Prerequisites: 321 and permission of instructor. The geometry of constrained motion. Analysis of relative plane motion using vectors and the digital computer. Curvature theory. Synthesis of linkages and gearing. Introduction to computer-aided design.

632 RELIABILITY IN DESIGN *3 credits*
Prerequisites: 337 or equivalent and 3470:461/561. The reliability determination of mechanical components and systems and its use in design. Distribution, reliability determination, normal and log-normal theories, Weibull theory, life spectrum analysis, renewal theory and confidence limits.

633 MODEL ANALYSIS IN VIBRATION *3 credits*
Prerequisite: 630 or equivalent. Modal analysis theory and measurement techniques, digital signal processing concepts, structural dynamics theory, modal parameter estimation with "hands-on" experience in the application of modal measurement methods in vibration analysis.

635 STRESS WAVES IN SOLIDS AND FLUIDS *3 credits*
Prerequisite: 531 or equivalent. The wave equation. Propagation of elastic-plastic stress waves through solid media. Transmission, reflection, absorption and diffraction phenomena. Low and high velocity impact. Dynamic fracture. Numerical simulation techniques.

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.

645 PROCESS IDENTIFICATION AND COMPUTER CONTROL *3 credits*
Prerequisite: 440 or equivalent. Obtaining mathematical models of processes from noisy observations. Methods of digital control design. Case studies on computer control of selected processes.

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.

660 ENGINEERING ANALYSIS *3 credits*
Prerequisite: B.S. in engineering. Study of analysis techniques as applied to specific engineering problems. Applications include beam deflections, acoustics, heat conduction and hydrodynamic stability.

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.

699 MASTER'S THESIS *1-4 credits*
Prerequisite: permission of adviser. Supervised research in a specific area of mechanical engineering.

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.

705 FINITE ELEMENT ANALYSIS III *3 credits*
Prerequisite: 704. 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.

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.

715 HYDRODYNAMIC STABILITY *3 credits*
Prerequisites: 660, 620 or permission. Stability concepts, Stability of Benard convection, Rayleigh-Taylor flow, parallel shear layers, bondary layers, asymptotic solution of Orr-Sommerfeld equation, nonparallel stability.

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.

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.

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.

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.

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.

741 OPTIMIZATION THEORY AND APPLICATIONS *3 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.

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.

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.

898 PRELIMINARY RESEARCH *1-15 credits*
Prerequisite: approval of Advisory Committee. Preliminary investigation of Ph.D. dissertation subject.

899 DOCTORAL DISSERTATION *1-15 credits*
(May be taken more than once)
Prerequisite: approval of Advisory Committee. Original research by Ph.D. candidate.

POLYMER ENGINEERING 4700:

450 MECHANICAL ENGINEERING PROPERTIES AND PROCESSING OF POLYMERS *3 credits*
Prerequisites: 4600:315, 336 and 380 or permission. Introductory course to engineering properties and processing of polymers. Analysis of mechanical tests of polymers in the glassy, rubbery, and fluid states. Product design. Concepts of rheology, rheometry and polymer processing.

Graduate Courses

601 POLYMER ENGINEERING SEMINAR *1 credit*
Presentations of recent research on topics in polymer engineering by internal and external speakers.

611 STRUCTURAL CHARACTERIZATION OF POLYMERS WITH ELECTROMAGNETIC RADIATION *2 credits*
Characterization of orientation, morphology, superstructure in polymers using x-ray, light scattering, birefringence, dichroism. Crystal-lography, unit cell determination.

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.

622 ANALYSIS AND DESIGN OF POLYMER PROCESSING OPERATIONS I *3 credits*
Prerequisite: 621. Mathematical modeling and engineering design analysis of polymer processing operations including extruder screws, injection molds, dies, fibers, film formation.

623 ANALYSIS AND DESIGN OF POLYMER PROCESSING OPERATIONS II *3 credits*
Prerequisite: permission of instructor. Basic studies of non-isothermal phenomena in polymer engineering emphasizing crystallization, vitrification, frozen-in orientation and residual stresses, applications, including fiber spinning and film extrusion.

631 ENGINEERING PROPERTIES OF SOLID POLYMERS *2 credits*
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.

641 POLYMERIC MATERIALS ENGINEERING SCIENCES *2 credits*
Physico-chemical properties of amorphous and crystalline polymers. Glass transitions, crystallization, molecular orientation and morphology of important commercial polymers, fabricated products and composite materials.

642 ENGINEERING ASPECTS OF POLYMER COLLOIDS *2 credits*
Thermodynamic properties of polymer colloids, sol-gel transformation, rheology of polymer solutions, gels, suspensions and emulsions, phase separation, applications to paints and plastisols technology.

651 POLYMER ENGINEERING LABORATORY *2 credits*
Laboratory experiments on the rheological characterization of polymer melts fabrication of engineering products, structural investigation of polymeric parts.

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.

699 MASTER'S THESIS *1-6 credits*
(May be repeated)
Supervised original research in specific area of polymer engineering.

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.

712 RHEO-OPTICS OF POLYMERS *2 credits*
Applications of rheo-optical methods as means of determining stress fields in polymeric glasses and fluids during deformation, rheo-optical properties of polymers in glassy, rubbery and fluid states. Theory of dynamic birefringence and its application to mechanical relaxations of amorphous and semi-crystalline polymers, and recent experimental results.

713 RADIATION SCATTERING AND DIFFRACTION BY POLYMERIC MATERIALS *2 credits*
Principles of scattering and diffraction theory as applied to polymer crystals, glasses and multiphase systems. Wide angle and small angle x-ray, light and neutron scattering, analysis and determination of crystal structures, mathematical description of orientation distribution of polymer and determination of orientation factors by WAXD and other methods.

716 NON-NEWTONIAN FLOW *2 credits*
Prerequisite: 4200:600. Rheological behavior of non-Newtonian fluids. Development of fluid constitutive equations. Viscometric methods.

721 RHEOLOGY AND PROCESSING TWO-PHASE POLYMER SYSTEMS *2 credits*
Prerequisite: 622 or equivalent. Particle-particle interactions, mixing devices and design, theoretical hydrodynamics of suspensions of rigid particles, experimental studies of rheological behavior, phenomenological theories representing suspension behavior, dispersion of droplets to form an emulsion, phase morphology development and rheological properties of blends.

722 ADVANCED MODELLING OF POLYMER PROCESSING *2 credits*
Prerequisite: permission of instructor. Modelling of processing operations including extrusion molding, fiber and film processing, computer-aided design.

741 PHASE TRANSFORMATIONS IN POLYMER SCIENCE *2 credits*
Prerequisite: permission of instructor. Thermodynamics, nucleation and kinetics of growth of new phases, spinodal decomposition and related mechanisms, crystallization, crystal-crystal transformation, stress induced crystallization.

745 LIQUID CRYSTALS *2 credits*
Prerequisite: permission of instructor. Structure of low molecular weight and polymeric liquid crystals, characterization, physical properties including optical properties, phase transitions, structure-property relationships, processing of polymeric species.

797 ADVANCED TOPICS IN POLYMER ENGINEERING *2-3 credits*
(May be repeated)
Prerequisite: permission of instructor. Advanced special topics intended for Ph.D. students in polymer engineering.

898 PRELIMINARY RESEARCH *1-15 credits*
(May be repeated)
Prerequisites: completion of qualifying examination, approval of Student Advisory Committee. Preliminary investigation of Ph.D. dissertation subject.

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.

BIOMEDICAL ENGINEERING

4800:

409 INTRODUCTION TO BIOMEDICAL ENGINEERING RESEARCH *3 credits*
Application of engineering principles to local area medical research. Includes biomaterials, orthopedics, artificial organs, biostereometrics, biometrics, biological signal and image analysis, biomechanics and computers in medicine.

Graduate Courses

530 BIOMEDICAL INSTRUMENTATION I *4 credits*
Prerequisites: 3100:561, 562, and 4400:232 or 4400:320. Clinical instrumentation to measure and display physiologic and anatomic parameters. Basic concepts of instrumentation including design criteria and operational analyses. Practical experience gained through the use of instrumented mammalian models.

611 BIOMETRY *3 credits*
Statistics and experimental design topics for the biomedical and biomedical engineering disciplines including: distributions, hypothesis testing and estimation, ANOVA, probit analysis and nonparametrics statistics.

613 BIOMATERIALS AND LABORATORY *4 credits*
Corequisite: Biomaterials Laboratory. Material uses in biological applications. Effect of physiological environment and sterilization on materials. Controlled and uncontrolled degradation. Effect of materials on soft tissue, hard tissue and blood. Laboratory experiments using materials designed for biomedical use and demonstrations of biological/materials interactions.

623 MECHANICS IN PHYSIOLOGY AND MEDICINE *3 credits*
Prerequisites: 4600:310 and 4300:202 or equivalent. Blood rheology, mechanics of microcirculation, finite deformation theory, soft tissue mechanics, mechanics of blood and lymph circulation, kinetics and kinematics of orthopedic joints. Clinical applications.

632 PROCESSING OF BIOMEDICAL SIGNALS *3 credits*
Prerequisites: graduate standing in the College of Engineering and 611 or equivalent. Concepts for the analysis of biological continuous signals and point processes including discriminant and principal component analysis, histograms, correlograms and data displays.

633 BIOLOGICAL SIGNAL AND IMAGE PROCESSING *3 credits*
Concepts for the analysis of continuous signals, point processes and biomedical images, including sampling, filtering, time frequency domain analyses, data displays, quantization, enhancement, restoration.

637 IMAGE FORMATION AND PROCESSING IN BIOMEDICINE *3 credits*
Prerequisite: graduate standing in the College of Engineering or permission of instructor. The formation of medical images including CT, MRI, and ultrasound, data displays, and processing techniques such as quantization, enhancement, restoration and segmentation.

643 BIOMEDICAL COMPUTING *3 credits*
Prerequisite: 4100:206 or equivalent. Computer applications in health care, clinical laboratories, AMHT, medical records, direct order entry, A-D, D-A conversion, patient monitoring, peripherals and interfaces, diagnostic algorithms, automated EEG, ECG systems.

653 TRANSPORT PHENOMENA IN BIOLOGY AND MEDICINE *3 credits*
Prerequisites: 4200:321, 322 or 4600:310, 315 or equivalent. Basic definitions, cardiovascular mass and momentum transport, compartment modeling, mass transfer in physiological systems and artificial kidney and lung devices, Design optimization. Analysis of human thermal system.

663 ARTIFICIAL ORGANS *3 credits*
Prerequisites: graduate standing in the College of Engineering or permission of instructor. Study of the rationale for the engineering and clinical aspects required for the design and variety of artificial organs, with emphasis on the artificial heart and artificial kidney.

697 SPECIAL TOPICS *1-4 credits*
(May be repeated)
Prerequisite: permission of instructor. Current topics or supervised study in the area of biomedical engineering. Credit hours depend upon the nature and extent of the course or the project.

699 MASTER'S THESIS *1-6 credits*
Prerequisite: permission of adviser. Supervised research in the specific area of biomedical engineering.

898 PRELIMINARY RESEARCH *1-15 credits*
(May be repeated)
Prerequisite: approval of Advisory Committee. Preliminary investigation of Ph.D. dissertation subject.

899 DOCTORAL DISSERTATION *1-15 credits*
Prerequisite: approval of Advisory Committee. Original research by a Ph.D. candidate.

CONSTRUCTION TECHNOLOGY

4980:

351 CONSTRUCTION QUALITY CONTROL *2 credits*
Prerequisites: 2980:237, 238 or permission. Overview of quality control concepts and techniques as related to the construction industry including the necessary statistical tools; exposes students to civil, mechanical and electrical inspection requirements.

352 FIELD MANAGEMENT *2 credits*
Prerequisites: 2980:222, 245 or permission. Planning, scheduling and controlling of field work within time and cost constraints.

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.

355 COMPUTER APPLICATIONS IN CONSTRUCTION *3 credits*
Prerequisite: admission into the BCT program or permission of instructor. Focuses on realtime and batch programming of construction-oriented problems. Includes graphics, simulation, basic programming, flowcharting, hardware, software and management information applications.

356 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.

357 CONSTRUCTION ADMINISTRATION *2 credits*
Prerequisite: junior standing. Construction specification, office organization, preparation of construction documents, bidding, bonds. Construction management and supervision. Agreement and contracts.

358 ADVANCED ESTIMATING *3 credits*
Prerequisite: 355 or permission of the instructor. This course focuses on estimating and bidding for public and private construction. Includes heavy/highway, industrial and building construction with microcomputers to facilitate bid price.

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.

453 LEGAL ASPECTS OF CONSTRUCTION *2 credits*
Study of business of contracting and subcontracting and legal problems therein such as breach, partial performance, payment, insolvency, subsurface. Review of AIA standard contracts and construction industry rules of arbitration.

462 MECHANICAL SERVICE SYSTEMS *3 credits*
Introduction to materials and equipment used in mechanical heating, ventilating, air conditioning, water and waste systems.

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.

465 HEAVY CONSTRUCTION METHODS *3 credits*
Prerequisite: 2980:232 or 4300:472. Management techniques in planning, estimating and directing heavy construction operations.

466 HYDRAULICS *3 credits*
Prerequisite: 2020:233. Introduction to hydrology. Flow in closed conduits and open channels, distribution, systems, storage requirements and basic concepts of hydraulic structures. Basic concepts of seepage and working knowledge of pumps.

467 SPECIAL PROJECTS *1-3 credits*
Prerequisites: senior standing and permission of instructor. Directed individual or group research or study in student's field of interest. Topic subject to approval by adviser.

468 CONSTRUCTION MANAGEMENT *3 credits*
Prerequisites: senior-level standing, 352 and 357. *Construction Management* takes established construction practices, current technological advances and latest management methods and makes them into an efficient, smooth working system.

470 ADVANCED CONSTRUCTION GRAPHICS *3 credits*
This course focuses on construction graphics through microbased CAD. Topics include microcomputer systems, digitizers, plotters, printers, menus, keyboard and mouse input, introduction and advanced techniques.

College of Education

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.

EDUCATIONAL FOUNDATIONS 5100:

150 INTRODUCTION TO PROFESSIONAL EDUCATION *3 credits (4 clinical hours, 12 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.

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.

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.

310 EDUCATIONAL MEDIA AND TECHNOLOGY *3 credits*
Examines media technology including videos, motion pictures, still pictures, audio materials and computers in instructional settings with emphasis on selection/evaluation, utilization and preparation.

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.

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.

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.

414/514 ORGANIZING AND SUPERVISING EDUCATIONAL MEDIA PROGRAMS *3 credits*
Prerequisite: 310 or permission of the instructor. Procedures for planning, organizing and evaluating educational media programs including media facilities and services.

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.

430 SENIOR HONORS PROJECT: FOUNDATIONS *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.

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.

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.

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.

494/594 EDUCATIONAL INSTITUTES *1-4 credits*
Special course designed as in-service upgrading programs, frequently provided with the support of national foundations.

497 INDEPENDENT STUDY *1-3 credits*
(May be repeated for a total of six credits)
Prerequisites: permission of department head and instructor. Specific area of study determined in accordance with program and professional goals.

Graduate Courses

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.

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.

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.

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.

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.

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.

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.

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.

640 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.

642 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.

695 FIELD EXPERIENCE: MASTER'S *1-3 credits*
Prerequisites: permission of department head and instructor. Area determined in accordance with student's program and professional goals.

697 INDEPENDENT STUDY *1-3 credits*
(May be repeated for a total of six credits)
Prerequisites: permission of department head and instructor. Specific area of study determined in accordance with student's program and professional goals.

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 problems in educational foundations.

699 THESIS RESEARCH *4-6 credits*
Prerequisites: permission of department head and instructor. In-depth study of research problem within humanistic and behavior foundation.

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.

703 SEMINAR: HISTORY AND PHILOSOPHY OF HIGHER EDUCATION *3 credits*
Prerequisite: 600 or equivalent. 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.

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.

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.

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.

741 STATISTICS IN EDUCATION *3 credits*
Statistical methods and techniques used in field of measurement and by research workers in education.

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.

798 RESEARCH PROJECT IN SPECIAL AREAS *1-3 credits*
Prerequisites: permission of department head and instructor. Critical and in-depth study of specific problem in educational foundations.

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.

897 INDEPENDENT STUDY *1-4 credits*
(May be repeated for a total of eight credits)
Prerequisites: 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.

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.

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.

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.

286 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.

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.

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.

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.

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.

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.

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.

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.

331 EARLY ELEMENTARY EDUCATION II *3 credits*
Prerequisite: 330. Curriculum needs of primary-aged child.

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.

334 TEACHING ART IN THE ELEMENTARY SCHOOL *2 credits*
Prerequisites: 141 and 321, art education major, junior standing; elementary education majors. 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.

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.

336 TEACHING OF ELEMENTARY SCHOOL MATHEMATICS *3 credits*
Prerequisite: 5100.250. Trends in instruction in elementary schools. Procedures for development of mathematical concepts and skills.

337 TEACHING OF READING *3 credits*
Prerequisites: 335 and 5100:250. Elementary reading program, together with modern methods of teaching reading at various levels.

338 THE TEACHING OF SOCIAL STUDIES *3 credits*
Prerequisite: 5100:250. Social studies in elementary school and varied means of implementing program.

339 PRINCIPLES OF DIAGNOSTIC TEACHING OF READING *3 credits*
Prerequisite: 337. Nature of reading problems in classroom setting. Methods and materials employed in corrective reading program by classroom teacher.

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.

341 EARLY ELEMENTARY EDUCATION II — LABORATORY *1 credit*
Corequisite: 331. 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.

343 SCIENCE FOR THE ELEMENTARY GRADES — LABORATORY *1 credit (30 clinical/field hours)*
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.

344 TEACHING ART IN THE ELEMENTARY SCHOOL — LABORATORY *1 credit (30 clinical/field hours)*
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.

346 TEACHING ELEMENTARY SCHOOL MATHEMATICS — LABORATORY *1 credit (30 clinical/field 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.

347 TEACHING OF READING — LABORATORY *1 credit (30 clinical/field 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.

348 TEACHING OF SOCIAL STUDIES — LABORATORY *1 credit (30 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.

349 PRINCIPLES OF DIAGNOSTIC TEACHING OF READING — LABORATORY *1 credit (30 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.

350 MULTICULTURAL EDUCATION: CONCEPTS, PROGRAMS AND PRACTICES *3 credits (15 clinical hours)*
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.

360 NURSERY SCHOOL LABORATORY *3 credits*
Prerequisite: 7400:265. Concentrated study and experience in nursery school programming under direction of supervising teachers.

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.

395 FIELD EXPERIENCE *1-3 credits*
Prerequisites: permission of adviser and department head. Independent field work in area selected by student's adviser, based on student's needs.

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.

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.

430 SENIOR 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.

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.

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.

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.

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.

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.

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.

451 ELEMENTARY EDUCATION *3 credits*
Evaluation of recent trends and practices in elementary education. Required for those converting from other certificates.

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.

490,1,2,3/590,1,2,3 WORKSHOP *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.

494/594 EDUCATIONAL INSTITUTES *1-4 credits*
Special courses designed as in-service upgrading programs. Frequently provided with the support of national foundations.

495 STUDENT TEACHING *4-8 credits (322 field hours)*
Prerequisites: senior standing and 300. Planned teaching experience (in elementary school) selected and supervised by Office of Educational Field Experience.

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.

497 INDEPENDENT STUDY *1-3 credits*
Prerequisites: permission of adviser and department head. Specific area of curriculum investigation pertinent to elementary education as determined by student's academic needs.

Graduate Courses

620 LITERATURE FOR YOUNG CHILDREN *2 credits*
Literature for children ages two through six examined in depth in terms of value and purpose; methods and techniques for presenting it to children; variety and quality of books available.

630 ELEMENTARY SCHOOL CURRICULUM AND INSTRUCTION *2 credits*
Application of findings of recent research to curriculum building and procedures in teaching.

631 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.

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.

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.

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.

650 EDUCATION AND THE YOUNG CHILD *2 credits*
Content centered on educational settings of young children from birth through five years.

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, multisensory resource development and prescription.

695,6 FIELD EXPERIENCE: MASTER'S *1-2 credits each*
Prerequisites: permission of adviser and department head. On-the-job experience related to student's course of study.

697 INDEPENDENT STUDY *1-3 credits*
Prerequisites: permission of adviser and department head. Selected areas of independent investigation as determined by adviser and related to student's academic needs.

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.

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.

732 SUPERVISION OF INSTRUCTION IN THE ELEMENTARY SCHOOL *2 credits*
Supervisory role of elementary principal and other supervisory personnel.

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, art, human sexuality, computers and middle school.

781 RESIDENCY SEMINAR *2 credits*
One-hour weekly meeting for elementary doctoral student in residence.

799 RESEARCH PROJECTS IN ELEMENTARY EDUCATION *1-2 credits*
Prerequisites: permission of adviser and department head. In-depth investigation of specific problem pertinent to elementary education.

895,6,7 FIELD EXPERIENCE FOR ELEMENTARY DOCTORAL STUDENT *1-2 credits each*
Prerequisites: permission of adviser and department head. Designed to help student preparing to teach methods course at college level.

898 INDEPENDENT STUDY *1-3 credits*
(May be repeated for a total of six credits)
Prerequisites: permission of adviser and department head. Selected areas of independent investigation as determined by adviser and related to student's academic needs.

899 DISSERTATION *1-20 credits*
Prerequisites: permission of adviser and department head. Study and in-depth analysis of a research problem in elementary education.

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.

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.

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.

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.

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 nonstandard.

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.

Graduate Courses

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.

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.

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.

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.

692 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.

693 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 relateo instructional reading by supervisors and consultants.

SECONDARY EDUCATION 5300:

210 PRINCIPLES OF TEACHING IN THE SECONDARY SCHOOL *3 credits (30 clinical hours)*
Prerequisite: 5100:250; corequisite: 275. Designed to familiarize the preservice teacher with the nature of secondary education and teaching in secondary schools. Microteaching laboratory participation is required.

275 EXPLORATORY EXPERIENCES IN SECONDARY EDUCATION (SOPHOMORE) *1 credit (6 clinical hours, 30 field hours)*
Corequisite: 210. Field work with secondary school pupils, teachers and other professional personnel.

296 EXPLORATORY EXPERIENCE IN SECONDARY SCHOOLS/MAINSTREAMING *1-2 credits*
Field work for the special education major.

311 INSTRUCTIONAL TECHNIQUES IN SECONDARY EDUCATION *4 credits (30 clinical hours, 20 field hours)*
Prerequisites: 210, 325, 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.

316 METHODS IN TEACHING ART *2 credits*
Prerequisites: 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.

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.

325 CONTENT READING IN SECONDARY SCHOOLS *3 credits (30 clinical hours)*
Corequisite: 375. Instructional principles and practices for helping secondary school youth and adults learn subject matter through application of reading and study skills.

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.

374 PRINCIPLES OF SHORTHAND INSTRUCTION *2 credits*
Prerequisites: 2540:173 and grade-point average of 2.00 in the field. Methods of presentation in shorthand and transcription. Demonstration and observations required. Theory test in the field must be passed before credit given for course.

375 EXPLORATORY EXPERIENCE IN SECONDARY EDUCATION *1 credit (6 clinical hours, 30 field hours)*
Prerequisite: 210; corequisite: 325. Field work with secondary school pupils, teachers and other school personnel.

395 FIELD EXPERIENCE *1-3 credits*
Prerequisite: upper-college standing. Supervised work with youngsters, individually and in groups in school and/or community settings.

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.

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.

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.

445 MINICOMPUTER APPLICATIONS IN SECONDARY CLASSROOMS *1 credit (10 clinical hours)*
Prerequisites: 210 and senior status. Provides an orientation to applications of minicomputer in secondary classrooms. A knowledge of BASIC programming is recommended.

445 MICROCOMPUTER LITERACY FOR SECONDARY TEACHERS *2 credits (30 clinical hours)*
Prerequisites: 210 and senior status. Provides an orientation to applications of various modes of instruction, word processor, color graphics and printer in BASIC programs appropriate for secondary classrooms.

455 CAREER OPTIONS IN SECONDARY EDUCATION *1 credit (8 clinical hours, 2 field hours)*
Prerequisites: 210 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.

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.

477/577 INTENSIVE VOCATIONAL OFFICE EDUCATION *2 credits*
Principles of program construction, organization, implementation, evaluation and development of program guides.

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.

485 CLASSROOM DYNAMICS *2 credits (10 clinical/diagnostic, 15 field hours)*
Corequisite: 495. Study of issues and behavioral patterns pertinent to successful teacher human relations and classroom management technique.

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.

494/594 EDUCATIONAL INSTITUTES *1-4 credits*
Special courses designed as in-service upgrading programs, frequently provided with the support of national foundations.

495 STUDENT TEACHING *4-8 credits (322 clinical hours)*
Prerequisites: 311 or equivalent and permission of adviser. Directed teaching under supervision of directing teacher and University supervisor.

497 INDEPENDENT STUDY *1-3 credits*
Prerequisites: permission of adviser and supervisor of independent study. Area of study determined by student's needs.

Graduate Courses

619 SECONDARY SCHOOL CURRICULUM AND INSTRUCTION *2 credits*
Application of findings of recent research to curriculum building and procedures in teaching.

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.

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.

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 ensure maximum student competency in subject knowledge and skill.

695 FIELD EXPERIENCE: MASTER'S *1-6 credits*
(May be repeated for a total of six credits)
Prerequisites: permission of adviser and supervisor of field experience. On-the-job experience related to student's program of studies.

697 INDEPENDENT STUDY *1-3 credits*
(May be repeated for a total of six credits)
Prerequisites: permission of adviser and supervisor of independent study. Area of study determined by student's needs.

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.

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.

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.

780 SEMINAR IN SECONDARY EDUCATION *2 credits*
(May be repeated)
Intensive examination of a particular area of secondary education.

781 RESIDENCY SEMINAR *1 credit*
(Must be repeated)
One-hour weekly meeting for secondary education doctoral student in residence.

782 RESIDENCY SEMINAR *1 credit*
(Must be repeated)
One-hour weekly meeting for secondary education doctoral student in residence.

895 FIELD EXPERIENCE: DOCTORAL *1-6 credits*
(May be repeated for a total of six credits)
Prerequisites: 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.

897 INDEPENDENT STUDY *1-3 credits*
(May be repeated for a total of six credits)
Prerequisites: permission of adviser and director of independent study. Area of study determined by student's needs.

898 RESEARCH PROJECT IN SPECIAL AREAS *1-2 credits*
Prerequisite: permission of adviser. Critical and in-depth study of specific problem in secondary education.

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.

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.

351 CONSUMER HOMEMAKING METHODS *4 credits*
Prerequisites: 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.

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.

403 TECHNICAL EDUCATION PRACTICUM SEMINAR *2 credits*
Corequisite: 495.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

494/594 EDUCATIONAL INSTITUTES *1-4 credits*
Special courses designed as in-service upgrading programs, frequently provided with the support of national foundations.

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.

497 INDEPENDENT STUDY *1-3 credits*
Prerequisites: permission of adviser and supervisor of independent study. Area of study determined by student's need.

Graduate Courses

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.

661 CURRENT ISSUES IN HIGHER EDUCATION *2 credits*
(May be repeated with change in topic)
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.

690 INTERNSHIP: TEACHING VOCATIONAL EDUCATION

691 INTERNSHIP: TEACHING TECHNICAL EDUCATION

692 INTERNSHIP: POST-SECONDARY EDUCATION *2 credits each*
Teaching under supervision from the University and the educational institution. Includes a seminar each week.

695 FIELD EXPERIENCE: MASTER'S *1-6 credits*
Prerequisites: permission of adviser and supervisor of field experience. On-the-job experience related to student's program of studies.

697 INDEPENDENT STUDY *1-3 credits*
(May be repeated for a total of six credits)
Prequisites: permission of adviser and supervisor of field experience. On-the-job experience related to student's program of studies.

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 technical and vocational education.

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 vocational education.

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.

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.

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.

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.

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.

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.

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.)

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.

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.

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.

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.

150 CONCEPTS IN HEALTH AND FITNESS *3 credits*
Introduction to basic health and fitness concepts and related topics. Attention will be given to individual fitness programs emphasizing such topics as aerobic and anaerobic exercises, nutrition, diet, stress, and assessment methods and procedures.

155 ORGANIZATION AND ADMINISTRATION OF RECREATION *2 credits*
General administrative procedures common. Analysis, discussion and visitations of various types of recreational programs.

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.

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.

201 KINESIOLOGY *2 credits*
Prerequisites: 3100:206, 207. Application of principles of anatomy to movement of human body.

202 PHYSIOLOGY OF EXERCISE *3 credits*
Prerequisites: 3100:206, 207. Study of physiological effects of exercise relative to physical education activities and athletics. Two hours lecture, two hours laboratory.

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.

235 CONCEPTS OF MOTOR DEVELOPMENT AND LEARNING *2 credits*
Analysis of concepts fundamental to learning motor activities.

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.

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.

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.

310 THEORY AND TECHNIQUES OF SOCCER *1 credit*
Theory, techniques and organizational procedures for coaching of soccer. Two class periods per week.

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.

312 THEORY AND TECHNIQUES OF BASKETBALL *1 credit*
Theory, techniques and organizational procedures for coaching of basketball. Two class periods per week.

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.

314 THEORY AND TECHNIQUES OF SWIMMING *2 credits*
Theory, techniques and organizational procedures for coaching of swimming. One hour lecture, two hours laboratory.

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.

320 THEORY AND TECHNIQUES OF VOLLEYBALL *1 credit*
Theory, techniques and organizational procedures for coaching of volleyball. Two class periods per week.

325 THEORY AND TECHNIQUES OF FOOTBALL *1 credit*
Theory, techniques and organizational procedures for coaching of football. Two class periods per week.

326 THEORY AND TECHNIQUES OF WRESTLING *1 credit*
Theory, techniques and organizational procedures for coaching of wrestling. Two class periods per week.

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.

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.

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.

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.

345 ADAPTED PHYSICAL EDUCATION *2 credits*
Prerequisites: 3100:206, 207. Current theories and practices relating to needs of physically handicapped children; emphasis given to underlying philosophy, purposes and administration.

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.

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.

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.

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.

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.

436/536 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.

441/541 ADVANCED ATHLETIC INJURY MANAGEMENT *4 credits (30 clinical hours)*
Prerequisites: 3100:206,207; suggested sequence, 5550:201, 202, 340. Advanced athletic training techniques for the student desiring to become a certified athletic trainer according to the regulations of the National Athletic Trainers Association.

442/542 THERAPEUTIC MODALITIES AND EQUIPMENT IN SPORTS MEDICINE *3 credits (30 clinical hours)*
Purpose is to develop techniques and skills among sports medicine personnel in the selection and implementation of therapeutic modalities and the equipment used in the rehabilitation of injuries to athletes.

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.

475 SEMINAR IN HEALTH AND PHYSICAL EDUCATION *3 credits (25 clinical hours)*
Provide the opportunity to develop mastery of problem-solving and presentation methods in health and physical education, with experiential learning.

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.

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.

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.

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 15 weeks.

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.

Graduate Courses

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.

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.

605 PHYSIOLOGY OF MUSCULAR ACTIVITY AND EXERCISE *2 credits*
Functions of body systems and physiological effects of exercise. Laboratory experiences, lectures, discussions.

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.

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.

609 MOTIVATIONAL ASPECTS OF PHYSICAL ACTIVITY *3 credits*
Analysis of factors influencing motivation of motor performance with emphasis on competition, audience effects, aggression.

680 SPECIAL TOPICS IN HEALTH AND PHYSICAL EDUCATION *2-4 credits*
(May be repeated)
Prerequisite: permission of instructor. Group study of special topics in health and physical education and sports medicine.

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.

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.

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.

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.

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.

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.

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.

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.

456/556 OUTDOOR PURSUITS *4 credits*
Investigation and participation in practical experiences in outdoor pursuits.

460 OUTDOOR EDUCATION PRACTICUM *2 credits*
Prerequisites: 452, 454. Closely supervised practical experience in conjunction with regularly scheduled classroom meetings. Laboratory experience consists of active participation with an established outdoor education program.

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.

494/594 EDUCATIONAL INSTITUTES: OUTDOOR EDUCATION *1-4 credits*
Practical experience with current research or curricular practices involving expert resource persons in outcoor education.

497 INDEPENDENT STUDY *1-3 credits*
Prerequisites: 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.

Graduate Courses

600 OUTDOOR EDUCATION: RURAL INFLUENCES *3 credits*
Prerequisite: 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.

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.

690 PRACTICUM IN OUTDOOR EDUCATION *2-4 credits*
Prerequisites: 550, 552 and permission of adviser. Supervised practical experience with existing outdoor education programs. In conjunction with practical work student meets regularly with adviser.

695 FIELD EXPERIENCE: MASTER'S *2-6 credits*
Prerequisite: permission of adviser. Participation and documentation of practical professional experience related to outdoor education.

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.

698 MASTER'S PROBLEM *2-4 credits*
Prerequisite: permission of adviser. Intensive research study related to a problem in outdoor education or related discipline.

699 MASTER'S THESIS *4-6 credits*
An original composition demonstrating independent scholarship in a discipline related to outdoor education.

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.

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.

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.

202 STRESS, LIFE STYLE AND YOUR HEALTH *3 credits*
Overview of the behavior associated with wellness and disease.

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.

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.

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.

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.

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.

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 quality of human life. Major emphasis will be study of man's health problems paradoxically resulting from his affluence.

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.

460 PRACTICUM IN HEALTH EDUCATION *2 credits*
Prerequisite: permission of the adviser. On-site participation in community health organizations, agencies or resources.

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.

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.

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.

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.

436 HELPING SKILLS FOR RESIDENT ASSISTANTS *2 credits*
(Credit/noncredit)
Prerequisite: open to resident assistants in University housing. A course designed to help student personnel workers become more effective in professional role.

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.

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.

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.

493/593 WORKSHOP *1-4 credits*
Special instruction designed as in-service and/or upgrading individuals on current issues and practices in counseling.

494/594 COUNSELING INSTITUTE *1-4 credits*
In-service programs for counselors and other helping professionals.

Graduate Courses

600 SEMINAR IN COUNSELING *1 credit*
Prerequisite: counseling majors must elect 600 prior to electing 651 and/or within the first 10 credits of 5600 course work. Structured group experience designed to help a student assess selection of counseling as a profession.

602 INTRODUCTION TO COUNSELING *2 credits*
Understanding guidance and counseling principles including organization, operation and evaluation of guidance programs (designed for non-counseling major).

610 COUNSELING SKILLS FOR TEACHERS *3 credits*
Prerequisite: 631 or 633 or permission. The study and practice of selected counseling techniques that can be applied by teachers in working with students, parents and colleagues.

620 TOPICAL SEMINAR *1-4 credits*
Prerequisite: permission of instructor. Seminar on a topic of current interest in the profession. Staffing will be by department faculty and other professionals in counseling and related fields. A maximum of eight credits may be applied to a degree.

631 ELEMENTARY SCHOOL GUIDANCE *3 credits*
Introductory course: examines guidance and counseling practices.

633 SECONDARY SCHOOL GUIDANCE *3 credits*
Introductory course: examines guidance and counseling practices.

635 COMMUNITY COUNSELING *3 credits*
Overview of community and college counseling services; their evaluation, philosophy, organization and administration.

643 COUNSELING: THEORY AND PHILOSOPHY *3 credits*
Examination of major counseling systems including client-centered, behavioral and existential theories. Philosophical and theoretical dimension stressed.

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.

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.

649 COUNSELING AND PERSONNEL SERVICES IN HIGHER EDUCATION *3 credits*
Prerequisite: 635 or permission of instructor. Counseling services as related to psychological needs and problems of the college student.

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.

653 GROUP COUNSELING *4 credits*
Prerequisites: 643 and 645, or 3750:671 and 710 (703) or permission. Emphasis is placed on providing the student with the knowledge and understanding of theory, research and techniques necessary for conducting group counseling sessions.

655 MARRIAGE AND FAMILY THERAPY: THEORY AND TECHNIQUES *3 credits*
An overview of the theory and techniques of marital and family therapy, including exposure to the history, terminology and contributions of significant persons in the field.

657 CONSULTANT: COUNSELING *3 credits*
Prerequisites: 631, 651 or permission. Examination of consultation models with focus on process and product.

659 ORGANIZATION AND ADMINISTRATION OF GUIDANCE SERVICES *3 credits*
Prerequisite: 631 or 633 or permission. Development of a comprehensive articulated guidance and counseling program.

661 SEMINAR IN GUIDANCE *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.

663 SEMINAR IN SCHOOL COUNSELING *3 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.

665 SEMINAR: COUNSELING PRACTICE *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.

667 MARITAL THERAPY *3 credits*
Prerequisite: 655. In-depth study of theories and interventions which focus on the nature and quality of marital relationships.

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.

671 COUNSELING CLINIC *1-3 credits*
Prerequisite: permission. Closely supervised application and integration of diagnostic, counseling and consultant skills in clinical setting.

675 PRACTICUM IN COUNSELING I *5 credits*
Prerequisite: 653. Supervised counseling experience with individuals and small groups.

676 PRACTICUM IN COUNSELING II *2-5 credits*
Prerequisite: 675. Advanced supervised counseling experience.

685 INTERNSHIP *1-4 credits*
(May be repeated for a total of six credits)
Prerequisite: 676. Paid or unpaid supervised experience in counseling in a work setting. Must also take either 663 or 665 during first semester of internship.

695 FIELD EXPERIENCE: MASTER'S *1-10 credits*
Prerequisites: 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.

697 INDEPENDENT STUDY *1-3 credits*
(May be repeated for a total of nine credits)
Prerequisites: permission of adviser and department head. Specific area of investigation determined in accordance with student needs.

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.

699 THESIS RESEARCH *4-6 credits*
Prerequisites: permission of adviser and department head. In-depth study and analysis of counseling problem.

702 ADVANCED COUNSELING PRACTICUM *4 credits*
(May be repeated for a total of 12 credits)
Prerequisite: doctoral residency or permission. Examination of theories of individual age group counseling along with supervised counseling experience in selected settings.

707,8 SUPERVISION IN COUNSELING PSYCHOLOGY I, II *3 credits each*
Prerequisite: doctoral residency or permission. Instruction and experience in supervising a graduate student in counseling.

710 THEORIES OF COUNSELING AND PSYCHOTHERAPY *4 credits*
Prerequisite: 3750:630. Provides the knowledge and understanding necessary for the application of counseling and psychotherapy techniques. Establishes the basic commonalities and differences among therapeutic approaches. Covers professional aspects of counseling and psychotherapy.

711 VOCATIONAL BEHAVIOR *4 credits*
Prerequisite: 3750:630 or departmental permission. Theories and research on vocational behavior and vocational counseling. Topics include major theories on vocational behavior, empirical research on these theories, applied work in vocational counseling and applied research.

712 PRINCIPLES AND PRACTICE OF INDIVIDUAL INTELLIGENCE TESTING *4 credits*
Prerequisites: 630 or graduate standing in school psychology, and instructor's permission. History, principles and methodology of intelligence testing, supervised practice in administration, scoring and interpretation of individual intelligence tests for children and adults.

713 ADVANCED SEMINAR IN COUNSELING PSYCHOLOGY *4 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.

714 OBJECTIVE PERSONALITY EVALUATION *4 credits*
Prerequisites: completion of 3750:400/500, 3750:420/520, and 3750:750 or 5600:645 or permission. Study of the development, administration, and interpretation of objective instruments for personality assessment (MMPI, CPI, MBTI, 16 PF and selected additional inventories).

715 RESEARCH DESIGN IN COUNSELING I *3 credits*
Prerequisite: doctoral residency or permission. Study of research designs, evaluation procedures and review of current research.

716 RESEARCH DESIGN IN COUNSELING II *3 credits*
Prerequisite: 704. Computer analysis of data related to counseling problem. Development of research proposal.

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.

796 COUNSELING PSYCHOLOGY PRACTICUM *4 credits*
(May be repeated for a total of 12 credits)
Advanced counseling psychology students will have supervised training with clients in a variety of settings and will focus on supervised development of specialized theoretical applications.

797 INDEPENDENT READING AND/OR RESEARCH IN COUNSELING PSYCHOLOGY *1-5 credits*
(May be repeated)
Prerequisite: permission of instructor. Independent readings and/or research in an area of counseling psychology under the direction of a faculty member.

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.

897 INDEPENDENT STUDY *1-3 credits*
(May be repeated for a total of nine credits)
Prerequisites: permission of adviser and department head. Specific area of investigation determined in accordance with student needs.

898 RESEARCH PROJECTS IN SPECIAL AREAS *1-2 credits*
(May be repeated)
Prerequisites: permission of adviser and department head. Study, analysis and reporting of counseling problem.

899 DISSERTATION *1-20 credits*
Prerequisites: permission of major doctoral adviser and department head. Study, design and analysis of counseling problem.

SPECIAL EDUCATION

5610:

201 STUDENT PARTICIPATION: EDUCABLE MENTALLY RETARDED/LEARNING DISABILITIES *1 credit (credit/noncredit)*
Prerequisites: sophomore standing and permission. Systematic observation and participation in classes for educable mentally retarded and learning disabled children for one-half semester each. This experience is prerequisite to student teaching in each area.

202 STUDENT PARTICIPATION: EDUCABLE MENTALLY RETARDED/ORTHOPEDICALLY HANDICAPPED *1 credit (credit/noncredit)*
Prerequisites: sophomore standing and permission. Systematic observation and participation in classes for educable mentally retarded and orthopedically handicapped children for one-half semester each. This experience is prerequisite to student teaching in each area.

203 STUDENT PARTICIPATION: EDUCABLE MENTALLY RETARDED/TRAINABLE MENTALLY RETARDED *1 credit (credit/noncredit)*
Prerequisites: sophomore standing and permission. Systematic observation and participation in classes for educable mentally retarded and trainable mentally retarded children for one-half semester each. This experience is prerequisite to student teaching in each area.

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.

403 STUDENT TEACHING SEMINAR: SPECIAL EDUCATION *1 credit*
Corequisite: 495. Support seminar for student teaching experience.

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.

440/540 DEVELOPMENTAL CHARACTERISTICS OF EXCEPTIONAL INDIVIDUALS *4 credits*

Prerequisites: 3750:100 and 5100:250. Etiology, diagnosis, classification, development characteristics of the atypical individual.

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.

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.

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.

445/545 DEVELOPMENTAL CHARACTERISTICS OF ORTHOPEDICALLY HANDICAPPED INDIVIDUALS *3 credits*

Prerequisite: 441/541. Etiology, diagnosis, classification, developmental characteristics of the orthopedically handicapped.

446/546 DEVELOPMENTAL CHARACTERISTICS OF BEHAVIORALLY DISORDERED INDIVIDUALS *3 credits*

Prerequisite: 443/543. Etiology, diagnosis, classification, developmental characteristics of the socially and emotionally maladjusted.

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.

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.

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.

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.

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.

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.

456/556 CLASSROOM BEHAVIOR MANAGEMENT FOR EXCEPTIONAL INDIVIDUALS *3 credits*

Prerequisite: 451/551 or equivalent. Review, development of behavior management principles, application models for the exceptional.

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.

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.

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.

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.

461/561 TECHNOLOGY AND MATERIALS APPLICATION IN SPECIAL EDUCATION *3 credits*

Prerequisite: 5100:310 or permission of instructor. Microcomputer operation and programming in special education; operation and use of unique audio or visual tools for handicapped and/or adaptive use of traditional equipment; overview of curriculum materials designed for exceptional learner.

462/562 EDUCATING EXCEPTIONAL CHILDREN IN THE REGULAR CLASSROOM *3 credits*

For non-special education majors, teaching and administrative personnel in the field. This course focuses on the skills and competencies needed (by regular educators) in working successfully with mainstreamed exceptional children.

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.

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.

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.

497 INDEPENDENT STUDY: SPECIAL EDUCATION *1-3 credits*

Prerequisites: permission of adviser and supervisor of the independent study. Specific area of investigation determined in accordance with student's needs.

Graduate Courses

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.

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.

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.

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.

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.

606 RESEARCH DESIGN AND PRACTICE IN SPECIAL EDUCATION *3 credits*

Prerequisite: 5100:640. An in-depth examination of qualitative research, single subject design, hypothesis generation and methodological practices unique to individual research and its application to special populations.

612 SEMINAR: ISSUES IN SPECIAL EDUCATION *3 credits*

Prerequisites: 25 hours of graduate study in special education and/or permission of the instructor. A culminating seminar for graduate students in special education designed to study, examine and reflect upon current trends, issues and practices.

694 RESEARCH PROJECT IN SPECIAL AREA (SCHOLARLY PAPER) *3 credits*

Prerequisite: culminating experience in master's program. An in-depth study of an identified topic in special education, culminating in a scholarly paper.

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.

697 INDEPENDENT STUDY *1-3 credits*

(May be repeated for a total of nine credits)
Prerequisites: permission of adviser and supervisor of the independent study. Specific area of investigation determined in accordance with student's needs.

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.

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.

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.

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.

494/594 SCHOOL PSYCHOLOGY INSTITUTES *1-4 credits*
Prerequisite: permission of instructor. Specifically designed learning experience for program graduate focusing on critical topics.

Graduate Courses

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 professional standards of school psychology practice.

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.

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.

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.

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.

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.

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.

640 FIELD SEMINAR I: ISSUES AND ASSESSMENTS (FALL) *2 credits*

641 FIELD SEMINAR II: CLASSROOM ENVIRONMENT (SPRING) *2 credits*
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.

694 RESEARCH PROJECT IN SPECIAL AREAS *1-3 credits*
Prerequisite: permission of adviser. Study, analysis and reporting of school psychology problem.

695 FIELD EXPERIENCE: MASTER'S *1-3 credits*
Prerequisite: permission of instructor. Practical school psychology-related experience in school setting.

696 FIELD EXPERIENCE: MASTER'S *1-3 credits*
Prerequisite: permission of instructor. Practical school psychology-related experience in appropriate setting other than a school.

697 INDEPENDENT STUDY *1-4 credits*
Prerequisites: 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.

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.

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.

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.

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 socioeconomic differences.

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.

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.

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.

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.

486/586 TEACHING MATHEMATICS, SOCIAL STUDIES AND SCIENCE TO BILINGUAL STUDENTS *3 credits*
Prerequisites: elementary education majors, 5200:333, 336, 338; for secondary education majors, 5300:311 (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.

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.

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.

Graduate Course

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.

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.

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.

494/594 EDUCATIONAL INSTITUTES *1-4 credits*
Special courses designed as in-service upgrading programs, frequently provided with the support of national foundations.

Graduate Courses

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.

602 SCHOOL BUSINESS ADMINISTRATION *2 credits*
School business administration as part of total administrative pattern, and as creative planning process designed to facilitate instruction.

603 ADMINISTRATION OF EDUCATIONAL PERSONNEL *2 credits*
Guidelines, techniques and procedures for helping administrator become democratic leader. Duties and responsibilities of staff as participants in administrative activity.

604 SCHOOL-COMMUNITY RELATIONS *3 credits*
Prerequisite: graduate standing. An analysis of the principles, practices, and materials that facilitate the adjustment and interpretation of schools to their internal and external publics.

606 EVALUATION IN EDUCATIONAL ORGANIZATIONS *3 credits*
Theories and practices involved in processes of delineating, obtaining and providing information for decision making.

607 SCHOOL LAW *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.

608 SCHOOL FINANCE AND ECONOMICS *3 credits*
Prerequisite: 601. A study of financial operations of school systems, including taxes, other sources of revenues, expenditures, budgeting and the effects of economic factors.

609 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.

610 PRINCIPLES OF EDUCATIONAL SUPERVISION *3 credits*
Study of principles, organizations and techniques of supervision with view to improvement of instruction.

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.

612 ADMINISTRATION OF EDUCATIONAL FACILITIES *2 credits*
Theories and practices involved in planning school facilities discussed. Includes field explorations of exemplary school buildings.

613 ADMINISTRATION OF PUPIL SERVICES *2 credits*
Prerequisite: graduate standing. Overview of pupil personnel services and special education including analysis of the nature and development of each component service program.

615 COMPUTER APPLICATIONS IN EDUCATIONAL ADMINISTRATION *2 credits*
For graduate education student majoring in administration. Includes concepts of modern systems and their educational applications.

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.

631 ELEMENTARY SCHOOL ADMINISTRATION *3 credits*
Prerequisite: graduate standing. Examination of the elementary school principalship as it relates to the development and maintenance of a school climate most conducive to learning.

684 FIELD EXPERIENCE I: ELEMENTARY ADMINISTRATION *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.

686 FIELD EXPERIENCE I: SECONDARY ADMINISTRATION *2 credits*
Prerequisite: graduate standing. Introduction to the preparatory program for secondary school principals. Students observe a practicing principal in a public school setting.

694 FIELD EXPERIENCE II: ELEMENTARY ADMINISTRATION *3 credits*
Prerequisites: 684 and permission of instructor. Culmination of the preparatory program for elementary school principals in which students perform administrative tasks supervised by experience principals.

695 FIELD EXPERIENCE FOR SUPERVISORS *2 credits*
Prerequisite: completion of all course work 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.

696 FIELD EXPERIENCE II: SECONDARY ADMINISTRATION *3 credits*
Prerequisite: completion or present enrollment in all course work for the master's degree for the secondary school principal. Provides student with on-the-job experience in secondary school administration.

697 INDEPENDENT STUDY *1-3 credits*
(May be repeated for a total of six credits)
Prerequisites: permission of adviser and supervisor of the independent study. Area of study determined by student's needs.

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 administration.

699 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.

704 THEORY, RESEARCH AND PRACTICE IN EDUCATIONAL ADMINISTRATION *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.

705 DECISION MAKING 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.

706 COLLECTIVE BARGAINING AND EMPLOYEE RELATIONS *2 credits*
An overview of collective bargaining in education and a basic knowledge of the mechanics and issues involved in the bargaining process and contract administration.

707 THE SUPERINTENDENCY *3 credits*
An orientation to the superintendent's role and a basic understanding of the strategies for dealing with the major relational and functional aspects of the superintendency.

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.

730 SEMINAR IN SCHOOL ADMINISTRATION *3 credits*
Prerequisite: 601. Focus on recent research in administration and educational administration theory.

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.

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.

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.

740 THEORIES OF EDUCATIONAL SUPERVISION *3 credits*
Prerequisites: 610, 5200:732 or 5300:721. Explanation and examination of various theories of supervision; sample models which implement existing theories.

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.

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.

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.

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.

895 FIELD EXPERIENCE: THE SUPERINTENDENCY *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.

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.

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.

898 RESEARCH PROJECT IN SPECIAL AREAS *1-2 credits*
Prerequisite: permission of adviser. Critical and in-depth study of specific problem in educational administration.

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.

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.

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.

492/592 WORKSHOP IN READING *1-3 credits*
Individual work under staff guidance on curriculum problems; utilization of community resources; planning of curriculum units.

493/593 WORKSHOP ON EXCEPTIONAL CHILDREN *1-3 credits*
Individual work under staff guidance on curriculum problems; utilization of community resources; planning of curriculum units.

494/594 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.

EDUCATIONAL TECHNOLOGY

5850:

100 INTRODUCTION: PUPIL PERSONNEL WORK *2 credits*
Purposes, needs, scope, character of pupil personnel services.

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.

204 HUMAN RELATIONS IN EDUCATION *3 credits*
Study of individual and group relationships in educational setting including development of basic interpersonal skills.

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.

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.

260 SPECIAL EDUCATION TECHNOLOGY *2 credits*
Survey of selected procedures and materials employed in classrooms especially designed and operated for exceptional children.

295 EDUCATION TECHNICIAN FIELD EXPERIENCE *5 credits*
(May be repeated once)
Supervised field experience in school setting designed for educational technician enrollees only.

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.

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.

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.

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.

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.

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.

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.

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.

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

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.

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.

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.

301 COST ACCOUNTING *3 credits*
Prerequisites: 3250:202 and grades of not less than "C" in 201, 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.

317 INTERMEDIATE ACCOUNTING I *4 credits*
Prerequisites: grades of not less than "C" in 201, 202. Accounting theory and problems of statement preparation: in-depth study of cash, temporary investments, receivables, inventories, tangible fixed assets, intangibles and current liabilities.

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.

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.

360 BUDGETING *3 credits*
Prerequisite: 301. Study of principles and policies of budgeting. Emphasis on managerial control of expenses, capital expenditures and related activities.

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.

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.

410 TAXATION FOR THE NON-ACCOUNTANT *3 credits*
Provides non-accountant basic knowledge of federal tax law as applied to individuals and businesses. Not open to accounting major.

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.

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.

430/530 TAXATION I *4 credits*
Prerequisite: 317. Application of current federal tax law to individuals and proprietorships. Types of income, deductions and structure of tax return covered.

431/531 TAXATION II *3 credits*
Prerequisite: 430/530. 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.

440/540 AUDITING *3 credits*
Prerequisites: 301, 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.

454 INFORMATION SYSTEMS *3 credits*
Prerequisites: 202, 355 or permission of instructor. Focus on development of accounting methods and procedures, installation and improvement of accounting systems and evaluation of automated data processing systems. This course cannot be taken in lieu of 6500:324 Data Management for Information Systems.

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.

470/570 GOVERNMENTAL AND INSTITUTIONAL ACCOUNTING *3 credits*
Prerequisites: 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.

480/580 ACCOUNTING PROBLEMS *3 credits*
Prerequisite: 318. Independent research on advanced accounting problem in student's specific area of interest.

485 CPA PROBLEMS: COMMERCIAL LAW *2 credits*
Prerequisite: permission of instructor. Deals with those general principles of commercial law which appear on CPA examination.

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.

487 CPA PROBLEMS: TAXATION *1 credit*
Prerequisite: permission of instructor. Application of current developments in federal income tax law to CPA examination.

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.

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.

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.

495 INTERNSHIP IN ACCOUNTING *3 credits (credit/non-credit)*
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.

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 accounting approved and supervised by member of the department faculty.

499 INDEPENDENT STUDY IN ACCOUNTING *1-3 credits*
Prerequisite: permission.

Graduate Courses

601 FINANCIAL ACCOUNTING *3 credits*
Introductory course for student with no accounting background. Examines accounting principles as applied to financial problems of firm.

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.

630 TAX RESEARCH AND POLICY *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.

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.

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.

633 ESTATE AND GIFT TAXATION *3 credits*
Prerequisite: 431. Analyzes provisions of federal estate and gift tax laws and tax consequences of testamentory and lifetime transfers.

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.

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.

641 TAXATION OF PARTNERSHIPS AND 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.

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.

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.

644 INCOME TAXATION OF DECEDENTS, ESTATES AND TRUSTS *2 credits*
Prerequisite: 633. An in-depth examination of the decedent's last income tax return along with the analysis of income taxation of trusts and estates and their creators, fiduciaries and beneficiaries.

645 ADVANCED INDIVIDUAL TAXATION *3 credits*
Prerequisite: 430. In-depth study of some of the more involved areas of individual income taxation.

646 CONSOLIDATED TAX RETURNS *2 credits*
Prerequisite: 431. Intensive study of tax provisions concerning use of consolidated tax returns.

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.

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.

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.

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.

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.

652 TAX-EXEMPT ORGANIZATIONS *2 credits*
Prerequisite: 431. Analysis of tax aspect of tax-exempt organizations, including nature of and limitations of its exemption.

653 BUSINESS PLANNING *2 credits*
Prerequisite: 631. Uses cases depicting complex problems to permit student to integrate knowledge of taxation.

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.

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.

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.

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.

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.

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.

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.

320 THE LEGAL ENVIRONMENT OF BUSINESS *4 credits*
Gives student an understanding of legal reasoning and analysis. Discussions include court and procedures, business organizations, commerical transactions and legal aspects of government regulation of business.

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.

322 BUSINESS LAW II *3 credits*
Applications of Uniform Commerical Code in sales, commerical paper and secured transactions. Additional discussions include property, wills, estates, trusts, bailments, insurance, suretyship, bankruptcy and labor law.

323 INTERNATIONAL BUSINESS LAW *3 credits*
The law and international commerical transactions. Among the subjects covered are sovereignty; treaties; agreements; antitrust practices; property rights; international arbitration.

338 FINANCIAL INTERMEDIARIES *3 credits*
Prerequisite: 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.

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.

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.

371 BUSINESS FINANCE *3 credits*
Prerequisites: 6200: 201, 202; 3250: 201, 202, 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.

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.

400 REAL ESTATE PRINCIPLES: A VALUE APPROACH *3 credits*
Prerequisite: 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.

401 REAL ESTATE INVESTMENT *3 credits*
Prerequisites: 371 and 400, or permission of instructor. Advanced course in real estate investment which covers investing in all types of real estate including single-family mortgages and creative investment techniques for income properties.

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.

403 REAL ESTATE FINANCE *3 credits*
Prerequisites: 371 and 400 or permission of instructor. Advanced course in real estate covering the financing of real property. Included are methods, institutions, instruments, valuation, appraisal and policy in real estate finance.

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.

417 LIFE AND HEALTH INSURANCE *3 credits*
Prerequisite: 318. Detailed study of life and health insurance contracts, insurance companies, industry regulations.

419 PROPERTY AND LIABILITY INSURANCE *3 credits*
Prerequisite: 318. A study of property and casualty insurance contracts, insurance companies, industry regulation.

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.

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.

432 PERSONAL FINANCIAL PLANNING *3 credits*
Prerequisite: 371 or permission of instructor. Capstone financial services course emphasizing theory and case study applications of the comprehensive personal and professional planning process.

436 COMMERICAL BANK MANAGEMENT *3 credits*
Prerequisite: 338 or permission of instructor. Study of administrative policy determination and decision making within the commercial bank. Analyses of policy making in areas of liquidity, loan and security investment and sources of funds.

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.

475 COMMERCIAL AND CONSUMER CREDIT MANAGEMENT *3 credits*
Prerequisite: 371 or permission of instructor. An examination of the role of credit; the application, investigation, authorization, collection and legal processes principally from the point of view of the business manager.

479 ADVANCED BUSINESS FINANCE *3 credits*
Prerequisite: 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.

481 INTERNATIONAL BUSINESS FINANCE *3 credits*
Prerequisite: 371 or permission of instructor. Theory and practice of financial wealth maximization in the international business enterprise.

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.

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.

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.

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.

Graduate Courses

602 MANAGERIAL FINANCE *3 credits*
Prerequisites: 6200:201, 202 (or 601) and 3250: 201, 202 (or 600). Emphasis on financial decision making related to goal of firm; specifically, the investment decision, the financing decision and the dividend decision.

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.

633 MANAGEMENT OF DEPOSITORY FINANCIAL INSTITUTIONS *3 credits*
Prerequisite: 602. Policy determination, administrative decision making in banks, savings and loans using computer simulation games.

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.

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.

649 PORTFOLIO MANAGEMENT *3 credits*
Prerequisite: 645 or permission of instructor. Advanced techniques used by sophisticated individuals, professional managers of large portfolios.

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.

655 GOVERNMENT AND BUSINESS *3 credits*
Prerequisites: 3250:600 and 6500:600. Public policy with regard to business institutions and issues are considered from an economic, legal, ethical, political framework.

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.

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.

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.

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.

679 MERGERS, ACQUISITIONS, CONSOLIDATION, TAKEOVERS: AN INVESTMENT BANKING APPROACH *3 credits*
Prerequisite: 602 or permission of instructor. A comprehensive study of financial planning, factors, steps to be considered for successful consummation of a merger.

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.

690 SELECTED TOPICS IN FINANCE *3 credits*
(May be repeated for a total of six credits)
Prerequisite: 674. Provides study of contemporary issues and areas not covered in current finance graduate courses.

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.

698 INDEPENDENT STUDY: BUSINESS LAW *1-3 credits*
Focus on special topics of study and research in the legal aspects of business administration.

699 SEMINAR IN FINANCE *3 credits*
(Must be repeated for a total of six credits)
Prerequisites: 674 and a total of 15 Phase II graduate credits. Program of independent research in finance area of student's choice, requiring submission of a finished research report.

MANAGEMENT
6500:

301 MANAGEMENT: PRINCIPLES AND CONCEPTS *3 credits*
Prerequisites: Three credits in behavioral science, economics, mathematics. Theory, practice in management of human, other economic resources, with extensive coverage of operations systems.

302 INTRODUCTION TO ORGANIZATIONAL BEHAVIOR *3 credits*
Prerequisites: 301 and two courses in psychology, sociology. Investigation of applications of behavioral and social sciences as they relate to individual, group behavior in organizations.

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.

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.

323 COMPUTER APPLICATIONS FOR BUSINESS *3 credits*
Emphasis on batch and realtime programming. Includes graphics using PLOTALL, simulation in GPSS, business programming using BASIC, flowcharting, hardware, software, management information systems.

324 DATA MANAGEMENT FOR INFORMATION SYSTEMS *3 credits*
Prerequisites: upper-college standing and proficiency in the BASIC programming language or approval of instructor. Developing business application systems using BASIC and data base management systems software, including sequential and random files, finding and arranging records, and database management systems applications.

331 PRODUCTION AND SYSTEMS MANAGEMENT *3 credits*
Prerequisite: 301; corequisite: 321. Emphasis on design, analysis of operating systems, utilizing scientific decision-making methodology. Case exercises, project.

332 PRODUCTION AND OPERATIONS MANAGEMENT *3 credits*
Prerequisites: 323, 331; 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.

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.

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.

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.

408/508 ENTREPRENEURSHIP *3 credits*
Prerequisites: upper-college or graduate standing and 301 or 600 or equivalent. Examines the behavior and environment for entrepreneurship. Focuses on classic and contemporary entrepreneurs and the importance of personal values and strategies. Case studies. Field projects.

410/510 SELECTED TOPICS IN ENTREPRENEURSHIP *1-3 credits*
Prerequisites: upper-college or graduate standing and 301 or 600 or equivalent. Facilitates comparative international study of entrepreneurship, introduction of entrepreneurship to large organizations, or application of student's entrepreneurial skills. Six hour limit.

412/512 DEVELOPMENT OF MANAGEMENT THOUGHT *3 credits*
Prerequisites: upper-college or graduate standing and 301, or 600 or equivalent. Review of development of managerial theories from 5000 B.C. to present with consideration of their application to present organizational settings.

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.

425 DECISION SUPPORT SYSTEMS *3 credits*
Prerequisite: 324. May not be taken in place of 6200:454. Introduction to decision support systems design including applications in various functional areas. Projects may use BASIC, electronic spreadsheets, database and/or decision support system software.

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.

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.

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.

436 ADVANCED QUALITY CONTROL APPLICATIONS *3 credits*
Prerequisites: 322 and 435. Applications of advanced topics including exponential and cusum charts, experimental design, evolutionary operations (EVOPS), planned experimentation (PLEX) and management of the quality function.

437 SPECIAL TOPICS IN QUALITY MANAGEMENT *3 credits*
Prerequisites: 435 and permission of instructor. Exploration of advanced topics of interest both to the student and professor. Many special applications, case studies, outside speakers, projects in conjunction with local industries.

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.

455/555 MANAGEMENT OF ARBITRATION: COMMERCIAL, INTERNATIONAL AND HUMAN RESOURCES *3 credits*
Prerequisites: upper-college or graduate standing and 301 or 600 or equivalent. A comprehensive study of managerial strategies for commercial, international and human resource arbitration. Graduate requirement: research paper.

457 INTERNATIONAL MANAGEMENT *3 credits*
Prerequisites: upper-college standing and 301 or equivalent. Management practices and techniques of international business organizations. Focus on structure and processes of resource allocation, design and technology, and the impact of culture.

458 SELECTED TOPICS IN MANAGERIAL ARBITRATION, MEDIATION AND CONCILIATION *1-3 credits*
Prerequisites: upper-college or graduate standing and 301 or 600 or equivalent. Study of the various methods and mechanisms by which management can understand and deal with internal and external conflict. Six hour limit.

459 SELECTED TOPICS IN INTERNATIONAL MANAGEMENT *1-3 credits*
Prerequisites: upper-college standing; 301 or equivalent; and 457; or permission of instructor. Selected topics in international management focus on historical or contemporary managerial, production and organizational issues. Includes international simulation game. Six hour limit.

471/571 MANAGEMENT PROBLEMS *3 credits*
(Student who has earned credit in 471 is ineligible to register for or earn credit in 472, 473.)
Prerequisites: 332 or 342 or 443 and senior standing. Student applies modern management principles, practices, theory to an actual problem in industry.

472 MANAGEMENT PROBLEMS - PRODUCTION *3 credits*
(Student who has earned credit in 472 is ineligible to register for or earn credit in 471,3.)
Prerequisites: 332 and senior standing. Student applies modern management principles, practices and theory to an actual production problem in industry.

473 MANAGEMENT PROBLEMS - PERSONNEL *3 credits*
(Student who has earned credit in 473 is ineligible to register for or earn credit in 471,2.)
Prerequisites: 342 or 443 and senior standing. Student applies modern management principles, practices and theory to an actual personnel problem in industry.

480/580 INTRODUCTION TO HEALTH-CARE MANAGEMENT *3 credits*
Prerequisites: 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.

482/582 HEALTH SERVICES OPERATIONS MANAGEMENT *3 credits*
Prerequisites: upper-college or graduate standing and 301 or 600 or equivalent. (Students who have completed 331 are ineligible to take this course for credit). Application of production and operations management concepts and techniques in health services organizations.

485/585 SPECIAL TOPICS IN HEALTH SERVICES ADMINISTRATION *1-3 credits*
Prerequisite: permission of instructor. Special topics in health services administration (e.g., 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.

490 BUSINESS POLICY *4 credits*
Prerequisites: senior standing (97 credits) and 301; 6200:202; 6400:371; 6600:300; and corequisites: 322; 6200:355; or 6500:323; and 6400:320 or 321. 322. 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.

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.

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.

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.

499 INDEPENDENT STUDY: MANAGEMENT *1-3 credits*
Prerequisites: senior standing and permission of department head. Provides a means for individualized study in management from which student can derive significant value.

Graduate Courses

600 MANAGEMENT AND PRODUCTION CONCEPTS *3 credits*
Quantitative, behavioral, systems approach to introduce management process, emphasizing production function. Designed for student who has not previously had courses in business.

601 QUANTITATIVE DECISION MAKING *3 credits*
Prerequisite: finite mathematics. 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.

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.

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.

651 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.

652 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.

653 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.

654 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.

656 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.

657 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.

659 OPERATIONS AND STRATEGIC PLANNING *3 credits*
Prerequisites: 600, 601, 602 or equivalent. Long-range and short-term planning in organizations and linkage between the two. Planning models are presented of business and nonprofit organizations.

662 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.

663 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.

664 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.

671 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.

672 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.

673 QUALITY AND PRODUCTIVITY TECHNIQUES *3 credits*
Prerequisite: 601. Introduction to techniques for improving productivity and quality, including statistical process control (SPC), material requirements planning (MRP), just-in-time (JIT) inventory control and management of the program.

688 INDEPENDENT STUDY IN HEALTH SERVICES ADMINISTRATION *1-3 credits*
(May not be repeated for more than three credits)
Prerequisite: permission of instructor. Independent study and research of a special topic of interest in health services administration (e.g., management), chosen by the student in consultation with and under the supervision of the instructor.

689 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 systems. 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.

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.

695 BUSINESS STRATEGY AND POLICY: DOMESTIC AND INTERNATIONAL *3 credits*
Prerequisite: to be final course in M.B.A. 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.

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.

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 in course.

MARKETING
6600:

300 MARKETING PRINCIPLES *3 credits*
Prerequisites: 3250:201, 202 or permission. Broad course integrating commodity, institutional, functional and managerial concepts of marketing process: total framework of economic activity.

310 BUYER BEHAVIOR *3 credits*
Prerequisites: 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.

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.

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.

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.

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.

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.

375 PROFESSIONAL SELLING *3 credits*
Prerequisite: 300 or permission of instructor. Study of the role of personal selling in the organization's marketing mix with emphasis on customer problem solving and persuasive communication.

380 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.

385 INTERNATIONAL MARKETING *3 credits*
Prerequisite: 6800:305. Provides a basic understanding of the complexities of foreign marketing. It assumes knowledge of the basic international business course.

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.

420/520 LOGISTICS SYSTEMS ANALYSIS *3 credits*
Prerequisite: 320. 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.

425 ADVERTISING RESEARCH AND EVALUATION *3 credits*
Prerequisites: 300 and 350. The role and methods of research are studied as they relate to the planning of advertising campaigns, with attention to market analysis, competitor analysis, and copy and media planning. Post-campaign measurement of copy, media and marketing efficiencies and effectiveness are also included.

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.

440/540 PRODUCT PLANNING *3 credits*
Prerequisite: 300. 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.

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.

465/565 FORECASTING AND QUANTITATIVE METHODS IN MARKETING *3 credits*
Prerequisites: 460, 620. Explores the more sophisticated quantitative and forecasting methods, tools, procedures available to marketing researchers, decision makers; how these are applied to marketing problems.

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.

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.

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.

499 INDEPENDENT STUDY: MARKETING *1-3 credits*
Prerequisite: permission of instructor. Provides a means for individualized in-depth study of a marketing problem or problems from which student can derive significant benefit.

Graduate Courses

600 MARKETING CONCEPTS *3 credits*
Assessment of basic marketing principles involved in business and industry. Required of all non-business undergraduates; may not be selected for Phase II credit.

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.

630 INTERNATIONAL MARKETING POLICIES *3 credits*
Prerequisite: 620. Explores the problems of formulating and implementing marketing strategies and tactics within complex and changing multinational organizations and international markets. A planning framework is emphasized.

640 MARKETING INFORMATION SYSTEMS AND RESEARCH *3 credits*
Prerequisites: 620, 6500:601, 602. Explores managerial development and maintenance of systematic methods for locating, acquiring, processing, analyzing and utilizing marketing information for marketing decision making.

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.

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.

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.

690 SEMINAR IN INTERNATIONAL BUSINESS *3 credits*
Prerequisite: 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.

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.

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.

INTERNATIONAL BUSINESS 6800:

305 INTERNATIONAL BUSINESS *3 credits*
Prerequisites: 3250:201,202. A basic course in international business which can also provide a platform for more specialized international business courses.

405/505 MULTINATIONAL CORPORATIONS *3 credits*
Prerequisite: 305 or permission of instructor. Course provides in-depth understanding of the functions, structures and strategic considerations governing the MNCs through theory and case study analysis.

College of Fine and Applied Arts

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.

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.

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 20th Century.

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.

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.

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.

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.

131 INTRODUCTION TO DRAWING *3 credits*
Freehand drawing experience with an orientation to elements and principles of visual organization. Limited media.

132 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.

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.

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.

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.

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.

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.

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.

185 COMPUTER GRAPHICS FOR ART I *3 credits*
(May be repeated for a total of six credits)
Prerequisites: 131 and 144 or 2240:124 or permission of instructor. Introduction to the use of microcomputers as a creative tool for visual artists and designers.

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.

191 DESIGN *2 credits*
Basic principles of creative design and color theory. Discussion and studio. No credit toward major or teaching field in art.

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.

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.

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.

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.

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.

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.

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.

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.

244 COLOR CONCEPTS *3 credits*
Prerequisites: 144 or 286 or 2240:124 and 7100:131. 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.

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.

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.

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.

254 INTRODUCTION TO CERAMICS *3 credits*
Studio/lecture course exploring potentials of hand-building techniques in both sculptural and functional forms. Clay processing, glaze application and practical kiln firing.

266 INTRODUCTION TO JEWELRY *3 credits*
Studio experience in which student is introduced to properties of metals, processes of silversmithing and design and production of jewelry.

268 ENAMELING ON METAL *3 credits*
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.

275 INTRODUCTION TO PHOTOGRAPHY *3 credits*
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.

282 ARCHITECTURAL PRESENTATIONS I *3 credits*
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 beginning drawing and rendering in pencil and pen and ink.

283 DRAWING TECHNIQUES *3 credits*
Prerequisites: 131 and 132. 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.

284 INTRODUCTION TO GRAPHIC DESIGN *3 credits*
Prerequisite: 131. Studio experience in use of tools and materials of commercial graphic artist. Elementary design problems in commercial graphic design.

285 COMPUTER GRAPHICS FOR ART II *3 credits*
(May be repeated for a total of six credits)
Prerequisite: 185 or permission of instructor. A follow up to *Computer Graphics for Art I*. High resolution imaging in both fine art and commercial applications.

286 COMMERCIAL DESIGN THEORY *3 credits*
Prerequisites: 284 and 132. 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.

288 LETTER FORM AND TYPOGRAPHY *3 credits*
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.

289 ARCHITECTURAL PRESENTATIONS II *3 credits*
Prerequisite: 282. Study and studio practice in architectural graphics and methods of architectural delineation. Emphasis on color medium including felt tip pen, color pencil, ink and watercolor.

293 INTRODUCTION TO WEAVING *3 credits*
Development of visual perception and manual dexterity through on- and off-loom techniques. Experimentation with various materials.

300 ART SINCE 1945 *3 credits*
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.

302 ART IN EUROPE DURING THE 17TH AND 18TH CENTURIES *3 credits*
Prerequisite: 101 or permission of instructor. Analysis of major European examples of architecture, landscape design, painting, prints and sculpture from beginning of the 17th Century until approximately 1850.

303 RENAISSANCE ART IN ITALY *3 credits*
Prerequisite: 101 or permission of instructor. Study of architecture, painting and sculpture of Italy during 13th through 16th Centuries.

304 ART IN EUROPE DURING THE 19TH CENTURY *3 credits*
Prerequisite: 101 or permission of instructor. Study and analysis of major developments in visual arts in Europe from 1800 to 1900.

305 ART FROM 1900 TO 1945 *3 credits*
Prerequisite: 101 or permission of instructor. Study of significant developments in visual arts from approximately 1900 to 1945.

317 PRINTMAKING II *3 credits*
(May be repeated for a total of 12 credits with a different process)
Prerequisite: 213 or 214 or 215 or 216 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.

321 FIGURATIVE SCULPTURE *3 credits*
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.

322 INTERMEDIATE SCULPTURE II *3 credits*
(May be repeated for a total of nine credits)
Prerequisite: 222 or permission. Continuation of 222. Addresses more advanced techniques. May include fabrication, casting, carving, or assemblage.

331 DRAWING III *3 credits*
Prerequisites: 144, 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.

333 ADVANCED LIFE DRAWING *3 credits*
(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.

348 PAINTING II *3 credits*
(May be repeated for a total of nine credits, but limited to a maximum of three credits in a given medium)
Prerequisites: 245, 246 or 247 in the appropriate medium. Continuation of painting with concentration in one medium designated by letter as follows: A. Polymer Acrylic, B. Watercolor, C. Oil.

354 CERAMICS II *3 credits*
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.

366 METALSMITHING II *3 credits*
(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.

368 ADVANCED ENAMELING *3 credits*
(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.

375 PHOTOGRAPHY II *3 credits*
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.

376 PHOTOGRAPHICS *3 credits*
Prerequisite: 375. Photographic media and equipment used experimentally to produce line conversions, high contrast images, tone separations, shadow reversals and other photo-abstractions.

380 GRAPHIC VIDEO *3 credits*
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.

386 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.

387 ADVERTISING LAYOUT DESIGN *3 credits*
Prerequisites: 275, 288. Creative exploration of problems in visual merchandising. Projects offer exercises in developing skills from concept through final comprehensive presentation.

388 ADVERTISING PRODUCTION AND DESIGN *3 credits*
Prerequisites: 387 and either 2240:222 or 375. Continuation of 387. More complex projects with emphasis given to mechanical preparation of finished art for various printing processes.

393 WEAVING II *3 credits*
(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 commercial preparation techniques, depending upon the student's intended application.

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.

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, 101 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.

405/505 HISTORY OF ART SYMPOSIUM *1-3 credits*
(May be repeated for credit when a different subject is indicated)
Prerequisite: one art history course beyond 100,1 or permission of instructor. Lecture, individual research and evaluation, group discussion related to a specific time period or to an artistic problem.

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.

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.

431 DRAWING IV *3 credits*
(May be repeated for a total of nine credits)
Prerequisites: 121, 132, 331. In-depth study of drawing for advanced art student. Emphasis on interpretive and inventive drawing using widest possible range of media and techniques.

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.

454 ADVANCED CERAMICS *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.

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.

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.

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.

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.

482 CORPORATE IDENTITY AND GRAPHIC SYSTEMS *3 credits*
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.

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.

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.

488 PUBLICATION DESIGN *3 credits*
Prerequisite: 482. 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.

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.

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; 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.

496 ART INTERNSHIP/PROFESSIONAL EXPERIENCE *1-12 credits*
(Repeatable for credit. No more than 12 credits of internship may apply toward the elective requirement for completion of any art department major.)
Prerequisites: junior level in major program and permission of Internship Director. In-depth professional training affording the intern on-the-job experience in selected areas of specialization.

497/597 INDEPENDENT STUDIES *1-3 credits*
(May be repeated)
Prerequisites 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.

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)
Prerequisites: 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.

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).

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.

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.

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.

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.

141 FOOD FOR THE FAMILY *3 credits*
Application of nutrition to meal planning; problems in selecting, budgeting and preparing food; meal service.

147 HOME ECONOMICS SURVEY *1 credit*
Survey of history and development of home economics with emphasis on professional and career opportunities.

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.

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.

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 socioeconomic and cultural influence upon individual and family.

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.

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.

245 BASIC FOOD THEORY AND APPLICATION *5 credits*
Prerequisites: 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.

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.

265 CHILD DEVELOPMENT *3 credits*
Physical, social, mental and emotional development of child from prenatal through five. Observation in child care and preschool centers.

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.

290 ADMINISTRATION OF CHILD-CARE CENTERS *3 credits*
Prerequisites: 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.

295 DIRECT EXPERIENCES IN THE HOSPITAL *1 credit*
Prerequisite: permission of adviser. Individual learning experiences for students with patients, their families and the hospital personnel in various hospital settings under the direction of hospital and University staff.

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.

302 CONSUMERS OF SERVICES *3 credits*
A study of the services sector of the economy. Emphasis is on a framework for studying all service providers and in developing criteria for evaluating service providers.

303 CHILDREN AS CONSUMERS *3 credits*
Development of consumer education concepts for children grades K-8. Emphasis includes research data on children in the consumer role.

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.

310 FOOD SYSTEMS MANAGEMENT I *5 credits*
Prerequisites: 245 and 6200:201 or 2420:211. Basic theoretical concepts in the management of dietetic food service systems and the practical application of principles and procedures in quantity food production and service.

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.

315 FOOD SYSTEMS MANAGEMENT I - CLINICAL *2 credits*
Prerequisite: 245; corequisite: 310. Development of quantity food preparation and supervisory skills in community agencies; identification of functions and resources involved in the management of food service systems.

316 SCIENCE OF NUTRITION *4 credits*
Prerequisites: 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.

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.

328 NUTRITION IN MEDICAL SCIENCE I *4 credits*
Prerequisite: 316. Analysis of therapeutic health-care concepts. Consideration of nutritional implications of pathological conditions; construction of diets for specific disorders.

329 NUTRITION IN MEDICAL SCIENCE I - 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.

331 HISTORY OF TEXTILES AND FURNISHINGS *3 credits*
An in-depth study of textiles and furnishings which focuses on the social, economic, and political effects of technological and aesthetic developments from antiquity through the 20th Century.

339 THE FASHION INDUSTRY *3 credits*
Prerequisites: 121, sophomore standing. Overview of fashion industry including growth, promotion and impact of cultural influences. Review of international and American fashion scene. Lecture/discussion.

340 MEAL SERVICE *2 credits*
Prerequisites: 245, 316 or 133 or 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.

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.

360 PARENT-CHILD RELATIONS *3 credits*
Prerequisite: 265. The study of interactive parent-child relations from infancy through adulthood and the internal and environmental forces which impact upon family dynamics.

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.

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.

390 FAMILY RELATIONSHIPS IN MIDDLE AND LATER YEARS *2 credits*
Exploration of family and individual development during middle and later years of life. Emphases on issues related to intimacy, economics, social policies, psychological and biological changes.

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.

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.

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.

404/504 ADOLESCENCE IN THE FAMILY CONTEXT *3 credits*
Prerequisites: 201, 265 or permission of instructor. The influences of adolescent behavior on the family and the influence of the family environment on adolescent development.

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.

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.

413 FOOD SYSTEMS MANAGEMENT II *3 credits*
Prerequisite: 310; corequisite: 414. Advanced concepts in management of dietetic service systems relating to achievement of nutritional care goals.

414 FOOD SYSTEMS MANAGEMENT II — CLINICAL *3 credits (credit/noncredit)*
Prerequisite: 315; 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.

415 HOUSEHOLD EQUIPMENT *2 credits*
Selection, use and care of modern household equipment. Survey of commercial equipment used in home economics related professions.

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.

420/520 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.

421 SPECIAL PROBLEMS IN HOME ECONOMICS *1-3 credits*
Additional study or apprentice experience in specialized field or preparation; group and individual experimentation.

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.

424/524 NUTRITION IN THE LIFE CYCLE *3 credits*
Prerequisite: 316 or permission of instructor. Study of the physiological basis for nutritional requirements; interrelating factors which affect growth, development, maturation and nutritional status from conception through the elderly years.

426 THERAPEUTIC NUTRITION *4 credits*
Prerequisites: 316, 3100:130, 3150:203 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.

428 NUTRITION IN MEDICAL SCIENCE II *5 credits*
Prerequisite: 328. Overview of major areas of diet therapy not covered.

429 NUTRITION IN MEDICAL SCIENCE II — CLINICAL *3 credits (credit/noncredit)*
Prerequisites: 329, CUP students only; corequisite: 428. Clinical experience in hospitals applying of principles of nutritional care learned in 428.

430 COMPUTER-ASSISTED FOOD SERVICE MANAGEMENT *3 credits*
Use of computer programs in application of management concepts for food service systems.

433 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.

434 INTERIOR DESIGN II: CONTRACT *3 credits*
Prerequisite: 433. 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.

435 PRINCIPLES AND PRACTICES OF INTERIOR DESIGN *3 credits*
Study of the business aspects of interior design: business procedures, manufacturing of home furnishings and principles and psychology of marketing home furnishings.

440/540 FAMILY CRISIS *3 credits*
Study of family stress and crisis including internal and external variables and their influence on degree of disorganization, coping and recovery. Includes theory, research and application dimensions.

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.

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.

446/546 CULTURE, ETHNICITY AND THE FAMILY *3 credits*
Study of the role of culture and ethnicity in adaptation of the family system to environment. Program applications considered.

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.

448/548 BEFORE AND AFTER SCHOOL CHILD CARE *2 credits*
Study of the development, implementation and evaluation of school-age child-care programs for before and after school and vacation periods.

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.

450 DEMONSTRATION TECHNIQUES *2 credits*
Prerequisite: major only. Provides practical experience in organization and presentation of demonstrations. Emphasis on competencies in coordination of materials, motion and speech in presentation.

451/551 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.

455/555 PRACTICUM: ESTABLISHING AND SUPERVISING A CHILD-LIFE PROGRAM *3 credits*
Prerequisite: 451/551. Explores procedures for implementing and setting up child-life programs; critical analysis of currently functioning program.

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.

460/560 ORGANIZATION AND SUPERVISION OF CHILD-CARE CENTERS *3 credits*
Theory, principles and procedures involved in establishing and operating centers for infants, toddlers, preschool and school-age children.

480/580 COMMUNITY NUTRITION I *3 credits*
Prerequisite: 316. Major concerns at international, national and local levels. Emphasis on community assessment, program planning, implementation, evaluation, legislation and rationales for nutrition services.

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.

482/582 COMMUNITY NUTRITION II *3 credits*
Activities of the community nutritionist. Emphasis on controversies, cultural differences, educational approaches, grantsmanship, marketing and working with the media.

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.

484/584 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.

485/585 SEMINAR IN HOME ECONOMICS *1-3 credits*
Prerequisite: permission of instructor. Exploration and evaluation of current developments in selected areas.

486 STAFF RELIEF: DIETETICS *1 credit (credit/noncredit)*
Prerequisites: 414, CUP senior only. 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.

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.

495 INTERNSHIP: GUIDED EXPERIENCES IN CHILD-LIFE PROGRAM *8 credits*
Prerequisite: 455. A field experience in a child-life program as a child-life specialist at Children's Hospital-Medical Center of Akron.

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.

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.

499 SENIOR HONORS PROJECT IN HOME ECONOMICS AND FAMILY ECOLOGY *1-3 credits*
(May be repeated for a total of six credits)
Prerequisites: senior standing in Honors Program and approval of honors preceptor. Individual study supervised by adviser. Student and preceptor develop goals, objectives and methodology.

Graduate Courses

600 EVALUATION OF HOME ECONOMICS LITERATURE *3 credits*
A study of selected literature with emphasis upon evaluation and interpretation strategies.

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.

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.

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.

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.

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.

610 CHILD DEVELOPMENT THEORIES *3 credits*
A comparative study of developmental theories of the child within the family context. Application of the theories to child rearing in the family will be emphasized.

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.

624 ADVANCED HUMAN NUTRITION I *3 credits*
Prerequisite: 316 or equivalent. In-depth study of human nutrition emphasizing metabolism, physiological functions, and interrelationships of carbohydrate, protein and lipids and the determinants of human energy requirements.

625 ADVANCED HUMAN NUTRITION II *3 credits*
Prerequisite: 624 or equivalent. In-depth study of human nutrition with an emphasis in the utilization, physiological functions and interrelationships of vitamins and minerals.

640 NUTRITION IN DIMINISHED HEALTH *3 credits*
Prerequisite: 428 or permission. An examination of concepts related to nutritional intervention associated with selected pathophysiological and debilitating conditions throughout the life cycle. Emphasis on current literature.

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.

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.

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.

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.

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.

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.

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.

699 THESIS *5 credits*
Prerequisite: permission of adviser. Preparation of thesis pertaining to a selected research project in area of family or child development.

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.

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.

103 TRENDS IN JAZZ *2 credits*
An overview of the first 100 years of jazz music with emphasis on major figures and styles central to the development of jazz. This course is specifically designed for the non-music major.

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.

105 CLASS PIANO II *2 credits*
Prerequisite: 104 or permission of instructor. Continuation of work begun in 104.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

211 JAZZ IMPROVISATION II *2 credits*
Prerequisite: 210. Advanced study in principles of jazz composition.

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.

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.

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.

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.

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.

271 PIANO PEDAGOGY AND LITERATURE I *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.

272 PIANO PEDAGOGY AND LITERATURE II *2 credits*
Prerequisite: 7520:125 or permission of the instructor. A survey of piano literature at all levels of difficulty, with practical emphasis on its use for teaching.

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.

301 MUSIC APPRECIATION: MUSIC BEFORE 1800 *2 credits*

302 MUSIC APPRECIATION: 19TH AND 20TH CENTURIES *2 credits*
301 and 302 designed as electives for non-music major to provide introductory survey of art of music.

306 MARCHING BAND ARRANGING *2 credits*
Prerequisite: 152 or permission of instructor. A student arranges music for marching band including style, sound projection. Includes discussion of scoring for concert band as related to marching band.

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.

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.

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.

310 JAZZ IMPROVISATION III *2 credits*
Prerequisite: 211. Advanced study in the principles of jazz improvisation.

311 JAZZ IMPROVISATION IV *2 credits*
Prerequisite: 310. Advanced study in the principles of jazz improvisation.

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.

340 GENERAL MUSIC *3 credits*
(May be repeated for a total of six credits)
Prerequisites: 155, 161, 252, 262. Introductory and developmental sequence of studies related to skills, techniques and materials appropriate to non-public performance music classes in grades K-12. Clinical and field-based experiences.

342 WIND-PERCUSSION INSTRUMENT TECHNIQUES *3 credits*
(May be repeated for a total of six credits)
Prerequisites: 155, 161, 252, 262. Basic techniques in teaching woodwind, brass and percussion instruments. Development of knowledge and skills on band instruments applied to ensemble, large group and individualized instruction. Clinical and field-based experiences.

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.

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.

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.

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.

361 CONDUCTING *2 credits*
Prerequisite: 152. Study and practice of conducting techniques; beat patterns, fermatas, tempo and dynamic change, attacks and releases, score reading.

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.

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.

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.

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.

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.

372 TECHNIQUES FOR THE ANALYSIS OF 20TH CENTURY MUSIC *2 credits*
Prerequisite: 252. Techniques for the analysis of musical scores from the 20th Century. Required of a theory-composition major.

407 JAZZ ARRANGING AND SCORING *2 credits*
Prerequisite: 454 or permission of instructor. Study of jazz instrumentation from small groups to large ensembles.

451/551 INTRODUCTION TO MUSICOLOGY *2 credits*
Prerequisite: 352. Comparative musicology; acoustics; psychology and physiology of music; aesthetics; theory of music theory; historical musicology.

452 COMPOSITION *2 credits*
Prerequisite: 252 or permission of instructor. Study and creative use of major styles and idioms of musical composition; emphasis on 20th-Century techniques.

453/553 MUSIC SOFTWARE SURVEY AND USE *2 credits*
Prerequisite: 152 or permission of instructor. A survey and evaluation of available software in the various forms of musical instruction. Students will design a course suitable for submission to a programmer.

454 ORCHESTRATION *2 credits*
Prerequisite: 252. Theory of instrumentation ranging from small ensembles to full band and orchestras.

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.

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.

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.

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.

471 COUNTERPOINT *2 credits*
Prerequisite: permisson of instructor. Designed to give student of theory-composition necessary knowledge and skills for understanding contrapuntal practices and procedures; emphasis on 20th-Century techniques.

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.

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.

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.

492 SENIOR SEMINAR *1 credit*
Prerequisite: restricted to students enrolled in *Student Teaching in Music*. For music education majors; certification, contracts, benefits, job market prospects and student teaching experience sharing.

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.

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.

Graduate Courses

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.

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.

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.

609 PEDAGOGY OF JAZZ IMPROVISATION *3 credits*
A detailed study of the methods and materials as they relate to the teaching of jazz improvisation.

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.

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.

613 INSTRUCTIONAL PROGRAMMING IN MUSIC FOR THE MICROCOMPUTER *3 credits*
Prerequisite: 453/553. Introduction to programming languages for the microcomputer including BASIC, Pascal and Assembler. Programming will be directed towards music educational concepts.

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.

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.

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.

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.

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 20th Century.

619 THEORY AND PEDAGOGY *2 credits*
Prerequisite: permission of instructor. Methodology of theory teaching in 20th 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 studied.

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.

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.

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.

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.

624 MUSIC HISTORY SURVEY: 20TH CENTURY *2 credits*
Prerequisite: permission of instructor. Historical and stylistic analysis of 20th 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.

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.

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.

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.

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.

633 TEACHING AND LITERATURE: 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.

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.

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.

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.

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.

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.

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.

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.

MUSICAL ORGANIZATIONS 7510:

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*.

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.

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.

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.

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.

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.

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.

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.

108 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.

109 PERCUSSION ENSEMBLE *1 credit*
Membership by audition. Study and performance of literature for various percussion groups; develops skill in ensemble performance.

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.

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.

112 MEN'S GLEE CLUB *1 credit*
Membership by audition. Designed to perform variety of music written for male voices in ensemble.

113 WOMEN'S GLEE CLUB *1 credit*
Membership by audition. Designed to perform variety of music written for female voices in ensemble.

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.

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.

116 GUITAR ENSEMBLE *1 credit*
Membership by audition. Provides experience in conducted ensemble performance for guitarists. Major conducted ensemble.

117 COLLEGIUM MUSICUM *1 credit*
Prerequisite: permission of instructor. A musical ensemble that performs music written before 1750 on copies of authentic instruments.

118 SMALL ENSEMBLE — MIXED *1 credit*
Chamber Ensemble, Baroque Ensemble and Contemporary Music Ensemble. Each is a group of diverse instruments which rehearses and performs a selected body of music.

Graduate Courses

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.

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.

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.

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.

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Membership by audition. Designed to perform variety of music written for male voices in ensemble.

613 WOMEN'S GLEE CLUB *1 credit*
Membership by audition. Designed to perform variety of music written for female voices in ensemble.

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.

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.

616 GUITAR ENSEMBLE *1 credit*
Membership by audition. Provides experience in conducted ensemble performance for guitarists. Major conducted ensemble.

617 COLLEGIUM MUSICUM *1 credit*
Prerequisite: permission of instructor. A musical ensemble that performs music written before 1750 on copies of authentic instruments.

618 SMALL ENSEMBLE — MIXED *1 credit*
Chamber Ensemble, Baroque Ensemble and Contemporary Music Ensemble. Each is a group of diverse instruments which rehearses and performs a selected body of music.

APPLIED MUSIC
7520:

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.

021-69 APPLIED MUSIC FOR NONMAJORS *2-4 credits each*

For a student below minimum level of performance skills expected for credit at 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 non-music programs. Not to be counted for credit in any music major programs of study.

021 PERCUSSION

022 CLASSICAL GUITAR

023 HARP

024 VOICE

025 PIANO

026 ORGAN

027 VIOLIN

028 VIOLA

029 CELLO

030 STRING BASS

031 TRUMPET/CORNET

032 FRENCH HORN

033 TROMBONE

034 BARITONE

035 TUBA

036 FLUTE/PICCOLO

037 OBOE/ENGLISH HORN

038 CLARINET/BASS CLARINET

039 BASSOON/CONTRABASSOON

040 SAXOPHONE

041 HARPSICHORD

042 COMPOSITION

061 JAZZ PERCUSSION

062 JAZZ GUITAR

063 JAZZ ELECTRIC BASS

064 JAZZ PIANO

065 JAZZ TRUMPET

066 JAZZ TROMBONE

067 JAZZ SAXOPHONE

068 JAZZ COMPOSITION

069 JAZZ VOCAL STYLES

121-469/521-569 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.

121-221-321-421/521 PERCUSSION

122-222-322-422/522 CLASSICAL GUITAR

123-223-323-423/523 HARP

124-224-324-424/524 VOICE

125-225-325-425/525 PIANO

126-226-326-426/526 ORGAN

127-227-327-427/527 VIOLIN

128-228-328-428/528 VIOLA

129-229-329-429/529 CELLO

130-230-330-430/530 STRING BASS

131-231-331-431/531 TRUMPET OR CORNET

132-232-332-432/532 FRENCH HORN

133-233-333-433/533 TROMBONE

134-234-334-434/534 BARITONE

135-235-335-435/535 TUBA

136-236-336-436/536 FLUTE OR PICCOLO

137-237-337-437/537 OBOE OR ENGLISH HORN

138-238-338-438/538 CLARINET OR BASS CLARINET

139-239-339-439/539 BASSOON OR CONTRABASSOON

140-240-340-440/540 SAXOPHONE

141-241-341-441/541 HARPSICHORD

142-242-342-442/542 PRIVATE LESSONS IN MUSIC COMPOSITION *2-4 credits each*

(May be repeated)
Prerequisites: 7500:252 and permission of instructor; 7500:452 recommended. Private instruction in composition. Primarily for student whose major is theory-composition.

161-261-361-461 JAZZ PERCUSSION

162-262-362-462 JAZZ GUITAR

163-263-363-463 JAZZ ELECTRIC BASS

164-264-364-464 JAZZ PIANO

165-265-365-465 JAZZ TRUMPET

166-266-366-466 JAZZ TROMBONE

167-267-367-467 JAZZ SAXOPHONE

168-268-368-468 JAZZ COMPOSITION

169-269-369-469/569 JAZZ VOCAL STYLES

Graduate Courses

621-661 GRADUATE STUDY IN APPLIED MUSIC *2 or 4 credits each*

(May be repeated)
Prerequisites: undergraduate degree in music, graduate standing and/or permission of instructor determined through audition.

621 PERCUSSION

622 CLASSICAL GUITAR

623 HARP

624 VOICE

625 PIANO

626 ORGAN

627 VIOLIN

628 VIOLA

629 CELLO

630 STRING BASS

631 TRUMPET OR CORNET

632 FRENCH HORN

633 TROMBONE

634 BARITONE

635 TUBA

636 FLUTE OR PICCOLO

637 OBOE OR ENGLISH HORN

638 CLARINET OR BASS CLARINET

639 BASSOON OR CONTRABASSOON

640 SAXOPHONE

641 HARPSICHORD

642 APPLIED COMPOSITION

661 JAZZ PERCUSSION

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.

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.

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.

201 NEWS WRITING *3 credits*
Prerequisites: 102; ability to type. Writing of news stories; applying theory through discussions, illustrative material; actual writing for publication.

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.

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.

225 LISTENING *1 credit*
Prerequisite: permission. Techniques and approaches involved in understanding the listening process and practice of listening improvement techniques.

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).

227 NONVERBAL COMMUNICATION *1 credit*
Focused study of the principal aspects of nonverbal communication in public, group and interpersonal settings.

230 WAUP-FM* *1 credit*

231 FORENSICS* *1 credit*

232 BUCHTELITE* *1 credit*

233 TEL-BUCH* *1 credit*
*Total repeats not to exceed eight credits.
(Note: Students being paid salaries from Student Activity Funds are not eligible for credit.)

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.

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.

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.

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.

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.

282 RADIO PRODUCTION *3 credits*
Study of radio production techniques and the functional operation of AM and FM radio stations. Includes practical production experience in studio.

283 TELEVISION PRODUCTION *3 credits*
Prerequisite: permission. Function, structure and influence of television as communication medium with practical production experience in studio.

288 FILM PRODUCTION *3 credits*
Prerequisite: 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.

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.

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.

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.

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.

335 ORGANIZATIONAL COMMUNICATION *3 credits*
Study of large organizational communication principles and practices. Group projects related to several communication problems inherent to organizations inside communication flow, communication outward, incoming information to organization.

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.

345 BUSINESS AND PROFESSIONAL SPEAKING *3 credits*
Prerequisite: 1100:105 or 106. Practical improvement in speaking skills used in business settings.

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.

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.

361 AUDIO RECORDING TECHNIQUES *3 credits*
Prerequisite: 280. Basic principles of sound, human hearing and the techniques of audio recording. Theory and laboratory training; recording of live vocal and instrumental performance.

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.

384 MASS MEDIA-COMMUNICATION RESEARCH *3 credits*
Prerequisites: 102, 115. Fundamental concepts and methods of survey research, and the application and interpretation of survey data in communication and in media operations.

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.

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.

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.

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.

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.

396 TELEVISION STATION PROGRAMMING AND OPERATIONS *3 credits*
Prerequisites: 280, 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.

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.

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.

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.

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.

439 INDEPENDENT STUDY *1-12 credits*
(May be repeated for a total of 12 credits)
Prerequisite: permission of faculty. Directed independent readings, research, projects and productions. Written proposal must be submitted before permission is granted. Appropriate documentation of work required.

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.

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.

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.

470 ANALYSIS OF PUBLIC DISCOURSE *3 credits*
Prerequisites: 245, 252 or permission. Identifies principal textual and contextual elements of public discourse and presents various theories and models to be applied in studying rhetorical acts.

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.

480 MASS MEDIA-COMMUNICATION INTERNSHIP *1-8 credits*
(May be repeated for a total of eight credits)
Prerequisites: 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.

484 REGULATIONS IN MASS MEDIA *3 credits*
Concentration on government regulations and self-regulatory bodies in broadcasting, film and print media.

485 SENIOR HONORS PROJECT IN MASS MEDIA-COMMUNICATION *1-6 credits*
(May be repeated for a total of six credits)
Prerequisites: senior standing in Honors Program, approval of honors preceptor. Independent study project leading to completion of senior honors thesis or other original work.

486 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.

487/587 THE AMERICAN FILM INDUSTRY *3 credits*
History, current operation and possible futures of the American film industry. Business and industrial aspects of film considered in relation to technological and social change.

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.

489/589 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 and TV.

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.

Graduate Courses

600 INTRODUCTION TO GRADUATE STUDY IN MASS MEDIA-COMMUNICATION *6 credits*
Introduction to the ideas and scholarship that constitute the various research interests in the department.

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.

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 nonparametric descriptive and hypotheses testing statistical models in mass media-communication.

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.

608 COMMUNICATION PEDAGOGY *3 credits*
Familiarizes students with aspects of teaching communication and media courses at the college level.

623 AMERICAN MASS MEDIA SYSTEMS *3 credits*
Analysis of role, performance and impact of media in America.

624 SURVEY OF COMMUNICATION THEORY *3 credits*
Study of dimensions of field of communication: information analysis, social interaction and semantic analysis.

625 THEORIES OF MASS COMMUNICATION *3 credits*
A review of theories of mass media and studies exploring the effect of media.

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.

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.

631 SEMINAR: ADVANCED PRODUCTION DESIGN I *3 credits*
Prerequisites: 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.

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.

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.

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.

665 THEORIES OF ARGUMENT AND PERSUASION *3 credits*
Prerequisites: undergraduate course in argumentation and in persuasion, or permission of instructor. Analysis of principal theories related to attitude formation and change.

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.

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.

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.

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.

686 STUDIES IN COMMUNICATION MEDIA: RADIO *3 credits*
Study of radio station programming.

687 STUDIES IN COMMUNICATION MEDIA: TELEVISION *3 credits*

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.

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.

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.

699 MASTER'S THESIS/PROJECT/PRODUCTION *1-6 credits*
(May be repeated for a total of six credits)
Prerequisite: permission of department head.

COMMUNICATIVE DISORDERS
7700:

100 MANUAL COMMUNICATION I *5 credits*
Prerequisites: 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.

110 INTRODUCTION TO DISORDERS OF COMMUNICATION *3 credits*
Overview of various types of speech disorders; their incidence, etiology and characteristics. Basic concepts and principles underlying speech pathology.

111 INTRODUCTION TO PHONOLOGY *2 credits*
Introduction to international phonetic alphabet, and overview of articulatory phonetics.

120 INTRODUCTION TO AUDIOLOGY/AURAL REHABILITATION *3 credits*
(Not open to 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.

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.

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.

140 INTRODUCTION TO HEARING SCIENCE *3 credits*
Normal anatomy and physiology of hearing system and acoustics of hearing. Survey of field of audiology. Nature of hearing problems.

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.

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.

210 APPLIED PHONOLOGY *3 credits*
Prerequisite: 111. Training in allophonic transcription. Analysis of sound substitutions, distortions and dialectal variations. Study of Distinctive Feature Systems.

211 INTRODUCTION TO SPEECH SCIENCE *2 credits*
Study of anatomical, physiological and physical principles involved in production, transmission and reception of speech signal.

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.

223 SPEECH AND LANGUAGE OF THE DEAF CHILD AND ADULT *4 credits*
(Not open to communicative disorders major)
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.

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.

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.

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.

250 OBSERVATION AND CLINICAL METHODS *2 credits*
Corequisite: 321. Introduction to clinical procedures, analysis of preparation and structure essential to a successful therapy session and observation of therapy within several different settings.

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.

321 COMMUNICATIVE DISORDERS I *4 credits*
Prerequisites: 110, 210. Study of disorders of articulation, voice and stuttering including etiology, symptomatology, evaluation and therapeutic procedures.

322 COMMUNICATIVE DISORDERS 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.

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.

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.

350 CLINICAL PRACTICUM: ARTICULATION/PHONOLOGY *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.

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.

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.

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.

430/530 ASPECTS OF NORMAL LANGUAGE DEVELOPMENT *3 credits*
(Not open to communicative disorders major)
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.

450 ASSESSMENT OF COMMUNICATIVE DISORDERS *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.

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.

460/560 SPEECH-LANGUAGE AND HEARING DISORDERS IN THE PUBLIC SCHOOLS *2 credits*
(Not open to communicative disorders major)
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.

461 ORGANIZATION AND ADMINISTRATION: PUBLIC SCHOOL SPEECH-LANGUAGE 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.

480 SEMINAR IN COMMUNICATIVE DISORDERS *2 credits*
Prerequisite: senior standing. Provides a vehicle for detailed study and discussion of various communicative disorders.

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.

483/583 COMMUNICATION DISORDERS: GERIATRIC POPULATION *3 credits*
(Not open to communicative disorders major)
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.

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.

495 INTERNSHIP: SPEECH-LANGUAGE 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 outside The University of Akron Speech and Hearing Center. On-the-job experience with specialized case populations.

496 SENIOR HONORS PROJECT: SPEECH-LANGUAGE 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

601 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.

610 INSTRUMENTATION IN SPEECH PATHOLOGY AND AUDIOLOGY *2 credits*
Principles and use of clinical and research instrumentation in speech and hearing.

611 RESEARCH METHODS IN COMMUNICATIVE DISORDERS I *3 credits*
Introduction to experimental design in field of communicative disorders.

612 RESEARCH METHODS IN COMMUNICATIVE DISORDERS II *2 credits*
Prerequisite: 611. Advanced experimental methods; development of a research study.

619 COMMUNICATION DISORDERS: ADULT DYSARTHRIA AND APRAXIA *2 credits*
Development, symptoms, diagnosis and treatment of adult dysarthria and apraxia.

620 ARTICULATION *2 credits*
Historical background, current theories and research related to etiology, diagnosis and treatment of articulatory disorders.

621 COMMUNICATIVE DISORDERS IN CLEFT PALATE *2 credits*
Historical background, current theories and research related to etiology, diagnosis and treatment of cleft palate.

622 COMMUNICATIVE DISORDERS IN MENTAL RETARDATION *2 credits*
Historical background, current theories and research related to etiology, diagnosis and treatment of mental retardation.

623 COMMUNICATIVE DISORDERS IN CEREBRAL PALSY *2 credits*
Historical background, current theories and research related to etiology, diagnosis and treatment of cerebral palsy.

624 APHASIA *2 credits*
Historical background, current theories and research related to etiology, diagnosis and treatment of acult aphasia.

625 LANGUAGE DEVELOPMENT: NORMAL AND DISORDERED *3 credits*
Survey of research in normal and disordered development of language skills.

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.

627 STUTTERING: THEORIES AND THERAPIES *3 credits*
Reading and discussion of selected theories and therapies.

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.

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.

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.

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.

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.

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.

641 AMPLIFICATION *3 credits*
Prerequisite: 639 or permission of instructor. Components of amplification systems; methods of evaluating hearing aid performance.

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.

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.

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.

645 EVOKED POTENTIALS *2 credits*
Prerequisite: permission of instructor. A study of auditory, visual and somatosensory evoked potentials and their clinical applications in audiology and neuro-otology.

647 EXPERIMENTAL AUDIOLOGY *2 credits*
Prerequisites: six graduate audiology credits or permission of instructor. Principles of psychoacoustics. Review of instrumentation and research techniques. Study of significant literature in the field.

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.

650 ADVANCED CLINICAL PRACTICUM: DIFFERENTIAL DIAGNOSIS *1 credit*
(May be repeated for a maximum of two credits)
Supervised clinical practicum in diagnostic procedures.

651 ADVANCED CLINICAL PRACTICUM: VOICE *1 credit*
Supervised clinical practicum in rehabilitation of voice disorders.

652 ADVANCED CLINICAL PRACTICUM: FLUENCY *1 credit*
Supervised clinical practicum in rehabilitation and disorders of fluency.

654 ADVANCED CLINICAL PRACTICUM: DIAGNOSTIC AUDIOLOGY *1 credit*
(May be repeated for a total of six credits)
Supervised clinical practicum: diagnostics and aural rehabilitation.

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.

656 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.

657 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.

695 EXTERNSHIP: SPEECH PATHOLOGY AND AUDIOLOGY *2-4 credits*
(May be repeated for a total of four credits)
Clinical practicum in a selected area center.

697 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.

699 RESEARCH AND THESIS *4-6 credits*
(May be repeated for a total of six credits)
Prerequisite: permission of department head.

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.

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.

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.

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.

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.

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.

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.

421 FIELD EXPERIENCE SEMINAR *1 credit*
Prerequisites: 401 and permission; corequisite: 495. Careful examination and integration of academic understanding and professional methodological studies into professional practice.

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.

427/527 HUMAN DEVELOPMENT FOR SOCIAL WORKERS *3 credits*
Prerequisite for 427: 276 or permission of instructor; for 527: permission of instructor. Social work perspective on human development across the life cycle. Human diversity approach consistent with the needs of social work students preparing for practice.

430/530 HUMAN BEHAVIOR AND SOCIAL ENVIRONMENT FOR SOCIAL WORKERS *3 credits*
Prerequisites for 430: 276, 427 or permission of instructor; for 530: permission of instructor. Emphasis on social workers' understanding of and use of individual interaction and growth within family as a system, groups, roles, organizations, community and culture.

440/540 SOCIAL WORK RESEARCH I *3 credits*
Prerequisites for 440: 276, 3450:112, 3470:251,52 or permission; for 540, 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.

441/551 SOCIAL WORK RESEARCH II *3 credits*
Prerequisite for 441: 440 or permission of instructor; for 541: permission of instructor. Evaluation of social work intervention with individual, group and community. Processing and interpreting agency information for better practice, policy and administrative decisions.

445/545 SOCIAL POLICY ANALYSIS FOR SOCIAL WORKERS *3 credits*
Prerequisite for 445: 276 or permission; for 545: 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.

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.

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 substitutive services.

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.

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.

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.

456/556 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.

457/557 ADVANCED PRACTICE WITH INDIVIDUALS *3 credits*
Prerequisite: 401 or permission (undergraduate); 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.

458/558 ADULT DAY CARE *3 credits*
Prerequisite for 458: 276 or permission of instructor; for 558: permission of instructor. Planning, development, implementing, evaluating and delivery of adult day-care services.

459/559 SOCIAL WORK WITH THE MENTALLY RETARDED *3 credits*
Prerequisite: 276 or permission of instructor. Application of social work principles in the provision of social services to meet the needs of the mentally retarded and developmentally disabled and their families.

465/565 ADMINISTRATION AND SUPERVISION IN SOCIAL WORK *3 credits*
Prerequisite: 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.

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.

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.

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.

495 FIELD EXPERIENCE IN SOCIAL AGENCY *2-8 credits*
(Two credits minimum and eight credits maximum; total in consecutive semesters only)
Prerequisites: 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.

497/597 INDIVIDUAL INVESTIGATIONS IN SOCIAL WORK SOCIAL WELFARE *1-3 credits*
Prerequisites: 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.

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.

Graduate Course

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.

THEATRE
7800:

100 EXPERIENCING THEATRE *3 credits*
Experience the theatre as a live, dynamic art form through an exposure to and participation in production and performance.

102 INTRODUCTION TO TECHNICAL THEATRE *3 credits*
Introduction to various elements of technical production: personnel, organization, scheduling, shop processes, techniques and capabilities. Laboratory required.

106 INTRODUCTION TO STAGE DESIGN *3 credits*
Introduction to basic design principles involving floor plans, elevations and renderings for the design of stage scenery. Laboratory.

151 VOICE FOR THE STAGE *3 credits*
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.

172 ACTING I *3 credits*
Introductory fundamentals of acting through the investigation of the body as an instrument for the stage, improvisation and basic scene study.

262 STAGE MAKEUP *3 credits*
Theory and practice in the application of stage makeup from juvenile to character. Lecture/laboratory.

263 SCENE PAINTING *3 credits*
The development of skills and knowledge of stage scenic painting required for the theatre designer and technician. Laboratory required.

265 BASIC STAGECRAFT I *3 credits*
Basic stagecraft including equipment, construction and handling of two-dimensional scenery and theatrical hardware. Laboratory required.

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.

271 DIRECTING I *3 credits*
Emphasizes fundamentals of play directing, including responsibilities of director, stage nomenclature, play selection, character analysis and rehearsals. One-act form emphasized.

328 PERIOD MOVEMENT AND DANCE *2 credits*
Medieval and Early Renaissance style and manners. Studio and lecture.

334 STAGE COSTUME CONSTRUCTION *3 credits*
Study and practice of stage costume construction techniques.

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.

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.

350 ADVANCED VOICE FOR THE STAGE I *3 credits*
Prerequisite: 151. Vocal training through interpretation and analysis of various theatre styles.

351 ADVANCED VOICE FOR THE STAGE II *3 credits*
Prerequisite: 350. Continuation of 350.

362 ADVANCED STAGECRAFT *3 credits*
Prerequisite: 266. Aspects of advanced stagecraft: flying scenery, processes and techniques of rigging, textural and sculptured materials, surfaces. Laboratory required.

365 STAGE DESIGN *3 credits*
Prerequisite: 106. The art of stage design: its demands, elements, principles.

367 HISTORY OF THEATRE I: GREEK-RENAISSANCE *4 credits*
Prerequisite: 100 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.

368 HISTORY OF THEATRE II: RESTORATION TO PRESENT *4 credits*
Prerequisite: 100 or permission. Development of theatre from English Restoration, 18th and 19th Century, to modern period with emphasis on culture of each period, dramatists, stage conventions, set designs and theatre architecture.

370 THE AMERICAN THEATRE: PLAYS, PLAYERS AND PLAYWRIGHTS *3 credits*
Study of American theatre, from its beginning in 17th Century to present, with emphasis on achievements in 20th Century.

371 DIRECTING II *3 credits*
Prerequisites: 271 and permission. Advanced course in practical techniques of staging plays from major theatrical periods as well as principles of working with the actor.

373 ACTING II *3 credits*
Prerequisite: 172. Continuation of 172. Further emphasis on the psychology of the actor and development of performing techniques through scene study.

374 ACTING III *3 credits*
Prerequisite: 373. Further in-depth actor training with emphasis on the language and interpretation of Shakespeare through scene study.

376 THEATRE ORGANIZATION AND MANAGEMENT *2 credits*
Prerequisite: 100. Study of successful organization and management of nonprofessional theatre operation.

403 SPECIAL TOPICS IN THEATRE ARTS *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, supplementing courses listed in this *General Bulletin*.

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.

435 STAGE COSTUME DESIGN *3 credits*
Prerequisite: 335. Tools of fashion and figure drawing, stage costume rendering and theatrical design assignments.

436 STYLES OF SCENIC DESIGN *3 credits*
Prerequisite: 365. Theatrical styles and periods in scenic design and scenography.

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.

445 MOVEMENT FOR ACTORS I *3 credits*
Prerequisite: 172. Specialized physical training for the actor.

446 MOVEMENT FOR ACTORS II *3 credits*
Prerequisite: 445. Specialized training, integrating the actor's physical and vocal instrument.

450/550 PERFORMANCE PROJECTS *3 credits*
(May be repeated for a total of six credits.)
Prerequisite: 172 or equivalent experience. Permission of instructor. Preparation and presentation of programs and projects for the public schools, hospitals, nursing homes and other community and campus organizations.

462/562 PLAYWRITING *2 credits*
Prerequisite: permission. Principles of dramatic construction learned through analysis of playwright's art, as well as through writing of individual dramatic compositions.

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.

465 STAGE LIGHTING DESIGN *3 credits*
Prerequisite: 464. The art and technique of stage lighting design: light plotting, color theory and optical effects.

467/567 CONTEMPORARY THEATRE STYLES *3 credits*
Study of contemporary theatre from emergence of modern drama in 19th Century through a reading list of representative plays, with special emphasis on departures from realism.

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.

469 PROBLEMS IN LIGHTING DESIGN *3 credits*
Prerequisite: 465. Advanced study of practical application to problems confronting lighting designer and technician.

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.

474 ACTING IV *3 credits*
Prerequisite: 374. Investigation of acting styles, through scene study, as they apply from Shakespeare through modern playwrights.

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.

490/590 WORKSHOP IN THEATRE ARTS *1-3 credits*
(May be repeated for a total of eight credits)
Prerequisite: advanced standing or permission. Group study or group projects investigating particular phase of theatre arts not covered by other courses in curriculum.

Graduate Courses

600 INTRODUCTION TO GRADUATE STUDIES *3 credits*
Exploration of the basic research tools and methods appropriate to the discipline, including utilization of the computer. Guidelines for writing thesis and preparing production document.

603 SPECIAL TOPICS IN THEATRE ARTS *1-4 credits*
(May be repeated as different subject areas are covered, but no more than 12 credits may be applied toward M.A. degree)
Traditional and experimental courses in theatre, supplementing those listed in the *General Bulletin*.

606 PRINCIPLES OF MODERN SCENOGRAPHY *3 credits*
Prerequisite: permission of instructor. Theory and practice of stage scenographic design and technique as a collaborative art form.

608 STAGE DESIGN FROM CONCEPT TO EXECUTION *4 credits*
Prerequisite: permission of instructor. Lectures and studio/production projects. Study of types and styles of stage design, discussion and analysis of modern stage productions.

641 PROBLEMS IN DIRECTING *3 credits*
Advanced directing course, with special emphasis on staging of complex plays from all periods of dramatic literature.

642 PROBLEMS IN CONTEMPORARY ACTING *3 credits*
Study of problems confronting advanced actor in various modern styles.

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.

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.

660 ADVANCED TECHNICAL THEATRE *2 credits*
Detailed problems in mounting plays on secondary school, university and professional stages.

661 SEMINAR IN STAGE COSTUME DESIGN *3 credits*
Prerequisite: undergraduate costume design course or permission of instructor. Study of special problems in costume design for musical or opera theatre, research of specific period costume patterns, portfolio projects, research of noted designers.

662 SEMINAR IN SCENE DESIGN *3 credits*
Prerequisite: 106 or undergraduate scene design course or permission of instructor. Study of problems in scene design: portfolio projects, research of noted designers, studies of theatre spaces and new scenographic materials.

663 SEMINAR: AMERICAN THEATRE *2 credits*
Study of American theatre; plays, players and playwrights from colonial times to present. Term paper or project required.

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. Research projects; team taught.

666 INTRODUCTION 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.

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.

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 18th Century to modern times and its relationship to the physical theatre.

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 theatre graduate faculty.

691 SEMINAR: THE ROLE OF THE ARTS ADMINISTRATOR *3 credits*
In-depth examination of roles of arts administrator/manager including theatre, opera, ballet, arts organizations and performing arts halls/centers. Guest lecturers. Term paper required.

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.

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.

699 THESIS RESEARCH/PRODUCTION DOCUMENT *4-6 credits*
(May be repeated for a total of six credits)
Prerequisite: permission of coordinator of graduate theatre program. Research related to the completion of the master's thesis or the production document written in conjunction with an approved production project, depending on the student's degree option.

THEATRE ORGANIZATIONS

7810:

100 PRODUCTION LABORATORY-DESIGN/TECHNICAL *1 credit*
(May be repeated for a total of 12 credits)
Provides student with practical experience in technical aspects of theatre. Students will undertake assignments in such areas as set construction, state lighting, and costume construction.

110 PERFORMANCE LABORATORY *1 credit*
(May be repeated for a total of 12 credits)
Prerequisites: permission of project supervisor and undergraduate theatre coordinator. Provides student with practical performance experience in conjunction with University theatre productions. Includes actual public performance of assigned role.

200 PRODUCTION LABORATORY-DESIGN/TECHNICAL *1 credit*
(May be repeated for a total of 12 credits)
Provides student with practical experience in technical aspects of theatre. Students will undertake assignments in such areas as set construction, stage lighting and costume construction.

210 PERFORMANCE LABORATORY *1 credit*
(May be repeated for a total of 12 credits)
Prerequisites: permission of project supervisor and undergraduate theatre coordinator. Provides student with practical performance experience in conjunction with University theatre productions. Includes actual public performance of assigned role.

300 PRODUCTION LABORATORY-DESIGN/TECHNICAL *1 credit*
(May be repeated for a total of 12 credits)
Provides student with practical experience in technical aspects of theatre. Students will undertake assignments in such areas as set construction, stage lighting and costume construction.

310 PERFORMANCE LABORATORY *1 credit*
(May be repeated for a total of 12 credits)
Prerequisites: permission of project supervisor and undergraduate theatre coordinator. Provides student with practical performance experience in conjunction with University theatre productions. Includes actual public performance of assigned role.

400 PRODUCTION LABORATORY-DESIGN/TECHNICAL *1 credit*
(May be repeated for a total of 12 credits)
Provides student with practical experience in technical aspects of theatre. Students will undertake assignments in such areas as set construction, stage lighting and costume construction.

410 PERFORMANCE LABORATORY *1 credit*
(May be repeated for a total of 12 credits)
Prerequisite: permission of project supervisor and undergraduate theatre coordinator. Provides student with practical performance experience in conjunction with University theatre productions. Includes actual public performance of assigned role.

Graduate Courses

601 PRODUCTION PRACTICUM/DESIGN/TECHNOLOGY *1-2 credits*
(May be repeated for a total of four credits)
Prerequisite: permission of instructor. Practice in selected production design/technology operations, applications and techniques as they apply to production projects and major departmental productions.

605 PERFORMANCE PRACTICUM *1-2 credits*
(May be repeated for a total of 12 credits)
Prerequisite: permission of project adviser. Recognition of work undertaken by the student when performing a role in a theatre production. Credit assigned and work supervised by faculty project supervisor.

DANCE

7900:

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.

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.

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.

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.

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.

122 BALLET TECHNIQUE I *5 credits*
(May be repeated for a total of ten credits)
Prerequisite: permission. Fundamental theory, vocabulary, structure, placement.

124 INTRODUCTION TO BALLET I *2 credits*
(May be repeated for a total of four credits)
Emphasis on body placement, muscular awareness.

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.

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*.

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*.

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.

224 FUNDAMENTAL BALLET TECHNIQUE *3 credits*
(May be repeated for a total of six credits)
Prerequisite: permission. Continuation of 124, 125. Emphasis on barre and developing strength.

229 CONTEMPORARY TECHNIQUE I *3 credits*
(May be repeated for a total of 12 credits)
Prerequisite: permission. Expanding the basic contemporary dance techniques.

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.

317 CHOREOGRAPHY II *2 credits*
Prerequisites: 316 and permission of the instructor. Continuation of 316 with emphasis on established and traditional choreographic forms, including theme and variation, the suite and fugue and the narrative.

320 DANCE NOTATION *2 credits*
Beginning study of Labanotation method of recording movement, and preparation for beginners' examination of the Notation Bureau.

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.

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.

324 TAP TECHNIQUE I *2 credits*
Emphasizes basic tap combinations and routines, tap terminology and methods for recording combinations. Special clothing/shoes required.

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.

377 JAZZ DANCE TECHNIQUE II *2 credits*
Prerequisite: 323. The use of more complex jazz technique combinations.

378 TAP TECHNIQUE II *2 credits*
Prerequisites: 124, 125, 324. A study of more complex routines and combinations, including syncopation, classical tap and style (Astaire, Kelly, Vereen, Draper, Bolger). Special clothing/shoes.

403 SPECIAL TOPICS IN 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 dance, supplementing courses listed in *General Bulletin*.

416 CHOREOGRAPHY III *2 credits*
Prerequisites: 317, permission of the instructor. Continuation of 317 with emphasis on rhythmic analysis and nontraditional forms.

417 CHOREOGRAPHY IV *2 credits*
Prerequisites: 416 and permission of the instructor. Continuation of 416, expanding into group choreography and counterpoint.

422 BALLET TECHNIQUE IV *5 credits*
(May be repeated for a total of 40 credits)
Prerequisite: permission. Continuation of 322, professional level of technique.

423 HISTORY OF THE DANCE *2 credits*
Study of important developments in dance from prehistory to Renaissance.

424 20TH CENTURY DANCE *2 credits*
Prerequisite: dance major or permission. Investigation of changes in styles and techniques and their influence on current choreography.

425 DEVELOPMENT OF DANCE *2 credits*
Romantic and Diaghilev eras and their influence on current dance.

426 TECHNIQUES OF TEACHING DANCE I *2 credits*
Prerequisite: dance major or permission. Practical work in the basic principles of elementary teachers' training.

427 TECHNIQUES OF TEACHING DANCE II *2 credits*
Prerequisite: 426 or permission. Continuation of 426. Projects in teaching of elementary training.

490/590 WORKSHOP IN DANCE *1-3 credits*
(May be repeated for a total of eight credits)
Prerequisite: advanced standing or permission. Group study or group projects investigating particular phase of dance not covered by other courses in curriculum.

DANCE ORGANIZATIONS 7910:

101 CLASSICAL BALLET ENSEMBLE *1 credit**
By audition only. Participation in rehearsal and preparation for public performance of classical ballet repertoire.

102 CHARACTER BALLET ENSEMBLE *1 credit**
By audition only. Participation in rehearsal and preparation for public performance of character ballet repertoire.

103 CONTEMPORARY DANCE ENSEMBLE *1 credit**
By audition only. Participation in rehearsal and preparation for public performance of contemporary dance repertoire.

104 JAZZ DANCE ENSEMBLE *1 credit**
By audition only. Participation in rehearsal and preparation for public performance of jazz dance repertoire.

105 MUSICAL COMEDY ENSEMBLE *1 credit**
By audition only. Participation in rehearsal and preparation for public performance of dance production numbers in a musical comedy.

106 OPERA DANCE ENSEMBLE *1 credit**
By audition only. Participation in rehearsal and preparation for public performance of dance sequences in an opera.

107 EXPERIMENTAL DANCE ENSEMBLE *1 credit**
By audition only. Participation in rehearsal and preparation for public performance of avant-garde dances.

108 CHOREOGRAPHER'S WORKSHOP *1 credit**
By audition only. Participation in rehearsal and preparation for public performance of student dances.

109 ETHNIC DANCE ENSEMBLE *1 credit**
By audition only. Participation in rehearsal and preparation for public performance of ethnic dance repertoire.

110 PERIOD DANCE ENSEMBLE *1 credit**
By audition only. Participation in rehearsal and preparation for public performance of dances from specific historical periods such as the Renaissance or Baroque eras.

111 TOURING ENSEMBLE *1 credit**
By audition only. Participation in rehearsal and preparation for public performance of any dances prepared for touring purposes.

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*Any 7910 course may be repeated for credit. Total credit for graduation may not exceed 12 credits. Open to majors and non-majors. Full-time dance majors required to enroll in one organization each semester.

College of Nursing

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.

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.

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.

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.

300 NURSING: HEALTH *10 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.

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.

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.

400 NURSING: DIMINISHED HEALTH II *12 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.

405 HEALTH MAINTENANCE NURSING *5 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.

415 DIMINISHED HEALTH NURSING *6 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.

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.

430/530 HEALTH-CARE (CURRENT YEAR): ISSUES AND NURSING *2 credits*
Prerequisite: acceptance in the college. Survey and exploration of the state of health-care delivery in the United States today and their ramifications and implications for nursing.

480 SENIOR HONORS PROJECT *1-3 credits per semester*
Prerequisites: 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.

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.

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.

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.

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.

Graduate Courses

603 THEORETICAL BASIS FOR FAMILY HEALTH NURSING *3 credits*
Prerequisite: acceptance in the Family-Health Nursing Graduate Program. Study of concepts and theories common to nursing. Provides a firm basis for family-health nursing within the ecological-phenomenological perspective.

613 NURSING INQUIRY *3 credits*
Prerequisites: 603 and 3470:664. Philosophies of science and ethics, concept formation and theory development shall be studied. Research in family-health nursing with the ecological-phenomenological perspective shall be implemented.

619 FAMILY-HEALTH APPRAISAL *3 credits*
Prerequisite: 603. 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.

622 FAMILY-HEALTH NURSING I *4 credits*
Prerequisites: 603 and 619. Theory and practice of family-health nursing focusing on concepts, theories and practice relative to families and enfamilied selves within the ecological-phenomenological perspective.

623 FAMILY-HEALTH NURSING II *4 credits*
Prerequisites: 603, 619 and 622. Continuation of 622.

624 NURSING OF FAMILIES WITH CHILDREN *3 credits*
Deals with the growing child and his/her family. Infants and children from the newborn period through school age will be considered.

625 TEACHING STRATEGIES IN NURSING EDUCATION *3 credits*
Focus on the development of increased knowledge for the selection of learning opportunities effective in the clinical and classroom setting used by the family-health nurse.

626 NURSING OF FAMILIES WITH ADULT MEMBERS *3 credits*
Analysis of the young and middle-aged adult within the family structure. Focuses on application of the nursing process with the healthy adult and identification of barriers to maintenance of optimal health.

628 HEALTH PERSPECTIVE OF THE EXPANDING FAMILY *3 credits*
Focuses on the nursing analysis of the process of family expansion; the individual member's accommodation to that process; and relevant health issues.

629 FINANCIAL MANAGEMENT FOR NURSING ADMINISTRATION *3 credits*
Prerequisite: acceptance in the Family-Health Nursing Program or by faculty permission. Concepts, theories and processes necessary to implement sound financial management for nursing administration. Focus is on cost containment and its implication for family-health nursing.

630 HUMAN RESOURCES IN NURSING SETTINGS *3 credits*
Prerequisite: acceptance in the Family-Health Nursing Graduate Program or instructor's permission. Identify and examine major issues related to human resources in nursing settings. The focus is on those settings where family-health nursing is the core of practice, education and research.

635 ORGANIZATIONAL BEHAVIOR IN NURSING SETTING *3 credits*
Prerequisite: acceptance in the Family-Health Nursing Graduate Program or instructor permission. Designed for the nurse manager. Examines nursing organizational behavior: what it is now, and possible future directions. Provides a practical focus with specific examples from nursing service.

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.

672 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: nursing elective credit and leadership role of nursing elective credit.

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.

675 CULTURE, ETHNICITY AND HEALTH CARE *3 credits*
Increase cultural sensitivity by exploration of culturally diverse health values, beliefs, or 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.

680 FAMILY-HEALTH NURSING LEADERSHIP SEMINAR: DIRECT CARE WITH FAMILIES *3 credits*

Corequisites: 603, 613, 622, 623. Examines family-health nursing practice utilizing the ecological-phenomenological perspective, to identify and explore practice issues and goals.

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.

685 FAMILY-HEALTH NURSING LEADERSHIP SEMINAR: EDUCATION *3 credits*

Prerequisites: 603, 613, 622. Expanding the leadership role of the family-health nurse from the philosophical perspective of education. Utilizes theoretical frameworks to develop and critique family-health nursing curricula within the ecological-phenomenological perspective.

686 FAMILY-HEALTH NURSING LEADERSHIP PRACTICUM: EDUCATION *3 credits*

Prerequisites: 623, 685; corequisite: 689. Guided study and practice in the leadership role of a family-health nurse educator within the ecological-phenomenological perspective.

687 FAMILY-HEALTH NURSING LEADERSHIP SEMINAR: ADMINISTRATION *3 credits*

Prerequisite or corequisite: 623. Prerequisite: 622. Expanding the leadership role of family-health nurse from philosophical perspectives of administration. Utilizes theoretical frameworks to develop and identify administrative goals within the ecological-phenomenological perspective.

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.

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.

699 THESIS RESEARCH *1-4 credits*

Prerequisites: 613, 623; corequisite: 623. Family-health nursing research in which selected philosophies, theories, concepts are investigated within the ecological-phenomenological perspective.

School of Law

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.

602 CIVIL PROCEDURE II *3 credits*
Prerequisite: 601. Continuation of 601.

603 CONSTITUTIONAL LAW I *3 credits*
Governmental authority and its distribution under Constitution. Introduction to individual rights and liberties.

604 CONSTITUTIONAL LAW II *3 credits*
Prerequisite: 603. Continuation of 603. Rights, privileges and immunities under the Constitution.

605 CONTRACTS I *3 credits*
Nature and purpose of contract law. Formation, consideration, contractual alternatives, reality of consent, capacity, Statute of Frauds.

606 CONTRACTS II *3 credits*
Prerequisite: 605. Construction. Breach and associated remedies. Resolution of disputes. Discharge. Third party interests.

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.

608 EVIDENCE *3 credits*
Covers basic evidence law with emphasis on the Federal Rules of Evidence and state rules patterned thereon.

610 GENERAL WRITING REQUIREMENT *0 credit (credit/noncredit)*
(May be repeated)
To fulfill the school's General Writing Requirement as set forth in the faculty-ratified statement (paragraphs a.-f.), degree-seeking students are required to register for the 610 noncredit course at the same time as registering for a credit course that qualifies as fulfilling the school's writing requirement.

612 LEGAL PROFESSION *2 credits*
Legal profession as an institution. Responsibilities of lawyers; duties and privileges; professional qualifications.

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.

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; licenses; private restrictions; water rights.

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.

617 TORTS II *3 credits*
Prerequisite: 616. Continuation of 616.

618 LEGAL RESEARCH *1 credit*
Familiarization with basic legal publications and computer-assisted legal research necessary to perform legal research.

619 BASIC LEGAL COMMUNICATIONS *2 credits*
Introduction to basic skills in written exposition and analysis in a legal context through preparation of research memoranda and other written assignments.

620 INTERMEDIATE LEGAL COMMUNICATIONS *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.

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.

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.

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.

624 AIR LAW *3 credits*
Law of modern air transportation in international and domestic flight and emerging area of outer space.

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.

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.

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.

629 COMMERCIAL LAW II *3 credits*
Prerequisite: 627. Continuation of 627.

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.

631 CONFLICT OF LAWS *3 credits*
Problems of applicaton of private law in jural relations containing one or more foreign law elements. Jurisdiction and enforcement.

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.

635 CREDITORS' RIGHTS *3 credits*
Recommended: 629. Provisional remedies and enforcement of judgments. Fraudulent conveyances. General assignments for benefit of creditors. Creditors' agreements. Bankruptcy.

636 DEVELOPMENT OF LAW AND SOCIAL CHANGE *3 credits*
Historical introduction to the Anglo-American legal system and an examination of the influence of law on society and society on law to illuminate contemporary developments in law and social institutions.

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.

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.

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.

640 SEMINAR IN ADVANCED CORPORATE TAXATION *3 credits*
Prerequisite: 642 or concurrent enrollment with permission of instructor. An analysis of federal corporate taxation problems.

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.

642 FEDERAL INCOME TAXATION II *3 credits*
Prerequisite: 641. Survey of federal income tax law applicable to corporations.

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.

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.

645 BUSINESS REORGANIZATION UNDER THE BANKRUPTCY CODE *3 credits*
Prerequisite: 635. This course covers the six stages of a Chapter 11 (Rehabilitation Under the Bankruptcy Laws) proceeding: (1) commencement of a case; (2) operation of the business; (3) preparation of the plan; (4) creditors' acceptance of the plan; (5) judicial confirmation of the plan; and (6) post-confirmation concerns.

647 JUVENILE LAW *3 credits*
Study of laws relating to juveniles (neglect, dependency, delinquency).

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.

649 INTERNATIONAL LAW *3 credits*
Nature and breadth of international law; sources and subjects; relation to municipal law; individuals and international organizations.

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.

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.

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.

653 LEGAL ISSUES IN EDUCATION *3 credits*
School governance; allowable discipline; constitutional constraints on restricting freedom of expression and on privacy intrusions; tort liability for injuries on school property.

654 LAW OF CONSUMER CREDIT *2 credits*
Recommended: 627. Consumer sale and credit transactions and their regulation, including specific statutory and administrative approaches dealing with problems of individual consumers and classes of consumers.

656 LAW REVIEW INTERNSHIP *1 credit (credit/noncredit)*
Prerequisites: 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, 96, 98 not to exceed 10.

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 10.

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 656,7 and 8 not to exceed four. Credit for 656,7,8, 66, 96, 98 not to exceed 10.

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.

660 SEMINAR IN WORKERS' COMPENSATION *3 credits*
Jurisdictional and procedural issues; scope of employer liability; defenses; specific remedies.

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.

662 MEDIA LAW *3 credits*
Prerequisite: 604. Constitutional, defamation and commercial problems involved in the written and/or oral publication of news and entertainment features.

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.

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.

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.

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 5) not to exceed four. Credit for 656,7,8, 66, 94,5,6,7,8 not to exceed 10.

667 PATENT, TRADEMARK AND COPYRIGHT LAW *2 credits*
Federal protection of patents, trademarks and copyrights, registration procedures, appeals from administrative actions, right of patentees, trademark owners and copyright holders, grants, licenses and assignments, infringement, plagiarism and unfair competition.

668 REMEDIES *3 credits*
Equitable remedies, unjust enrichment and restitution; remedies for injuries to tangible property, and economic, dignitary and personal interests including wrongful death. Disaffirmance and remedies for deception, duress, undue influence, hardship, unconscionability, mistake, breach of contract and nominally unenforceable transactions.

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.

671 SECURITIES REGULATION *3 credits*
Prerequisite: 633. 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.

672 SEMINAR IN BUSINESS PLANNING *3 credits*
Prerequisite: 633 or permission of instructor. Advanced course using the problem approach in planning business transactions in light of applicable corporate, tax and securities law.

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.

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.

675 SPECIAL PROGRAMS IN ESTATE PLANNING *3 credits*
Prerequisites: 641, 686, or permission of instructor. Relevant tax and non-tax problems in planning of estates and examination of dispositive devices in accomplishing objectives of estate planning.

676 SEMINAR IN INTERNATIONAL TRANSACTIONS AND RELATIONS *3 credits*
Legal problems in doing business abroad. Entry, holding, property, economic activity and choice of corporated form; restrictive practices, currency and exchange. European Common Market. Relations being developed and developing countries.

677 HEALTH LAW *3 credits*
Liability of doctors, nurses and hospitals; problems of consent; reporting obligations, patient rights, insurance and risk management; autopsy and organ donation.

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.

679 SEMINAR IN LABOR LAW *3 credits*
Prerequisite: 650. Selected issues in two areas of growing importance in the field of labor and employment law: (1) public sector law with an emphasis on state and local (as opposed to federal) labor relations; and (2) employee rights, with an emphasis on common law remedies, but with some consideration given to new rights of employees created by statute and collective bargaining agreements.

680 DEFERRED COMPENSATION AND EMPLOYEE BENEFIT PLANS *3 credits*
Employee benefit plans; qualified pension and profit-sharing plans under Internal Revenue Code. Non-qualified contracts involving individual employees.

681 SEMINAR IN LEGAL PROBLEMS OF THE DISADVANTAGED *2 credits*
Selected legal problems of persons disadvantaged by such factors as age, illness, [illegible], incompetency and poverty.

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.

683 SEMINAR IN PRODUCT LIABILITY *3 credits*
Prerequisite: 617. Liability for defective products and developing legal theories and remedies. Examination of government regulation of dangerous and defective products.

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 non-legal materials, and expository legal writing.

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.

686 WILLS, TRUSTS AND ESTATES II *3 credits*
Prerequisite: 685. Continuation of 685.

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.

688 ADVANCED LEGAL COMMUNICATIONS *1 credit*
Prerequisites: 619, 620. 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.

689 APPELLATE ADVOCACY *1 credit*
Prerequisites: 619, 620, 688. Development of skills in written and oral advocacy through handling an appellate case from receipt of trial record through oral argument.

690 INTRODUCTION TO TRIAL ADVOCACY *3 credits*
Prerequisite: 608. Fundamental techniques of trial preparation, direct examination, cross examination, introduction of exhibits, objections, opening statements and closing arguments.

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.

692 ADVANCED 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.

693 PROBATE PRACTICE *2 credits*
Prerequisites: 685, 686. Interstate and testamentary administration, including the probating of a will, presentment of claims, the inventory, settlement and distribution and will contests. The Ohio Probate Code will be the model.

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: do substantial research on the brief problem; prepare preliminary drafts of arguments; participate in practice rounds for oral presentations. Total credits for courses designated Moot Court (666, 694,5) not to exceed four. Credit for 656,7,8, 666, 694,5,6,7,8 not to exceed 10.

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: read and grade all intramural competition briefs; listen to and judge oral arguments in intramural competition; do substantial research on current National Moot Court problem; prepare drafts of brief; write a final brief; practice oral arguments. Total credits for courses designated Moot Court (666, 694,5) not to exceed four. Credit for 656,7,8, 666, 694,5,6,7,8 not to exceed 10.

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, 666, 696,7,8 not to exceed 10. Credit for 696,7 not to exceed six credits.

697 CLINICAL SEMINAR II *2-3 credits (credit/noncredit)*

Prerequisite: 696. Continuation of 696.

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, 696,8 not to exceed 10.

699 COMPUTER-BASED 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.

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May 1986

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Sept. 1986

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PAUL S. WINGARD, *Associate Dean of Buchtel College of Arts and Sciences,* Ph.D.

Emeritus Faculty

Sept. 1986

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.

D. J. GUZZETTA, *President Emeritus, Professor Emeritus of Higher Education* (1954-March 1968; (August 1971) (Retired as President September 1984) (Retired August 1985) 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; LL.D., Bellevue College, 1978.

IRVING ACHORN, *Professor Emeritus of Art* (1965) (Ret. December 1983) B.S., M.A., Kent State University, 1956.

VIRGINIA L. ALLANSON, *Associate Professor Emeritus of Bibliography* (October 1968) (Ret. 1984) B.S., Purdue University; M.L.S., Kent State University, 1966.

JOHN ARENDT, *Instructor Emeritus in Surveying and Construction Technology* (1967) (Ret. 1980) B.S.M.E., Cleveland State University, 1944.

WILLIAM J. ARN, *Professor Emeritus of Education* (1967) (Ret. December 1983) B.S.Ed., Ohio Northern University; M.S. Ed., Bowling Green State University; Ph.D., Kent State University, 1967.

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.

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.

CLARK E. BIGGINS, *Director of Purchasing Emeritus* (April 1967) (Ret. June 1985) B.S.C., Ohio University, 1957.

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.

JOHN A. BLOUGH, *Professor Emeritus of Education* (1979) (Ret. August 1986) B.A., College of Wooster; Ph.D., The Ohio State University, 1971.

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.

ROY E. BURKEY, *Associate Professor Emeritus of Management* (July 1981) (Ret. 1986) B.S., M.B.A., Ph.D., The Ohio State University, 1971.

DONALD R. BURROWBRIDGE, *Professor Emeritus of Coordination* (July 1965) (Ret. 1986) B.S., University of Wisconsin; M.S., Virginia Polytechnic Institute, 1965.

ALBERT C. BUXTON, *Associate Professor Emeritus of Electronic Technology* (January 1975) (Ret. 1986) B.S.E.E., M.S.E.E., Tulane University, 1951.

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.

MARY ELIZABETH CHESROWN, *Member of the General Faculty Emeritus* (June 1965) (Ret. January 1986) B.A., The University of Akron, 1949.

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.

IRWIN DEUTSCHER, *Professor Emeritus of Sociology* (1975) (Ret. December 1983) B.A., M.S., M.A., Ph.D., University of Missouri, 1959.

CONSTANTIN DIMITRIU, *Assistant Professor Emeritus of Classics* (May 1970) (Ret. 1986) Baccalaureate, University of Cluj, Romania; M.A., National University of Bucuresti; M.S.L.S., Case Western Reserve University, 1969.

PAUL H. DUNHAM, *Associate Professor Emeritus of Manufacturing Technology* (1972) (Ret. 1986) B.A., Case Western Reserve University; M.B.A., Ph.D., Kent State University, 1980.

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.

JOSEPH A. EDMINISTER, *Professor Emeritus of Electrical Engineering* (May 1957) (Ret. December 1983) B.E.E., M.S.E., J.D., The University of Akron, 1974; P.E., Ohio.

CHARLOTTE L. ESSNER, *Associate Professor Emeritus of Communicative Disorders* (1965) (Ret. 1982) B.A., Hunter College; M.A., The University of Akron, 1964.

ROBERT E. FERGUSON, *Professor Emeritus of Education* (1965) (Ret. December 1983) B.S., M.A., Kent State University; Ed.D., Case Western Reserve University, 1965.

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.

PAULINE FRANKS, *Professor Emeritus of Bibliography* (April 1950) (Ret. December 1983) B.S. Ed., Kent State University; B.S.L.S., Case Western Reserve University, 1940.

EDWARD C. GIBNEY, *Associate Professor Emeritus of Nursing* (1970) (Ret. 1985) St. Agnes School of Nursing; B.S., University of Baltimore; M.S., University of Maryland, 1969; RN.

PATRICIA P. GODFREY, *Associate Professor Emeritus of Nursing* (January 1969) (Ret. 1986) B.Sc.N., M.A.Ed., Case Western Reserve University; M.S.N., Duquesne University, 1979; R.N.

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) M.A., M.A., Ph.D., University of Frankfurt, 1930.

GORDON A. HAGERMAN, *Member of the General Faculty Emeritus* (July 1941) (Ret. 1981) B.A., The University of Akron, 1941.

DOROTHY HAMLEN, *Professor Emeritus of Bibliography* (February 1937) (Ret. 1972) B.A., The University of Akron; B.S.L.S., Case Western Reserve University, 1942.

RICHARD L. HANSFORD, *Vice President and Dean Emeritus of Student Services* (August 1949) (Ret. December 1985) B.A.Ed., M.A.Ed., The University of Akron, 1954.

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.

KENNETH C. HOEDT, *Professor Emeritus of Education* (1962) (Ret. 1986) B.S., State University of New York (Buffalo); M.S., Ph.D., University of Wisconsin, 1960.

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.

RICHARD B. HOSKIN, *Associate Professor Emeritus in the Community and Technical College* (1967) (Ret. 1981) B.A., Hiram College; M.E., Kent State University, 1955.

CARL L. HUSTON, *Instructor Emeritus in English* (Wayne General and Technical College) (1972) (Ret. 1986) B.S., Bowling Green State University, 1951.

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.

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.

JANKO P. KOVACEVICH, *Professor Emeritus of Education* (1969) (Ret. December 1985) B.S., Baylor University; M.A., The University of Akron; Ph.D., Case Western Reserve University, 1970.

WARREN F. KUEHL, *Professor Emeritus of History; Director Emeritus of the Center for Peace Studies* (1964) (Ret. July 1986) B.A., Rollins College; M.A., Ph.D., Northwestern University, 1954.

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.

GORDON K. LARSON, *Professor Emeritus of Physical Education* (February 1961) (Ret. December 1984) B.S.Ed., M.E., Kent State University, 1954.

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.

GERALD H. LEVIN, *Professor Emeritus of English* (1960) (Ret. December 1985) A.M., University of Chicago; M.S., Case Western Reserve University; Ph.D., University of Michigan, 1956.

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.

DAVID P. LOYD, *Associate Professor Emeritus of Marketing* (1977) (Ret. 1984) B.A., Ashland College; M.B.A., Ph.D., The Ohio State University, 1962.

THEODORE MACKIW, *Professor Emeritus of Modern Languages* (1962) (Ret. 1984) Ph.D., University of Frankfurt, 1950.

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.

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.

ALOYSIUS E. MISKO, *Professor Emeritus of Business Management Technology* (1962) (Ret. December 1984) B.S., Central Michigan University; M.S., Ed.D., University of Michigan, 1962.

MAURICE MORTON, *Regents' Professor Emeritus of Polymer Chemistry* (October 1948) (Ret. August 1978) B.S., Ph.D., McGill University, 1945.

FREDERICK W. MOYER, *Professor Emeritus of Finance* (March 1970) (Ret. 1982) B.S., M.A., Ph.D., The Ohio State University, 1949.

JOSEPH C. MULLIN, *Assistant Professor Emeritus of Criminal Justice* (1970) (Ret. 1986) B.S., Delta State College; M.S.Tech.Ed., The University of Akron, 1974.

ROBERT H. MYERS, *Professor Emeritus of Education* (1966) (Ret. 1986) B.S.Ed., M.A., Ph.D., The Ohio State University, 1964.

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.

DOROTHY M. NUNN, *Associate Professor Emeritus of Biology* (1967) (Ret. 1983) B.S. Med.Tech., Ph.D., University of Cincinnati, 1962.

OLIVER OCASEK, *Professor Emeritus of Education* (January 1961) (Ret. December 1978) B.S.Ed., M.A., Kent State University, 1950; LL.D., Kent State University, 1975; Litt. D., The University of Akron, 1978.

ROBERT A. OETJEN, *Dean Emeritus of Buchtel College of Arts and Sciences; Professor Emeritus of Physics* (July 1970) (Ret. 1977) B.A. Asbury College; M.S., Ph.D., University of Michigan, 1942.

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.

JOHN S. PHILLIPSON, *Professor Emeritus of English* (1961) (Ret. 1986) B.A., University of Rochester; M.A., Ph.D., University of Wisconsin, 1952.

FRANK T. PHIPPS, *Professor Emeritus of English* (1953) (Ret. 1980) B.A., M.A. Miami University; Ph.D., The Ohio State University, 1953.

JOHN C. PIZOR, *Associate Professor Emeritus of Office Administration* (1966) (Ret. 1985) B.S., Grove City College; M.Ed., University of Pittsburgh, 1946.

CHARLES F. POSTON, *Professor Emeritus of Finance* (1959) (Ret. 1980) B.A., Eastern Illinois State College; M.A., University of Illinois; Ph.D., University of North Carolina, 1959.

ALBERT S. RAKAS, *Professor Emeritus of Law* (July 1971) (Ret. February 1985) B.A., University of Michigan; B.S.L., St. Paul's College; J.D., John Marshall Law School, 1960.

DICK I. RICH, *Professor Emeritus of Education* (1965) (Ret. 1982) B.A., Otterbein College; M.Ed., Kent State University; Ed.D., Columbia University Teachers College, 1961.

ALVIN M. RICHARDS, *Professor Emeritus of Civil Engineering* (June 1949) (Ret. December 1983) B.C.E., The University of Akron; M.S., Harvard University; Ph.D., University of Cincinnati, 1968; P.E., Ohio, Florida.

RUTH S. ROBERTS, *Professor Emeritus of Education* (1971) (Ret. 1986) B.A., Hunter College; M.Ed., Ph.D., Kent State University, 1975.

LOUIS D. RODABAUGH, *Associate Professor Emeritus of Mathematics* (1964) (Ret. 1978) B.A., Miami University; M.A., Ph.D., The Ohio State University, 1938.

CECIL A. ROGERS, *University Auditor Emeritus* (1932) (Ret. 1969) B.S.B.A., The University of Akron, 1932.

WILLIAM A. ROGERS, *Dean Emeritus of Continuing Education and Public Service/Outreach; Associate Professor Emeritus of Education* (1957) (Ret. August 1986) B.A., Ed.M., Ed.D., State University of New York at Buffalo, 1967.

MARGARET F. ROGLER, *Assistant Professor Emeritus of Marketing* (1948) (Ret. 1972) B.S., University of Nebraska; M.S., University of Denver, 1944.

WILLIAM ROOT, *Professor Emeritus of Education* (1968) (Ret. 1982) B.S., M.A., Ph.D., The Ohio State University, 1958.

LOUIS ROSS, *Professor Emeritus of Mathematics* (February 1946) (Ret. 1977) B.S., B.A., M.A.Ed., The University of Akron; Ph.D., Case Western Reserve University, 1955.

ROBERT G. SCHMIDT, *Associate Professor Emeritus of Sociology* (1967) (Ret. 1980) B.A., Illinois College; M.A.T., Harvard University; Ph.D., Washington University, 1955.

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.

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.

HOWARD L. STEPHENS, *Professor Emeritus of Polymer Science; Professor Emeritus of Chemistry* (June 1950) (Ret. 1982) B.S., M.S., Ph.D., The University of Akron, 1960.

CATHRYN C. TALIAFERRO, *Assistant Professor Emeritus of English* (1961) (Ret. 1981) B.A., The University of Akron; M.A., Radcliffe College, 1940.

STUART M. TERRASS, *Director of Institutional Studies and Research Emeritus* (December 1957) (Ret. March 1986) B.A., B.S., M.A., The University of Akron, 1965.

HELEN S. THACKABERRY, *Assistant Professor Emeritus of English* (1940) (Ret. 1976) B.A., M.A., State University of Iowa, 1937.

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.

KATHRYN A. VEGSO, *Member of the General Faculty Emeritus* (February 1959) (Ret. January 1986) B.S., University of Illinois; M.S.Ed., The University of Akron, 1964.

JANET W. WAISBROT, *Assistant Professor Emeritus of Modern Languages* (1965) (Ret. August 1985) B.A., Case Western Reserve University; M.A., Kent State University, 1966.

MILTON WALES, *Assistant Professor Emeritus of Mechanical Technology* (1966) (Ret. 1977) B.S., Louisiana State University; M.Ed., Pennsylvania State University, 1966.

PAUL WEIDNER, *Professor Emeritus of Political Science* (1960) (Ret. December 1984) B.A., M.A., University of Cincinnati; Ph.D., University of Michigan, 1959.

RUSSELL WEINGARTNER, *Professor Emeritus of Modern Languages* (1970) (Ret. 1986) B.A., University of Cincinnati; M.S., Ph.D., Princeton University, 1968.

FRANCIS WERNER, *Instructor Emeritus in 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.

JAMES A. WITHEROW, *Assistant Professor Emeritus of Physical Education* (1972) (Ret. December 1984) B.S., M.Ed., Kent State University, 1956.

CHARLES L. WOOD, *Associate Professor Emeritus of Education* (1966) (Ret. January 1986) B.A. Simpson College; M.A., Ph.D., University of Iowa, 1966.

Full-Time Faculty and Administration*

Sept. 1986

WILLIAM V. MUSE, *President; Professor of Marketing* (1984) B.S., Northwestern State University, 1960; M.B.A., Ph.D., University of Arkansas, 1966.

LARRY A. ABEL, *Associate Professor of Biomedical Engineering* (1986) B.S., M.S., Ph.D., Carnegie-Mellon University, 1976.

STEPHEN H. ABY, *Reference Librarian* (1984) B.A., University of Texas; M.A., University of Houston; Ph.D., State University of New York at Buffalo; M.L.S., Kent State University, 1984.

ALEXANDER L. ADAMS, *Assistant Professor of Physical Education* (1970) B.S.Ed., M.S.Ed., The University of Akron, 1970.

DAVID H. ADAMS, *Director of Athletics* (January 1985) B.S., M.Ed., Penn State University, 1958.

HOBART W. ADAMS, *Professor of Accounting* (1969) B.S.Ed., Kent State University; M.B.A., D.B.A., Indiana University at Bloomington, 1967.

RONNIE G. ADAMS, *Professor of Surveying and Construction Technology* (1969) B.C.E., Cleveland State University; M.S.C.E., Lehigh University, 1963.

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, *Assistant Director of University Library and Learning Resources, Media Services* (1967) B.S.Ed., M.A., The University of Akron, 1980.

CAROLYN A. ALBANESE, *Associate Professor of Home Economics* (1978) B.S., Southern Illinois University at Carbondale; M.S., The Ohio State University, 1969.

M. KAY ALDERMAN, *Associate 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.

ELAINE D. ALEXANDER, *Assistant Professor of Nursing* (1982) B.S.N., B.S.Ed., Kent State University; M.S., The Ohio State University, 1979.

RALPH A. ALEXANDER, *Professor of Psychology* (1973) B.A., Arizona State University; M.A., Ph.D., University of Rochester, 1974.

TANA F. ALEXANDER, *Assistant Professor of Music* (1978) B.M., The Ohio State University; M.M., University of Louisville, 1974.

RICHARD W. ALFORD, *Instructor in Hospitality Management* (1983) A.D., B.S., The University of Akron, 1976.

BARBARA J. ALLAYAUD, *Academic Adviser* (July 1983) B.A., M.A.Ed., The University of Akron, 1983.

DENVER E. ALLEN, JR., *Athletic Fundraiser* (August 1985) B.S., M.A., West Virginia University, 1984.

ABDUL AMIR AL-RUBAIY, *Professor of Education* (1972) B.S., M.A., E.D.S., Eastern Michigan University; Ph.D., Kent State University, 1972.

VINCENT A. ALTIER, *Research Associate, Institute of Polymer Science; Assistant to the Director, Institute of Polymer Science* (January 1983) A.B., Youngstown State University; M.S., The University of Akron, 1954.

RICHARD E. AMOS, *Coordinator of Medical Technology Program* (1985) B.S., University of Michigan; M.A., Central Michigan University; M.S., University of Cincinnati, 1982.

BARBARA S. ANANDAM, *Assistant Professor of Nursing* (March 1973) B.S., M.S., Boston University; Ed.S., Kansas State Teachers College, 1971.

ALFRED ANDERSON, *Associate Professor of Music* (1985) B.M., Mississippi College; M.M., Indiana University, 1970.

ALLEN S. ANDERSON, *Assistant Professor of Finance* (1984) B.S.C.E., B.B.A., M.B.A., Texas A & M University; Ph.D., University of Arkansas, 1978.

LLOYD C. ANDERSON, *Associate Professor of Law (1981) B.A., University of Michigan; J.D., Harvard University, 1973.*

THOMAS E. ANDES, *Assistant Professor of Business Management Technology (Wayne General and Technical College)* (1983) B.S.Ed., The University of Akron; M.M., Northwestern University, 1979.

JACQUELINE M. ANGLIN, *Assistant Professor of Education* (1979) B.S.Ed., M.S.Ed., The University of Akron; Ph.D., Kent State University, 1985.

DARICE A. ANGWIN, *Assistant Professor of Data Processing* (1980) A.A.S., B.S., M.S. Tech. Ed., The University of Akron, 1982.

ALEXIS M. ANIKEEFF, *Professor of Psychology* (1967) A.B., A.M., University of Michigan at Ann Arbor; Ph.D., Purdue University, 1949.

JAMES L. ANSON, *Assistant Professor of Military Science* (June 1983) B.S., West Virginia University, 1969; Major, Infantry.

WILLIAM B. ARBUCKLE, *Associate Professor of Civil Engineering* (1982) B.S.Ch.E., Ohio University; M.S.E.E., Ph.D., University of North Carolina, 1975.

WALTER E. ARMS, *Associate Professor of Education* (1968) B.S., Northwest Missouri State College; M.Ed., University of South Dakota; Ed.D., Indiana University at Bloomington, 1968.

BARBARA N. ARMSTRONG, *Professor of Home Economics* (1972) B.S. M.S., West Virginia University; Ph.D., The Ohio State University, 1970.

BRUCE R. ARMSTRONG, *Professor of Art* (1971) B.F.A., California Institute of the Arts; M.F.A., Washington State University, 1968.

JOSEPH P. ARNOLD, *Professor of Education* (1981) B.A., M.A., University of Northern Colorado; Ed.D., University of Illinois at Urbana, 1965.

ROBIN DIANE ARNOLD, *Associate Professor of Physical Education (Wayne General and Technical College)* (1972) B.S., University of Maryland at College Park; M.A., The Ohio State University, 1966.

STEPHEN ARON, *Assistant Professor of Music* (1981) B.M., University of Hartford; M.M., University of Arizona, 1981.

JOANN M. ARRIETTA, *Academic Adviser* (July 1976) B.A.Ed., M.A.Ed., The University of Akron, 1975.

JOHN H. ASHLEY, *Producer/Director Instructional TV* (1973) B.S., Southern Illinois University at Carbondale; M.S., Indiana University at Bloomington, 1973.

MICHAEL J. ASKEW, *Research Assistant Professor of Civil Engineering; Research Assistant Professor of Biomedical Engineering* (March 1983) B.Sc., University of Calgary, Canada; M.S., Ph.D., Rensselaer Polytechnic Institute, 1976.

GLENN A. ATWOOD, *Professor of Chemical Engineering; Associate Dean of the College of Engineering* (1965) B.S., M.S., Iowa State University; Ph.D., University of Washington, 1963; P.E., Ohio.

MARY ELLEN ATWOOD, *Associate Professor of Education,* (1969) B.S., Iowa State University; M.S., Ph.D., The University of Akron, 1983.

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.

KENNETH E. AUPPERLE, *Associate Professor of Management* (1986) B.A., M.A., Western Michigan University; M.B.A., Kansas State University; Ph.D., University of Georgia, 1982.

RICHARD L. AYNES, *Professor of Law; Associate Dean of the School of Law* (1976) B.S., Miami University; J.D., Cleveland State University, 1974.

BRIDGET F. BAGNOLA, *Associate Director of Student Financial Aid* (March 1979) B.A., The University of Akron; M.A., Bowling Green State University, 1974.

ROGER J. BAIN, *Associate Professor of Geology* (1970) B.S., M.S., University of Wisconsin; Ph.D., Brigham Young University, 1968.

J. WAYNE BAKER, *Professor of History* (1968) B.A., Western Baptist College; B.D., Talbot Theological Seminary; B.A., Pepperdine University; M.A., Ph.D., University of Iowa, 1970.

HOWARD R. BALDWIN, *Associate Vice President for Administrative Services; Director of Human Resources; Appointing Authority; Adjunct Assistant Professor of Criminal Justice Technology* (July 1967) B.P.S.M., Mount Union College; M.Ed., Kent State University, 1960.

GEORGE W. BALL, *Assistant to the President; Secretary to the Board of Trustees* (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, *Director of Capital and Special Support Programs* (May 1974) B.S., Ohio University, 1950.

H. KENNETH BARKER, *Special Assistant to the President; Professor of Education* (1966) A.B., M.A., University of Louisville; Ph.D., University of Michigan, 1959.

NANCY L. BARKLEY, *Instructor in Nursing* (1984) B.S.N., East Stroudsburg State College; M.S.N., Northern Illinois University, 1982.

SARA C. BARNES, *Instructor in Nursing* (1984) B.S.N., University of Michigan at Ann Arbor; M.S.N., University of Illinois, 1983.

ANNA MARIA BARNUM, *Associate 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; J.D., The University of Akron, 1985.

PHILLIP E. BARTLETT, *Director of Space Utilization-Physical Facilities* (December 1966) B.A., Kent State University, 1963.

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.

JOAN E. BAUMGARDNER, *Assistant Professor of Nursing* (1979) B.S.N., M.S.N., The Ohio State University, 1974.

LORETTA F. BEAL, *Instructional Programmer/Liaison* (December 1976) B.S. Ed., Ohio Northern University; M.S.Ed., The University of Akron, 1984.

LU ANN BEAVERS, *Instructor in Nursing* (1985) B.S.N., The Ohio State University; M.S.N., University of Kentucky, 1983.

THOMAS G. BECK, *General Manager - WAUP FM* (1978) B.S., Slippery Rock State College; M.A., Ohio University, 1975.

DONALD E. BECKER, *Associate Professor of Management* (1959) B.A., M.A., Oberlin College, 1948.

WILLIAM C. BECKER, *Associate Professor of Law* (1985) A.B., Harvard University; J.D., University of Michigan, 1956.

JOHN D. BEE, *Acting Assistant Dean of the College of Fine and Applied Arts, Professor of Communication; General Studies Course Director: Speech* (1969) B.A., Ohio University; M.A., Ph.D., University of Wisconsin at Madison, 1972.

ELIZABETH L. BELDON, *Instructor in Handicapped Services Technology* (1984) B.A., The University of Akron, 1984.

DAVID H. BELL, *Assistant Professor of Music* (1981) B.M., Oberlin College; M.M., Northwestern University, 1979.

JUTTA T. BENDREMER, *Assistant Professor of English* (1967) B.A., Hunter College; M.A., Brooklyn College, 1951.

MICHAEL S. BENNETT, *Associate Professor in the Community and Technical College* (1976) B.S., M.S., Ph.D., The Ohio State University, 1976.

THOMAS B. BENNETT, *Head, Instructional Support Services* (June 1976) B.A., The University of Akron, 1979.

CAROLYN R. BENZ, *Coordinator of the Educational Evaluation Program, College of Education* (August 1981) A.B., M.A., Indiana University; Ed.D., The University of Akron, 1980.

DEBORAH K. BERKEY, *Instructor in Nursing* (1984) B.Ed., University of Toledo; M.S.N., Rush University, 1982; RN.

DAVID S. BERNSTEIN, *Professor of Music* (1972) B.M., M.M., Florida State University; D.M., Indiana University at Bloomington, 1974.

DONALD K. BERQUIST, *Associate Professor of Accounting* (1968) B.S.B.A., Youngstown State University; M.Acct., The Ohio State University, 1964; C.P.A., Ohio.

VIRGINIA M. BERRINGER, *Automated Cataloging Specialist* (1973) B.A., The University of Akron; M.L.S., Connors State College, 1982.

*The dates in parentheses indicate the beginning of service at The University of Akron; unless otherwise stated, service began in the month of September.

CARL A. BERSANI, *Professor of Sociology* (1965) B.A., Eastern Michigan University; M.A., University of Michigan at Ann Arbor; Ph.D., Iowa State University, 1965.

JOZSEF M. BERTY, *Professor of Chemical Engineering* (1982) B.S., D.Sc., Technical University of Budapest, 1950.

LANCE J. BESSER, *Assistant Professor of Accounting* (1985) B.A., Reed College; M.S., Ph.D., University of Arkansas, 1983.

WILLIAM H. BEYER, *Professor of Mathematical Sciences* (1961) B.S., The University of Akron; M.S., Ph.D., Virginia Polytechnic Institute, 1961.

CLIFFORD G. BILLIONS, *Associate Professor of Music* (1978) B.M., Oklahoma Baptist University; M.M., Converse College, 1971.

PATRICIA M. BILLOW, *Instructor in Business Law* (1984) B.S., J.D., The University of Akron, 1981.

DONALD F. BIRDSELL, *Associate Dean of the College of Education; Professor of Education; Acting Director of the Center for the Study of Higher Education* (1977) B.A., Luther College; M.A., University of Minnesota; Ph.D., University of Iowa, 1965.

RALPH O. BLACKWOOD, *Professor of Education* (1967) B.A., Muskingum College; M.A., Ph.D., The Ohio State University, 1962.

BORIS BLICK, *Associate Professor of History* (1964) B.A., Brooklyn College; M.A., Ph.D., University of Wisconsin at Madison, 1958.

JEAN L. BLOSSER, *Associate Professor of Communicative Disorders; Director of the Speech and Hearing Center* (January 1977) B.A., Ohio University; M.A., Kent State University, Ed.D., The University of Akron, 1986.

GERALD J. BLUMENFELD, *Professor of Education* (1970) A.B., Harris Teachers College; M.A., Ed.D., Washington University (St. Louis), 1966.

KARYN BOBKOFF, *Assistant Professor of Communicative Disorders* (1979) B.S., University of Texas at Austin; M.A., Case Western Reserve University; Ph.D., Kent State University, 1982.

ALAN BODMAN, *Associate Professor of Music* (1986) B.M., Michigan State University; M.M., University of Michigan, 1973.

ANN D. BOLEK, *Physical Sciences Bibliographer; Instructor in Bibliography* (1984) B.S.Ch.E., Purdue University; M.B.A., M.L.S., Kent State University, 1984.

LORALEE BOLINGER, *Assistant Women's Basketball Coach* (July 1986) B.S., M.S., The University of Akron, 1986.

KAREN A. BOLYARD, *Instructor in Nursing* (1983) B.S.N., Kent State University; M.S.N., University of Washington, 1983.

MARTHA A. BOOTH, *Associate Director of Admissions* (June 1971) B.S.Ed., M.S.Ed., The University of Akron, 1979.

DALE BOROWIAK, *Associate Professor of Mathematical Sciences* (1980) B.S., M.S., The University of Akron; Ph.D., Bowling Green State University, 1980.

ERNEST C. BOROWICZ, *Assistant Professor of Military Science* (July 1983) B.S., Central Michigan University, 1976; Captain, Finance.

ANDREW BOROWIEC, *Assistant Professor of Art* (1984) B.A., Haverford College; M.F.A., Yale University, 1982.

ROBERT BOSSAR, *Director of Labor and Personnel Relations, Deputy Appointing Authority* (October 1974) B.A., Kent State University, 1970.

TERRY W. BOWDEN, *Assistant Football Coach* (December 1985) B.S., West Virginia University; J.D., Florida State University, 1982.

DOLORES A. BOWER, *Associate Professor of Nursing* (1983) B.S., University of Rhode Island; M.S., Boston University; Ph.D., Kent State University, 1983.

DONALD L. BOWLES, *Vice President for Administrative Services* (February 1959) B.S.I.M., B.A.Ed., The University of Akron, 1959.

DAVID R. BOWMAN, *Assistant Professor of Physics* (1984) B.A., Bethel College; Ph.D., University of Minnesota, 1980.

LARRY G. BRADLEY, *Professor of Education* (1969) B.A., Muskingum College; M.A., West Virginia University; Ph.D., Ohio University, 1969.

FRANK BRADSHAW, *Professor of Music* (1968) B.A., M.A., Bob Jones University, 1950.

IRVIN W. BRANDEL, *Associate Director, Counseling and Testing Center, Adjunct Associate Professor of Home Economics* (July 1969) B.S., Bowling Green State University; M.A., Michigan State University; Ph.D., The University of Akron, 1975.

SALLY M. BRANDEL, *Counseling Psychologist* (1981) B.S., Indiana University; M.S., Ph.D., The University of Akron, 1979.

MINEL J. BRAUN, *Associate Professor of Mechanical Engineering* (1978) M.S., Ph.D., Carnegie-Mellon University, 1978.

MARY A. BRICKNER, *Assistant Professor of Psychology* (1985), B.A., University of Wisconsin; M.A., Ph.D., The Ohio State University, 1985.

MERLIN G. BRINER, *Professor of Law* (1970) B.S.B.A., University of Wichita; J.D., The University of Akron, 1966.

DAVID R. BRINK, *Assistant Professor of Bibliography, Business Bibliographer* (December 1976) B.A., Wabash College; B.D., University of Chicago; M.A., University of Minnesota; M.B.A., The University of Akron, 1983.

THOMAS M. BRITTAIN, *Professor of Mechanical Engineering; Professor of Mechanical Technology* (February 1965) B.M.E., The University of Akron; M.S., Ph.D., University of Illinois at Urbana, 1966.

STEPHEN C. BROOKS, *Assistant Professor of Political Science* (1982) B.A., Colorado College; M.A., Ph.D., Northwestern University, 1982.

BARBARA E. BROWN, *Assistant Dean of Nursing for Continuing Education; Associate Professor of Nursing* (August 1986) B.S.N., D'Youville College; M.S.N., Wayne State University; Ed.D., Temple University, 1982.

THOMAS O. BROWN, *Director of Counseling and Testing Center; Adjunct Professor of Education* (July 1964) B.S., M.Ed., Mississippi State University; Ph.D., Kent State University, 1968.

STANLEY R. BRUNS, *Associate Professor in the Community and Technical College* (1970) B.S., Fort Hays Kansas State College; M.A., Central Michigan University, 1970.

CHERYL L. BUCHANAN, *Assistant Professor of Nursing* (1977) B.S.N., M.S.N., University of Cincinnati, 1977; RN.

JAMES BUCHANAN, *Associate Professor of Philosophy* (1971) B.A., M.A., Ohio University; Ph.D., Pennsylvania State University, 1970.

DAVID C. BUCHTHAL, *Professor of Mathematical Sciences* (1971) B.S., Loyola University; M.S., Ph.D., Purdue University, 1971.

MICHAEL BUCKLAND, *Administrative Project Analyst* (January 1985) B.S.B.A., Kent State University; M.S.Tech.Ed., The University of Akron, 1975.

FRED W. BUDDY, *Assistant Director of Student Financial Aid* (August 1981) B.A., Oakwood College; M.Ed., Kent State University, 1975.

DAN LEE BUIE, *Liaison Coordinator* (July 1968) B.S., M.S., The University of Akron, 1968.

ARTHUR E. BURFORD, *Professor of Geology* (1968) B.A., Cornell University; M.S., University of Tulsa; Ph.D., University of Michigan, 1960.

JERRY J. BURR, *Assistant Professor of Dance* (1975) Cleveland College; studied with Robert Joffrey of New York, Dudley De Vos of London, Michele de Lutky and William Mike of Munich.

JUNE K. BURTON, *Associate Professor of History* (1971) A.B., M.A., Stetson University; Ph.D., University of Georgia, 1971.

DENNIS M. BYRNE, *Associate Professor of Economics* (1975) B.S., Villanova University; M.A., Ph.D., University of Notre Dame, 1975.

ALLEN MANUEL CABRAL, *Associate Professor of Accounting* (1972) B.S.B.A., American International College; M.S., Kent State University; J.D., The University of Akron, 1975; C.P.A., Ohio.

MUKERREM CAKMAK, *Assistant Professor of Polymer Engineering* (August 1983) B.S., Technical University of Istanbul; M.S., Ph.D., University of Tennessee, 1984.

LEONARD M. CALABRESE, *Assistant Professor in the Community and Technical College* (1977) B.A., John Carroll University; M.A., Northwestern University, 1974.

FELICITAS CALDERON, *Assistant Director of the Adult Resource Center* (July 1980) B.A., The University of Akron, 1979.

RICHARD A. CALKINS, *Academic Adviser, Instructor in the Community and Technical College* (1961) A.B., Westminster College (Pa.), 1961.

JON A. CALVERT, *Assistant Professor of Military Science* (July 1985) B.A., University of Toledo, 1982; Captain (ONG), Engineer.

KIM C. CALVO, *Assistant Professor of Chemistry* (1984) B.A., Ph.D., The Ohio State University, 1981.

SUSAN BOERGER CALVO, *Director of Public Relations* (December 1984) B.S., M.A., The Ohio State University, 1979.

DOUGLAS E. CAMERON, *Professor of Mathematical Sciences* (1969) B.A., Miami University; M.S., The University of Akron; Ph.D., Virginia Polytechnic Institute, 1970.

GERALD R. CAMP, *Associate Professor of Data Processing* (March 1969) B.A., Case Western Reserve University; M.S., J.D., The University of Akron, 1980.

THOMAS A. CAMPBELL, *Assistant Professor of Physical Education* (August 1968) B.S.Ed., M.S.Ed., The University of Akron, 1970.

RICHARD E. CAPLAN, *Assistant Professor of Communication* (1980) B.A., Michigan State University; M.A., Ph.D., Wayne State University, 1975.

NATHAN F. CARDARELLI, *Professor of General Technology* (1968) B.S., B.A., M.S., M.A., The University of Akron, 1961.

MARGARET A. CARLSON-BRAHAM, *Assistant Professor of Dance; Coordinator of Dance* (January, 1986) B.A., M.Ed., Cleveland State University, 1985.

FRED M. CARR, *Assistant Professor of Education; Director, Center for Economic Education; Holder, Firestone Tire and Rubber Company Chair in Economic Education* (January 1980) B.A., Westminster College; M.Ed., Ed.S., Ph.D., University of Florida, 1977.

GERALD CARR, *Assistant Football Coach* (January 1986) B.S., Southern Illinois University at Carbondale, 1981.

MARILYN JEAN CARRELL, *Director of Career Planning and Placement* (October 1972) B.S., M.S.Ed., The University of Akron, 1972.

CAESAR A. CARRINO, *Dean of the Evening College and Summer Sessions; Professor of Education* (1967) B.S.Ed., Baldwin-Wallace College; M.S.Ed., The University of Akron; Ph.D., Case Western Reserve University, 1965.

J. DEAN CARRO, *Coordinator of the Legal Clinic Offices; Staff Attorney; Assistant Professor of Clinical Law* (November 1978) B.A., State University of New York at New Paltz; J.D., The University of Akron, 1978.

EUGENIA CARROLL, *Assistant Professor of Dance; Director of Dance Institute* (1977) Odontological Institute of Munich, 1949.

ROBERT C. CARSON, *Associate Professor of Mathematical Sciences; Deputy Industrial Security Supervisor* (July 1963) B.S., M.S., Purdue University; Ph.D., University of Wisconsin at Madison, 1953.

CHARLES H. CARTER, *Associate Professor of Geology* (1982) B.S., Portland State University; M.S., San Jose State University; Ph.D., Johns Hopkins University, 1972.

VINCENT H. CASSIDY, *Professor of History* (1969) B.A., M.A., Ph.D., University of North Carolina at Chapel Hill, 1957.

DANA F. CASTLE, *Associate Professor of Law* (March 1974) B.S., Cornell University; J.D., The University of Akron, 1973.

JEANNE CEBULLA, *Adviser of Undergraduate International Students* (October 1983) B.A., Hiram College; M.A., Middlebury College; M.Ed., Kent State University, 1981.

JOSEPH F. CECCIO, *Associate Professor of English* (1978) B.A., Loyola College; M.S., Ph.D., University of Illinois at Urbana, 1975.

JANET L. CHAMBERLAIN, *Assistant Professor of Nursing* (1979) B.S.N., University of Michigan; M.S.N., The University of Akron, 1979.

TOMASITA M. CHANDLER, *Professor of Home Economics* (1971) B.A., New Mexico Highlands University; M.S., Ph.D., Texas Women's University, 1970.

TSE-YUNG P. CHANG, *Professor of Civil Engineering* (1970) B.S.C.E., National Taiwan University; M.S., Ph.D., University of California at Berkeley, 1966.

WEI JEN CHANG, *Instructor in Biology* (1970) B.S., National Taiwan University; M.S., University of Toronto, 1961.

DANA L. CHAPMAN, *Assistant Professor of Home Economics* (1980) B.A., Miami University; M.S., Ph.D., The Ohio State University, 1986.

CHIH-HUNG CHEN, *Chief Engineer, Polymer Engineering Center* (1985) B.S., Tatung Institute of Technology; M.S., University of Tennessee, 1981.

CHIOU S. CHEN, *Professor of Electrical Engineering* (1968) B.S.E.E., National Taiwan University; M.S.E.E., Ph.D., University of Rochester, 1967; P.E., Ohio.

CHUN-FU CHEN, *Professor of Electrical Engineering* (February 1968) B.S., National Taiwan University; M.S., University of Tennessee at Knoxville; Ph.D., Vanderbilt University, 1968; P.E., Ohio.

HUEY-TSYH CHEN, *Assistant Professor of Sociology* (1984) B.A., Chung-Hsing University; M.A., National Taiwan University; Ph.D., University of Massachusetts, 1981.

HARRY M. CHEUNG, *Assistant Professor of Chemical Engineering* (1984) B.S., Case Institute of Technology; M.S., Case Western Reserve University, 1982.

JAMES W. CHILDS, *Professor of Law* (1983) A.B., J.D., University of Michigan, 1960.

MARIAN J. CHILDS, *Administrative Project Leader* (January 1978) B.S., The University of Akron, 1964.

GERALDINE F. CHITTY, *University Registrar* (October 1967) B.A.Ed., M.S.Tech.Ed., The University of Akron, 1982.

FRANK L. CHLAD, *Administrative Officer, Department of Chemistry; Director of Chemical Disposal* (January 1967) B.B.A., Michigan State University, 1956.

YONG H. CHO, *Professor of Urban Studies; Professor of Political Science* (1967) B.A., Seoul National University (Korea); M.P.A., Ph.D., Syracuse University, 1965.

KAT-CHUNG CHOY, *Associate Professor of Mechanical Engineering* (1983) B.S.C.E., National Taiwan University; M.S.C.E., Ph.D., University of Virginia, 1977; P.E.

ALICE CHRISTIE, *Assistant Professor of Education* (1980) B.A., Ursuline College; M.A., The University of Akron; Ph.D., Kent State University, 1982.

HUGH G. CHRISTMAN, *Professor of Education* (1970) B.S., Miami University; M.Ed., Ed.D., Pennsylvania State University, 1970.

HARRY CHU, *Professor of Physics* (1969) B.S., Chikung University; M.A., Ph.D., State University of New York at Stony Brook, 1969.

MAMERTO L. CHU, JR., *Professor of Mechanical Engineering; Professor of Biomedical Engineering* (1968) B.S.M.E., Iloilo City University (Philippines); M.S.M.E., Ph.D., University of Houston, 1967; P.E., Ohio.

STEVEN S. CHUANG, *Assistant Professor of Chemical Engineering* (1986) M.S., New Jersey Institute of Technology; Ph.D., University of Pittsburgh, 1985.

BENJAMIN T. F. CHUNG, *Professor of Mechanical Engineering* (December 1969) B.S.M.E., Taiwan Provincial Cheng-Kung University; M.S.M.E., Kansas State University; M.S., University of Wisconsin; Ph.D., Kansas State University, 1968.

LINDGREN L. CHYI, *Associate Professor of Geology* (1978) B.Sc., National Taiwan University; M.Sc., Ph.D., McMaster University, 1972.

PAT R. CICCANTELLI, JR., *Strength and Conditioning Coach* (1984) B.S., Slippery Rock State College, 1982.

BARBARA L. CLARK, *Assistant Professor of Bibliography; Senior Cataloger* (October 1957) B.A., The University of Akron; M.L.S., Kent State University, 1982.

EDWARD N. CLARKE, *Assistant to the Director, College of Business Administration Undergraduate Studies* (July 1979) B.S.Ed., Kent State University; M.S.Ed., The University of Akron, 1966.

BLANCHE E. CLEGG, *Associate Professor of Education* (1975) B.S.Ed., Wayne State University; M.Ed., University of Massachusetts at Amherst; Ph.D., University of Washington, 1971.

BARBARA E. CLEMENTS, *Professor of History* (1971) B.A., University of Richmond; M.A. Ph.D., Duke University, 1971.

HELEN K. CLEMINSHAW, *Associate Professor of Home Economics; Director of Center for Family Studies* (1977) B.S., Rutgers; M.A., Ph.D., Kent State University, 1977.

DENISE J. CLICK, *Instructor in Nursing* (January 1984) B.S.N., M.S.N., University of Pittsburgh, 1976; R.N.

RUTH E. CLINEFELTER, *Professor of Bibliography; Social Sciences/Humanities Bibliographer* (June 1952) B.A., M.A., The University of Akron, M.A.L.S., Kent State University, 1956.

LLOYD CLOSE, *Assistant Professor of Transportation* (1979) B.S., Kent State University; M.S. Tech.Ed., The University of Akron, 1983.

JOHN R. COCHRAN, *Professor of Education* (1969) B.S., M.A., Ph.D., The Ohio State University, 1968.

RICHARD C. COHEN, *Assistant Professor of Law; Director of the Legal Writing Program* (July 1983) B.A., Emory University; J.D. University of Connecticut, 1975.

JOHN R. COLE, *Associate Professor of Office Administration* (1976) B.S., M.A., University of Pittsburgh; Ph.D., Kent State University, 1976.

JOANN COLLIER, *Assistant Professor of Nursing* (1974) B.S., Loretto Heights College; M.S., University of Colorado, 1974; R.N.

CHRISTOPHER COLLINS, *Head, Instructional Production Services* (August 1975) B.S., Miami University; M.A., University of Kentucky, 1974.

ROBERT E. COLLINS, *Associate Professor of Office Administration* (1964) B.A., Glenville State Teachers College (W.Va.); M.A., West Virginia University, 1952.

PAUL B. COLOMY, *Assistant Professor of Sociology* (1983) B.A., University of California-Santa Barbara; M.A., Ph.D., University of California-Los Angeles, 1982.

KELVIE C. COMER, *Acting Dean of the College of Fine and Applied Arts; Assistant Professor of Arts Management* (1978) B.S., Pennsylvania State University; Ed.M., Ed.D., Temple University, 1978.

W. HENRY CONE, *Associate Professor of Education* (1971) B.A.E., B.S.A., M.Ed., University of Florida; D.Ed., Harvard Graduate School of Education, 1962.

PAULA A. CONN, *Assistant Director of Admissions* (June 1983) B.S., The University of Akron, 1983.

THOMAS R. CONNELL, *Associate Professor of Electronic Technology* (January 1980) B.S., Purdue University; M.S., The University of Akron, 1965.

MARTHA R. CONRAD, *Family Health Nurse Specialist* (1984) B.S.N., The Ohio State University; M.S.N., The University of Akron, 1982.

CLARE F. COOK, *Assistant Professor of Electronic Technology* (1980) A.A.S., B.S., Lake Superior State College; B.S.E.E., University of Michigan, 1979.

VERNON F. COOK, *Associate Professor of Political Science; Director of the Ray C. Bliss Institute of Applied Politics* (1965) B.A., The Ohio State University, 1951.

DALE E. COONS, *Professor of Education* (1973) B.S.Ed., Butler University; M.S.Ed., Ph.D., Indiana University at Bloomington, 1970.

CONSTANCE CARTER COOPER, *Dean of the College of Education; Professor of Education* (July 1986) B.A., University of Michigan; M.A., Ed.D., Wayne State University, 1971.

ROBERT G. CORBETT, *Professor of Geology; Deputy Industrial Security Supervisor* (1969) B.S., M.S., Ph.D., University of Michigan at Ann Arbor, 1964.

JAMES P. CORRIGALL, *Assistant Football Coach* (December 1985) B.S., Kent State University, 1970.

FRANK J. COSTA, *Professor of Urban Studies, Professor of Geography; Center Associate, Center for Urban Studies* (1972) B.A., Kent State University; M.S., Case Western Reserve University; Ph.D., University of Wisconsin at Madison, 1974.

DAVID F. COX, *Associate Professor of Urban Studies; Associate Professor of Philosophy* (1970) A.B., Morningside College; S.T.B., Ph.D., Boston University, 1953.

KAREN M. COZAD, *Assistant Professor of Biology* (1986) B.S., Kent State University; Ph.D., Iowa State University, 1981.

WALDEN B. CRABTREE, SR., *Professor of Education* (1968) B.A., St. Meinrad College (Indiana); M.S.Ed., Ph.D., Indiana University at Bloomington, 1968.

ROGER B. CREEL, *Professor of Physics* (1970) B.A., Kalamazoo College; Ph.D., Iowa State University, 1969.

JAMES L. CRESS, *Associate Professor of Accounting* (1973) B.S.B.A., M.B.A., Bowling Green State University; D.B.A., Kent State University, 1979; CPA, Ohio.

MARCIA J. CRIDER, *Assistant Professor of Nursing* (1983) B.S.N., Duke University; M.S.N., Case Western Reserve University, 1963; R.N.

CLARE A. CRITZER, *Assistant Professor of Nursing; Coordinator of the Lorain Project* (1983) B.S.N., M.S.N., Catholic University of America, 1960.

ZENA CROYDON, *Associate Professor of Art* (1986) B.F.A., Art Institute of Chicago.

JOHN CRUM, *Assistant Professor of Marketing and Sales Technology (Wayne General and Technical College)* (January 1980) B.A., M.A., California State University at Long Beach, 1972.

FAYE H. DAMBROT, *Associate Professor of Psychology* (1967) B.S., Carnegie Institute of Technology; M.A., The University of Akron, 1966.

MICHAEL F. d'AMICO, *Professor of Marketing* (1972) B.S., Georgetown University; M.B.A., Rutgers University; D.B.A., Texas Technical University, 1975.

ROBERT B. D'ANGELO, *Managing Director of Edwin J. Thomas Performing Arts Hall; Adjunct Assistant Professor of Theatre Arts* (November 1979) B.S., Syracuse University, 1966.

GEORGE DANHIRES, *Associate Professor of Art* (January 1983) B.F.A., M.F.A., Ohio University, 1974.

ISIAH DANIELS, III, *Assistant Director of Office of Legal Affairs* (December 1982) B.A., J.D., The University of Akron, 1976.

SUSAN J. DANIELS, *Associate Professor of Education* (1977) B.A., Marian College; M.A., Ph.D., Ball State University, 1977.

STEPHEN DARLING, *Professor of Chemistry* (1970) B.S., University of Wisconsin at Madison; M.A., Ph.D., Columbia University, 1959.

RALPH FRANK DARR, JR., *Professor of Education* (1968) B.S.Ed., Southeast Missouri College; M.A.Ed., Washington University; Ph.D., Southern Illinois University at Carbondale, 1967.

PATRICK A. DARRAH, *Associate Director of Career Planning and Placement* (August 1976) A.A.S., B.S., M.S., The University of Akron, 1976.

PAUL A. DAUM, *Associate Professor of Theatre Arts* (1965) B.F.A., Wesleyan College; M.A., The University of Akron; Ph.D., The Ohio State University, 1973.

BRIAN E. DAVIS, *Staff Auditor* (January 1985) B.S., The University of Akron, 1983.

GEORGE D. DAVIS, *Professor of Communicative Disorders* (1974) B.S.Ed., Kent State University; M.A., Ph.D., The Ohio State University, 1968.

KATHLEEN M. DAVIS, *Instructor in Dance* (1977) B.A., The University of Akron, 1975.

N. F. DAVIS, *Professor of Management* (1970) B.S., Lincoln University; M.B.A., Washington University; Ph.D., Indiana University at Bloomington, 1960.

RUSSELL K. DAVIS, III, *Associate Professor of Business Management Technology* (1971) B.S.B.A., M.A., Wayne State University; Ed.D., The University of Akron, 1978.

DEBRA L. DEANE, *Instructor in the English Language Institute* (1981) A.B., Albion College; M.A., University of Michigan, 1977.

DAVID G. DECKER, *Designer/Programmer* (February 1984) B.A., Kent State University, 1981.

MARY H. K. DEE, *Associate Professor of Office Administration* (1970) B.S.S.A., University of the East (Manila); M.A., Central Missouri State University, 1969.

ROBERT DEITCHMAN, *Associate Professor of Social Work; Outreach Coordinator/Human Services;* (1970) B.B.A., City College of New York; M.A., Ph.D., University of Tennessee, 1968.

BERNARD A. DEITZER, *Professor of Management; Director of Seminars* (January 1967) A.B., Allegheny College; M.L.L., University of Pittsburgh; Ph.D., The Ohio State University, 1967.

JOSEFINA P. de los REYES, *Assistant Professor of Mathematical Sciences* (1985) B.S., M.S., University of the Philippines; M.S., Cleveland State University; Ph.D., Case Western Reserve University, 1985.

JAMES L. DENNISON, *Associate Director of Athletics; Assistant Professor of Physical Education* (July 1965) B.A., College of Wooster; M.A.Ed. The University of Akron, 1968.

CHRISTINA DePAUL, *Assistant Professor of Art* (1986) B.F.A., Carnegie-Mellon University; M.F.A., Tyler School of Art, 1984.

ROBERTA A. DePOMPEI, *Associate Professor of Communicative Disorders; Clinical Supervisor in Communicative Disorders* (January 1983) B.S.Ed., M.A., Kent State University, 1969.

HAMILTON DESAUSSURE, *Professor of Law* (1970) B.A., Yale University; LL.B., Harvard University; LL.M., McGill Institute of International Air Law, 1953.

LAURA DeYOUNG, *Assistant Head, Instructional Support Services* (1984) B.A., Denison University, 1983.

LILLIAN J. DeYOUNG, *Dean of the College of Nursing; Professor of Nursing* (July 1975) B.S., M.S., Ph.D., University of Utah, 1975.

ROBERT L. DIAL, *Associate Professor of English* (1965) B.S., Central Missouri State College; M.A., Ph.D., University of Missouri, 1963.

JEFFREY C. DILTS, *Assistant Professor of Marketing* (1983) B.A., University of Missouri at Columbia; M.A., Northwest Missouri State University; Ph.D., Oklahoma State University, 1983.

LINDA DiPASQUALE, *Instructor in Nursing* (1985) B.S.N., Medical College of Georgia; M.S.N., Case Western Reserve University, 1985.

RICHARD J. DiRIENZO, *Assistant Professor of Surveying and Construction Technology* (1981) B.S.C.E., Youngstown State University; M.S., University of Missouri, 1968.

GEORGE L. DiSABATO, *Assistant Professor of Commercial Art* (1980) B.F.A., The Ohio State University; M.A., University of Louisville, 1964.

THOMAS M. DITZEL, *Assistant Professor of Communication; Head, Center for Community and Public TV* (December 1977) B.S., Marquette University; M.A., Miami University; Ph.D., The Ohio State University, 1971.

JAMES J. DIVOKY, *Assistant Professor of Management* (1983) B.B.A., M.B.A., D.B.A., Kent State University, 1984.

DOROTHY M. DOBRINDT, *Associate Professor of Nursing* (1969) B.S., St. Louis University; M.Ed., Columbia University; 1965; R.N.

HELMAR H. A. DOLLWET, *Associate Professor of Biology; Radiation Safety Officer* (January 1970) B.S., University of Michigan at Ann Arbor; M.S., Technische Hochschule, Munich; M.S., Ph.D., University of California at Riverside, 1969.

IAN S. DONALDSON, *Associate Professor of Mechanical Engineering* (January 1986) B.Sc., St. Andrews University; Ph.D., Manchester University, 1955.

JOHN L. DONALDSON, *Associate Professor of Mathematical Sciences* (January 1983) B.S., Case Western Reserve University; M.S., Ph.D., M.S., The Ohio State University, 1977.

JOSEPH J. DONATELLI, JR., *Instructor in Modern Languages* (1967) B.A., M.A., The University of Akron, 1968.

DENNIS DOVERSPIKE, *Assistant Professor of Psychology* (1984) B.S., John Carroll University; M.S., University of Wisconsin; Ph.D., The University of Akron, 1983.

JAMES E. DOVERSPIKE, *Professor of Education* (1960) B.S., Indiana University of Pennsylvania; M.Ed., Ed.D., Pennsylvania State University, 1961.

RICHARD A. DRAPER, *Data Base Administrator* (February 1986) B.A., Otterbein College, 1977.

CLARENCE B. DRENNON, *Associate Professor of Civil Engineering* (1975) B.S., Colorado School of Mines; M.E., Texas A & M; Ph.D., Iowa State University, 1972; P.E., Ohio, Virginia.

SCOTT D. DRESSLER, *Assistant Director of Alumni Relations* (December 1985) B.S., The University of Akron, 1981.

JERRY E. DRUMMOND, *Associate Professor of Mechanical Engineering* (1981) B.S.M.E., General Motors Institute; M.S.M.E., The University of Akron; Ph.D., The Ohio State University, 1981; P.E., Ohio.

ROBERT A. DUBICK, *Associate Provost and Dean of Student Services* (1985) A.B., St. Mary's; M.A., Ph.D., University of Notre Dame, 1973.

KATHY D. DuBOSE, *Academic Programmer/Analyst* (October 1984) B.S., The University of Akron, 1984.

MILAN F. DUBRAVCIC, *Professor of Chemical Technology* (January 1968) Ingenieur of Chemistry, University of Zagreb; Ph.D., University of Massachusetts, 1968.

R. WAYNE DUFF, *Vice President for Business and Finance; Assistant Secretary to the Board of Trustees* (May 1963) B.A., Oberlin College; LL.B., Cleveland-Marshall Law School, 1951.

TIMOTHY R. DuFORE, *Director of Development* (February 1984) B.A., Westminster College; M.A., Bowling Green State University, 1977.

JOHN THOMAS DUKES, *Assistant Professor of English* (1984) B.A., M.A., University of El Paso; Ph.D., Purdue University, 1984.

JANNE R. DUNHAM, *Associate Professor of Nursing* (January 1985) B.S., Michigan State University; M.S., Ph.D., University of Michigan, 1982; R.N.

JAMES W. DUNLAP, *Dean of the College of Business Administration; Professor of Finance* (1963) B.B.A., Memphis State University; M.B.A., Ph.D., University of Arkansas, 1963.

JOSEPH J. DUNN, *Director of Special Events - Athletics* (March 1976) B.S., Kent State University, 1974.

KENNETH A. DUNNING, *Professor of Computer Information Systems* (1973) B.S.E.E., North Carolina State University; M.B.A., Ph.D., University of Pittsburgh, 1972.

CHARLES J. DURBIN, *Instructor in Physical Education* (1979) B.S., College of Wooster; M.A.Ed., The University of Akron, 1981.

ROGER W. DURBIN, *Assistant Professor of Bibliography; Library Systems/Planning Officer* (1977) B.A., M.A., Youngstown State University; M.L.S., Ph.D., Kent State University, 1985.

DAVID R. DURST, *Professor of Finance* (1968) B.S.B.A., Kent State University; M.B.A., D.B.A., Georgia State University, 1972.

ASHOK DUTT, *Professor of Geography; Professor of Urban Studies* (1968) B.A., M.A., Ph.D., Patna University (India), 1961.

KATHLEEN DWYER, *Assistant Professor of Nursing* (1983) B.S.N., The University of Akron; M.S.N., Case Western Reserve University, 1982.

CHARLES MYRON DYE, *Professor of Education; Director of Graduate Studies in Education* (1972) B.A., Harris Teachers College; M.A., Ph.D., Washington University, 1971.

LYLE DYE, JR., *Assistant Professor of Theatre Arts* (1981) B.F.A., Drake University; M.F.A., Yale University, 1958.

JOHN W. EDGERTON, *Instructor in Electronic Technology* (January 1984) B.S., Cornell University; M.S., Purdue University, 1972.

SANDRA B. EDWARDS, *Director of Noncredit Courses* (1976) B.A., M.A., The University of Akron, 1968.

JAMES B. EGAN, *Assistant Professor of Education* (1985) B.S., M.S., Ed.D., Syracuse University, 1985.

JAMES J. EGAN, *Professor of English* (1971) B.A., St. Joseph's College; M.A., Ph.D., University of Notre Dame, 1971.

JANICE L. ELEY, *Assistant Professor of Hospitality Management* (1976) B.A., Manchester College; M.A., Indiana University, 1974.

ROBERT K. ELEY, *Associate Professor of Education* (1975) B.S.Ed., M.S.Ed., Ball State University; Ed.D., Indiana University, 1975.

FAROUK W. ELKHAROUF, *Assistant Professor of Accounting* (1985) B.Sc., University of Jordan; M.B.A., The American University of Beirut; Ph.D., University of Illinois, 1982.

J. RICHARD ELLIOTT, JR., *Assistant Professor of Chemical Engineering* (January 1986) B.S., Christopher Newport College; M.S., Virginia Polytechnic Institute and State University; Ph.D., Pennsylvania State University, 1985.

J. R. ELLIS, *Research Engineer in Civil Engineering* (January 1983) B.Tech., Loughborough University of Technology; M.Phil., London University, 1968.

DANIEL L. ELY, *Professor of Biology, Professor of Biomedical Engineering* (1976) B.A., M.S., Ph.D., University of Southern California, 1971.

JAMES R. EMORE, *Assistant Professor of Accounting* (1973) B.A.Ed., M.S.Acct., The University of Akron; D.B.A., Kent State University, 1984.

ELIZABETH B. ERICKSON, *Associate Professor of Economics* (1969) B.S., M.S., University of Western Australia; Ph.D., University of Illinois, 1972.

EARL L. ERTMAN, *Professor of Art* (1967) B.S., University of Southern Mississippi; M.A., Case Western Reserve University, 1967.

BERNARD L. ESPORITE, *Professor of Education* (1970) B.S.Ed., M.Ed. Ph.D., Miami University, 1971.

MARY ETHRIDGE-WILLIAMSON, *Director of Editorial Projects* (May 1983) A.B., Princeton University, 1981.

THOMAS L. FAESSEL, *Associate Director of Residence Halls* (November 1983) B.A., Bowling Green State University; M.A., Ball State University, 1978.

FRED W. FANNING, *Associate Professor of Education* (1972) B.S., M.A., Ph.D., The Ohio State University, 1972.

J. CLAYTON FANT, *Assistant Professor of Classics; Assistant Professor of History* (1984) B.A., Williams College; Ph.D., University of Michigan, 1976.

STEPHEN A. FARIA, JR., *Instructor in Modern Languages* (1967) B.A., Harvard University; M.A., Cornell University, 1965.

BETTY B. FARMER, *Associate Director of Development—Research* (November 1984) B.A., Baldwin-Wallace College, 1983.

JEAN M. FARONA, *Assistant Professor of Surgical Assisting Technology* (1980) B.S., M.S., The University of Akron, 1984.

MICHAEL F. FARONA, *Professor of Chemistry; Faculty Research Associate, Institute of Polymer Science* (1964) B.S., Case Western University; M.S., Ph.D., The Ohio State University, 1964.

LEONA W. FARRIS, *Director of the Community Involvement Component of Home Economics* (1969) B.S., The Ohio State University; M.A., Kent State University, 1970.

ROBIN R. FAST, *Associate Professor of English* (1980) A.B., University of California, Berkeley; M.A., Hunter College; Ph.D., University of Minnesota, 1979.

LEE D. FAULHABER, *Cataloger* (November 1985) B.A., Cleveland State University; M.S.L.S., Case Western Reserve University, 1985.

GERARD A. FAUST, JR., *Head Football Coach* (December 1985) B.S.Ed., University of Dayton; M.Ed., Xavier University, 1965.

RICHARD M. FAWCETT, *Associate Professor in the Community and Technical College* (1969) B.A., M.Ed., Kent State University, 1959.

JAMES V. FEE, *Professor of Communication* (1967) B.S.Ed., M.S.Ed., Southern Illinois University at Carbondale; Ph.D. The Ohio State University, 1964.

RUDY FENWICK, *Associate Professor of Sociology* (1978) B.A., University of Oklahoma; M.A., McGill University; Ph.D., Duke University, 1978.

DEMETER G. FERTIS, *Professor of Civil Engineering* (1966) B.S., M.S., Michigan State University; Ph.D., Eng., National Technical University (Athens, Greece), 1964.

ROBERT FIELDS JEANTET, *Assistant Professor of Modern Languages* (1984) B.A., M.A., Queens College; Ph.D., City University of New York, 1976.

ROBERT A. FIGLER, *Assistant Professor of Management* (1985) B.A., Indiana University of Pennsylvania; M.A., Ph.D., West Virginia University, 1984.

JOHN P. FINAN, *Professor of Law* (1967) B.A., Fordham University; J.D., Columbia University, 1961.

EDWARD M. FIRER, *Research Associate in the Institute of Polymer Science* (June 1975) B.A., University of Bridgeport; M.S., University of Maryland; Ph.D., The University of Akron, 1973.

STEVEN A. FISHER, *Assistant Professor of Accounting* (1984) B.S.A., M.S.A., The University of Akron; D.B.A., Kent State University, 1985; C.M.A.

VIRGINIA L. FITCH, *Assistant Professor of Social Work* (1981) B.S., East Tennessee State University; M.S.W., University of Hawaii; Ph.D., Case Western Reserve University, 1982.

JUDITH L. FITZGERALD, *Instructor in Bibliography; Cataloger* (July 1969) B.A., West Virginia Wesleyan University; M.S.L.S., Case Western Reserve University, 1976.

PHYLLIS A. FITZGERALD, *Associate Professor of Nursing; Assistant Dean of the Undergraduate Program* (November 1982) B.S.N., Saint Louis University; M.A.N., New York University; Ph.D., University of Arizona, 1982.

PATRICK J. FITZSIMMONS, *Assistant Professor of Mathematical Sciences* (1983) B.S., Pennsylvania State University; M.S., Ph.D., Case Western Reserve University, 1981.

EUGENE FLAUMENHAFT, *Associate Professor of Biology* (1963) B.A., Adelphi University; M.S., Ph.D., University of Chicago, 1958.

VIRGINIA J. FLEMING, *Professor of Home Economics* (1969) B.S., Indiana University of Pennsylvania, M.Ed., Pennsylvania State University; Ph.D., Kent State University, 1983.

WILLIAM S. FLEMING, *Professor in the Community and Technical College* (1966) B.Sc.Ed., Rutgers University; M.A., University of Pennsylvania; Ph.D., Kent State University, 1970.

CAROL A. FLEXER, *Assistant Professor of Communicative Disorders* (1982) B.A., Metropolitan State College; M.A., University of Denver; Ph.D., Kent State University, 1982.

LAWRENCE G. FOCHT, *Associate Professor of Chemical Engineering* (1968) B.S.Ch.E., University of Iowa; M.S.Ch.E., Ph.D., Louisiana State University, 1969; P.E., Ohio.

ANNABELLE FOOS, *Assistant Professor of Geology* (1984) B.A., State University of New York at Potsdam; Ph.D., University of Texas, 1984.

ANTONIA FORSTER, *Assistant Professor of English* (1986) B.A., M.A., Flinders University, 1980.

HAROLD M. FOSTER, *Associate Professor of Education* (1976) B.A., Indiana University of Pennsylvania; M.A., University of Pittsburgh; Ph.D., University of Michigan, 1976.

ROBERT J. FOURNIER, *Assistant Athletic Director for Academic Affairs* (1979) B.S., Defiance College; M.A., J.D. The University of Akron, 1986.

WILLIAM A. FRANCIS, *Assistant Dean of Buchtel College of Arts and Sciences; Associate Professor of English* (1966) B.A., M.A., Duquesne University; Ph.D., Case Western Reserve University, 1975.

DOROTHY A. FRANCY, *Certification Coordinator, College of Education* (1979) B.S., M.S., The University of Akron, 1973.

GARY B. FRANK, *Assistant Professor of Accounting* (January 1985) B.A., University of Minnesota; M.A., Ph.D., M.A.S., University of Illinois, 1984.

RICHARD FRANKLIN, *Assistant Professor of Political Science* (1970) B.A., Bryan College; M.A., Michigan State University; Ph.D., University of Kentucky, 1976.

JOHN E. FREDERICK, *Associate Professor of Chemistry; Associate Professor of Polymer Science* (October 1966) B.S.Ch., Glenville State College; Ph.D., University of Wisconsin, 1964.

ROGER FREEMAN, *College Centered Account Executive* (December 1985) B.A., M.A., Kent State University, 1985.

LAVERNE M. FRIBERG, *Associate Professor of Geology* (March 1976) B.S., University of Wisconsin; M.A., Ph.D., Indiana University at Bloomington, 1976.

ROBERT L. FRITZ, JR., *Assistant Director of Gardner Student Center* (June 1976) B.S., The University of Akron, 1976.

JOHN L. FROLA, *Associate Professor of Biology* (1971) B.S., Waynesburg College; M.S., Ph.D., West Virginia University, 1970.

BILL J. FRYE, *Associate Professor of Education;* (1971) B.S., M.S., Indiana State University; Ph.D., The Ohio State University, 1971.

STEPHEN S. FUGITA, *Associate Professor of Psychology* (1971) B.S., The Ohio State University; M.A., Ph.D., University of California at Riverside, 1969.

DONNA GABOURY, *Associate Professor of Home Economics* (1977) B.A., College of Saint Catherine; M.A, Smith College; Ph.D., University of Massachusetts, 1973.

ROBERT E. GAEBEL, *Associate Professor of Classics* (1970) B.A., M.A., State University of New York at Buffalo; Ph.D., University of Cincinnati, 1968.

THOMAS J. GALLAGHER, *Director of Building Services and Grounds, Physical Facilities* (July 1977) B.A., Saint John's University, 1962.

JULIA A. GAMMON, *Assistant Professor of Bibliography; Head, Acquisitions Department* (August 1973) B.A., University of Florida; M.S.L.S., University of Pittsburgh, 1967.

ROBERT N. GANDEE, *Professor of Physical Education; Professor of Biomedical Engineering; General Studies Course Director: Physical Education* (1973) B.S., M.S., The University of Akron; Ph.D., The Ohio State University, 1972.

GARY M. GAPPERT, *Director of Institute for Futures Studies and Research; Professor of Urban Studies* (December 1979) B.A., Colorado College; Ph.D., Syracuse University, 1972.

T. NEAL GARLAND, *Professor of Sociology* (1969) B.A., M.A., University of North Dakota; Ph.D., Case Western Reserve University, 1971.

PAUL D. GARN, *Professor of Chemistry; Director, Center for Fire and Hazardous Materials Research* (1963) B.S., M.S.,Ph.D., The Ohio State University, 1952.

GASPER A. GAROFALO, *Associate Professor of Economics* (1979) B.A., St. Vincent College; M.A., Ph.D., University of Pittsburgh, 1974.

GARY R. GARRETT, *Assistant Professor of Military Science* (August 1986) B.A., Saint Martin's College, 1986; Captain, Signal Corps.

CAROLE G. GARRISON, *Associate Professor of Criminal Justice* (1981) B.A., University of Miami; M.P.A., Georgia State University; Ph.D., The Ohio State University, 1979.

KENNETH D. GARTRELL, *Assistant Professor of Management* (January 1982) B.S., M.S., Kent State University, 1975.

JO ANN GARVER, *Assistant Professor of Data Processing* (1982) A.A.S., B.S.T.E., M.S.T.E., The University of Akron, 1984.

ALAN N. GENT, *Professor of Polymer Physics* (April 1961) B.S.C. (General), B.S.C. (Special Physics), Ph.D., University of London, 1955.

ARTHUR V. GEORGE, *Associate Professor of Transportation* (1979) B.B.A., City College of New York; M.B.A., Iona College, 1972.

CHRISTINE R. GERBIG, *Assistant Professor of Office Administration* (1979) A.A.S., B.A., The University of Akron; M.Ed., Kent State University, 1982.

DON R. GERLACH, *Professor of History* (1962) B.S.Ed., M.A., Ph.D., University of Nebraska at Lincoln, 1961.

THOMAS E. GETZINGER, *University Auditor; Assistant to the Vice President for Business and Finance* (1969) B.S.B.A., The University of Akron; M.B.A., Kent State University, 1966; C.P.A.

CYNTHIA L. GIBBONS, *Assistant Professor of Nursing* (1983) B.S.N., University of Cincinnati; M.S.N., University of Kentucky, 1983; R.N.

LORELEI O. GIBBS, *Instructor in Nursing* (1984) B.S.N., University of Cincinnati; Ed.M., Boston University, 1968; R.N.

RUSSEL N. GIERSCH, *Assistant to the Associate Vice President of Administrative Services for Physical Facilities - Special Projects* (1966) B.M.E., Cleveland State University, 1954.

CAROL C. GIGLIOTTI, *Assistant Professor of Office Administration* (1981) A.A.S., Becker Junior College; B.A.Ed., M.A.Ed., The University of Akron, 1977.

RICHARD J. GIGLIOTTI, *Associate Professor of Sociology* (1972) B.A., St. John Fisher College; M.A., Ph.D., Michigan State University, 1972.

KRISTINE GILL, *Assistant Professor of Nursing* (1976) B.S.N., St. John College, Cleveland; M.Ed., Cleveland State University; M.S.N., Ph.D., The University of Akron, 1985; R.N.

PETER J. GINGO, *Associate Professor of Mathematical Sciences; Associate Professor of Biomedical Engineering* (1969) B.S., The University of Akron; M.A., Ph.D., University of California at Los Angeles, 1966.

LOIS IRENE GLANVILLE, *Instructor in Nursing* (January 1985) B.S.N., The Ohio State University; M.S.N., The University of Akron, 1983.

ELTON A. GLASER, II, *Professor of English* (1972) B.A., M.A. Louisiana State University; M.F.A., University of California at Irvine, 1972.

WILLIAM M. GLAZIER, *Professor of Surveying and Construction Technology in the Community and Technical College, Professor of Construction Technology in the College of Engineering* (1958) (1967) B.S.C.E., Michigan Technical University; M.S.C.E. University of Michigan; Ph.D., West Virginia University, 1978; P.E., Ohio, Michigan and District of Columbia.

THEODORE L. B. GLOECKLER, *Professor of Education* (1972) B.A., Lycoming College; M.A., University of Northern Colorado, Ph.D., University of Michigan at Ann Arbor, 1973.

CAROLYN J. GLOVER, *Assistant Director of Student Financial Aid* (August 1985) B.S.I.M., The University of Akron, 1982.

PEARLMARIE Y. GODDARD, *Liaison Officer - Education* (December 1981) B.S.Ed., M.Ed., Kent State University; D.Ed., The University of Akron, 1985.

LATHARDUS GOGGINS, *Associate Professor of Geography* (1969) B.A., Central State University; M.A., The Ohio State University; Ph.D., St. John's University; Ed.D., M.S.T.E., The University of Akron, 1985.

LAWRENCE G. GOLDEN, *Professor of Marketing and Sales Technology* (1968) B.S., Case Western Reserve University; M.B.A., University of Pennsylvania, 1968.

GALE A. GOLEMBESKI, *Assistant Professor of Art* (1978) B.F.A., Cleveland Institute of Art, 1970.

MARY BETH GOLEMO, *Director of Student Development* (July 1984) A.A.S., B.S., The University of Akron; M.Ed., University of South Carolina, 1975.

MICHAEL R. GOLEMO, *Assistant Professor of Music; Acting Director of University Bands* (1984) B.M.E., M.M., Northwestern University, 1983.

TOM A. GOOSBY, *Manager of the Health and Physical Education Building* (July 1970) B.A., Baldwin-Wallace College; M.A.Ed., The University of Akron, 1978.

GEORGE R. GRAHAM, *Head of Electronic Systems* (November 1974) A.A.S., Williamsport Area Community College; B.S., The University of Akron, 1973.

H. ROGER GRANT, *Professor of History* (1970) B.A., Simpson College; M.A., Ph.D., University of Missouri at Columbia, 1970.

NANCY K. GRANT, *Assistant Professor of Urban Studies* (1983) B.A., University of Dallas; M.A., Ph.D., The University of Texas, 1982.

RICHARD L. GRANT, *Professor of Law* (1967) B.S., University of Pennsylvania; J.D., Stanford University; L.L.M., Georgetown University, 1967.

VELMA RUTH GRAY, *Professor of Nursing* (1985) B.S.N., M.S.N., Case Western Reserve University; Ed.D., The University of Akron, 1982.

HOWARD L. GREENE, *Professor of Chemical Engineering; Professor of Biomedical Engineering* (1965) B.Ch.E., M.Ch.E., Ph.D., Cornell University, 1966.

BERNARD D. GREENSPAN, *Assistant Professor of Mathematical Sciences* (1985) B.S., University of Maryland; Ph.D., Cornell University, 1981.

C. FRANK GRIFFIN, *Professor of Physics* (1967) B.S., M.S., Texas Technological College; Ph.D., The Ohio State University, 1964.

CLAIBOURNE E. GRIFFIN, *Dean of Buchtel College of Arts and Sciences; Professor of Chemistry* (July 1974) B.A., Princeton University; M.S., Ph.D., University of Virginia, 1955.

PHYLLIS S. GRIFFITH, *Director of Alumni and Constituency Relations* (July 1979) B.A., The University of Akron, 1979.

EDNA P. GRIST, *Associate Professor of Nursing* (January 1968) B.S.N.Ed., M.S.Ed., The University of Akron, 1967; R.N.

JUDITH A. GROENEWEG, *Instructor in Nursing* (1984) B.S.N., University of Wisconsin; M.S.N., The University of Akron, 1983.

RICHARD J. GROSS, *Associate Professor of Mechanical Engineering* (1967) B.S.M.E., University of Pittsburgh; M.S.M.E., Ph.D., Carnegie Institute of Technology, 1967; P.E., Ohio.

JAMES E. GROVER, *Assistant Professor of Electrical Engineering* (1979) B.S., Ohio Northern University; M.S., Ph.D., Ohio University, 1981.

FRANK J. GRUCCIO, JR., *Associate Professor in the Community and Technical College* (1966) B.A., M.A., The University of Akron, 1967.

ROBERT S. GRUMBACH, *Associate Professor of Electrical Engineering* (1961) B.S.E.E., Case Western Reserve University; M.S.E.E., West Virginia University, 1951.

BARBARA A. GSELLMAN, *Instructor in Mechanial Technology* (1967) B.M.E., The University of Akron, 1950.

PURUSHOTTAM DAS GUJRATI, *Assistant Professor of Physics; Assistant Professor of Polymer Science* (1983) B.Sc., Banaras Hindu University, India; M.Sc., Indian Institute of Technology, India; M.A., M.Phil., Ph.D., Columbia University, 1979.

VIRGINIA L. GUNN, *Associate Professor of Home Economics* (January 1974) B.S., Kansas State University; M.S., Syracuse University, 1972.

MARGARET B. GUSS, *Assistant Professor of Bibliography; Behavioral Sciences Bibliographer* (December 1976) B.A., Oberlin College; M.L.S., University of Oregon, 1969.

JOHN F. GWINN, *Associate Professor of Biology* (1970) B.A., Manchester College; M.S., Purdue University; Ph.D., Kent State University, 1972.

MICHAEL HABER, *Associate Professor of Music* (1983) B.A., Brandeis University; M.M., Indiana University, 1966.

MICHEL S. HADDAD, *Instructor in Mechanical Technology* (February 1971).

MAYO A. HADDEN, III, *Professor of Military Science* (August 1985) B.S., University of Alabama; M.B.A., Hardin-Simmons; Graduate of U.S. Air Force War College; Lieutenant Colonel, Infantry.

ROBERT D. HAHN, *Director of Student Financial Aid and Employment* (July 1969) B.S., M.Ed., Kent State University, 1969.

ALI HAJJAFAR, *Assistant Professor of Mathematical Sciences* (1984) B.S., M.S., University for Teacher Education in Tehran, Iran; M.S., Ph.D., Michigan State University, 1984.

DONALD E. HALL, *Associate Professor of Communicative Disorders* (1974) B.S.Ed., Indiana University of Pennsylvania; M.Ed., Westminster College; Ph.D., Ohio University, 1971.

PAMELA A. HALL, *Assistant Registrar; Director of Registration and Scheduling* (1981) B.S.Ed., The University of Akron, 1968.

LYNN E. HAM, *College Centered Account Executive* (January 1986) B.A., Albion College, 1983.

GARY R. HAMED, *Associate Professor of Polymer Science; Associate Professor of Biomedical Engineering* (1980) B.S.C.E., M.S.C.E., Cornell University; Ph.D., The University of Akron, 1978.

SUSAN I. HARDIN, *Assistant Professor of Psychology* (1981) B.A., University of New Mexico; M.A., Ph.D., The Ohio State University, 1973.

JAMES K. HARDY, *Associate Professor of Chemistry* (1981) B.S., Cumberland College; Ph.D., Louisiana State University, 1981.

SUBRAMANIYA I. HARIHARAN, *Associate Professor of Mathematical Sciences* (1985) B.Sc., University of Sri Lanka; M.Sc., University of Salford, England; M.S., Ph.D., Carnegie-Mellon University, 1980.

PATRICIA HARKIN, *Assistant Professor of English* (1984) B.A., University of Kentucky; M.A., University of Virginia; Ph.D., Miami University, 1977.

VERN R. HARNAPP, *Associate Professor of Geography* (1972) B.S.Ed., Concordia Teachers College; M.S.Ed., University of Pennsylvania; Ph.D., University of Kansas, 1972.

WILLIAM D. HARPINE, *Assistant Professor of Communication* (1982) A.B., William and Mary College; M.A., Northern Illinois University; Ph.D., University of Illinois, 1982.

JACK D. HARPOOL, *Associate Professor of Data Processing* (March 1970) B.S., M.B.A., The University of Akron, 1968.

FRANK W. HARRIS, *Professor of Polymer Science; Professor of Biomedical Engineering; Research Associate, Institute of Polymer Science* (1983) B.S., University of Missouri; M.S., Ph.D., University of Iowa, 1968.

MONICA L. HARRISON, *Assistant Professor of Mathematics (Wayne General and Technical College)* (1983) B.A., Walsh College; M.S., University of Notre Dame, 1982.

ALAN HART, *Professor of Philosophy* (1970) B.A., M.A., Syracuse University; Ph.D., University of Pennsylvania, 1965.

TOM HARTLEY, *Assistant Professor of Electrical Engineering* (1984) B.A., B.S., Ohio Northern University; M.S., Ph.D., Vanderbilt University, 1984.

DONALD E. HARVEY, *Professor of Art* (1973) B.A., Mankato State College; M.F.A., Temple University, 1971.

JEFFREY S. HARWELL, *Graphic Designer, Print Communications* (November 1985) A.D., B.F.A., The University of Akron, 1984.

H. JAMES HARWOOD, *Professor of Chemistry; Professor of Polymer Science* (October 1959) B.S., The University of Akron, Ph.D., Yale University, 1956.

RICHARD HAUDE, *Associate Professor of Psychology* (1967) A.B., Kenyon College; M.S., Ph.D., University of Pittsburgh, 1964.

DOUGLAS R HAUSKNECHT, *Assistant Professor of Marketing* (January 1986) B.S., M.B.S., University of Florida, 1981.

JON M. HAWES, *Associate Professor of Marketing* (January 1981) A.S., Vincennes University; B.S., M.B.A., Indiana State University; Ph.D., University of Arkansas, 1981.

DAVID N. HAWK, *Associate Professor of Finance* (1980) B.S., The Ohio State University; M.B.A., D.B.A., Kent State University, 1971.

JESS W. HAYS, *Academic Adviser* (August 1977) B.A., The University of Akron; M.A., Bowling Green State University, 1974.

JOHN E. HEBERT, *Associate Professor of Management* (1980) B.S.E., University of Toledo; M.S.I.E., Ph.D., Purdue University, 1975.

JANICE L. HECKROTH, *Associate Professor of Home Economics* (1983) B.S., Iowa State University; M.A., Michigan State University; D.Ed., University of South Dakota, 1983.

JOHN G. HEDRICK, *Assistant Professor of Associate Studies* (July 1967) B.S.Ed., Kent State University; M.A., University of Notre Dame, 1958.

JACQUELINE S. HEGBAR, *Assistant Professor of Classics* (1967) B.A., M.A., The University of Akron, 1967.

HILTON E. HEINEKE, III, *Assistant Professor of Military Science* (August 1984) B.A., Westminster College, 1975; Captain, Infantry.

RONALD F. HEINEKING, *Director of University Safety and Security* (April 1983) A.A.S., B.S., University of Akron, 1980.

MARJORIE M. HEINZER, *Instructor in Nursing* (1984) B.S.N., Mercy College of Detroit; M.S.N., Case Western Reserve University, 1984.

BARBARA HEINZERLING, *Associate Professor of Home Economics* (1973) B.S., M.S., The Ohio State University; J.D., The University of Akron, 1979.

FAITH I. HELMICK, *Assistant Provost* (February 1969) B.A., Kent State University; M.S.T.E., Ph.D., The University of Akron, 1983.

JOHN A. HEMINGER, *Assistant Professor of Mathematical Sciences* (1984) B.S., University of Cincinnati; M.S., Ph.D., Purdue University, 1974.

WILLIAM S. HENDON, *Professor of Urban Studies; Professor of Economics* (1968) B.A., M.A., Ph.D., University of Oklahoma at Norman, 1964.

PETER N. HENRIKSEN II, *Associate Professor of Physics* (1970) B.S., Berry College; M.S., Ph.D., University of Georgia, 1968.

RICHARD L. HENRY, *Professor of Mechanical Technology* (1961) B.M.E., The Ohio State University; M.S.E., The University of Akron, 1965.

ALBERTA R. HENSLEY, *Director of Special Projects* (January 1974) B.S.B.A., Indiana Central College, 1969.

ALAN A. HERBERT, *Acting Manager of Academic Systems and Programming* (October 1978) B.S., The University of Akron, 1976.

THOMAS P. HERBERT, *Professor of Electronic Technology* (1968) B.S.E.E., University of Dayton; M.Ed., Pennsylvania State University, 1968.

WALTER M. HERIP, *Assistant Professor of Commercial Art; Assistant Professor of Art* (1976) B.F.A., Cleveland Institute of Art; M.A., Kent State University, 1981.

RAYMOND M. HERNAN, *Assistant Basketball Coach* (April 1984) B.S.Ed., Kansas Wesleyan University; M.S.Ed., Emporia State University, 1982.

PAUL A. HEROLD, *Director of Electronic Communications* (November 1980) B.A., The University of Akron, 1978.

JAY R. HERSHEY, *Director of Residence Halls* (July 1967) B.A., Hiram College; M.Ed., University of Illinois, 1965.

HARRIET K. HERSKOWITZ, *Associate Professor of Home Economics; Associate Professor of Educational Technology* (1973) B.S.Ed., Adelphi University; M.A., University of Connecticut, 1972.

JACK E. HIBBS, *Associate Professor of Bibliography Head, Collection Management Department, Education Bibliographer* (October 1974) B.A., M.A.L.S., University of Toledo, 1969.

VIRGIL HICKS, *Assistant Professor of Music; Director of Computer Instruction in Music* (1981) B.M., The University of Akron; M.M., University of Miami, 1975.

ROBERT W. HIGHAM, *Associate Professor of Criminal Justice* (1977) B.A., Kent State University; J.D., The University of Akron, 1969.

BETTE HILL, *Assistant Professor of Political Science* (1983) B.S.N., University of Maryland; Ph.D., University of Illinois, 1983.

LOUIS A. HILL, JR., *Dean of the College of Engineering; Professor of Civil Engineering* (July 1981) B.A., Oklahoma A&M; B.S.C.E., M.S.C.E., Oklahoma State University; Ph.D., Case Institute of Technology, 1965.

MARIANNE T. HILL, *Assistant Professor of Economics* (1985) B.S., University of Maryland; M.Sc., London School of Economics; Ph.D., Yale University, 1983.

KATHERINE A. HINCKLEY, *Associate Professor of Political Science* (1972) B.J., University of Missouri; M.A., Ph.D., Stanford University, 1971.

JOHN J. HIRSCHBUHL, *Director of Computer Based Education; Professor of Education* (1971) B.S., M.S., Temple University; Ph.D., Pennsylvania State University, 1971.

LOREN L. HOCH, *Professor of Education* (1969) B.S., Indiana Central College; M.A., Ball State University; Ed.D., Indiana University at Bloomington, 1968.

GEORGE V. HODOWANEC, *Director of University Library and Learning Resources; Professor of Bibliography* (1983) B.S., Temple University; M.S., Drexel University; Ed.D., Temple University, 1972.

ALMA J. HOFFER, *Assistant Dean Graduate Programs; Associate Professor of Nursing* (1981) B.S., Bradley University; M.A., West Virginia State College; Ed.D., Ball State University, 1981.

WILLIAM W. HOKMAN, *Associate Professor of Mathematical Sciences* (1967) B.S.Ed., M.A., M.S., West Virginia University, 1958.

BRUCE HOLLAND, *Associate Professor of English* (1967) B.A., University of Rochester; M.A., Ph.D., University of Michigan at Ann Arbor, 1972.

ROBERT M. HOLLAND, JR., *Associate Professor of English;* (1978) B.A., Dartmouth College; M.A.T., Harvard University; Ph.D., Indiana University, 1973.

BRUCE L. HOLLERING, *Associate Professor of Physical Education* (1983) B.S., Ohio Northern University; M.A., Kent State University; Ph.D., The Ohio State University, 1971.

WARREN N. HOLMES, *Assistant Director of Afro-American Studies* (1980) B.S., Virginia Commonwealth University; M.C.P., University of Cincinnati, 1975.

LORENA M. HOLSHOY, *Associate Professor of Art* (1969) B.F.A., M.A., The Ohio State University, 1965.

KATHRYN M. HOMEIER, *Professor of Nursing* (February 1967) B.S.N.E., St. Louis University; M.S.Ed., The University of Akron, 1963; R.N.

DAVID H. HOOVER, *Associate Director for Training in the Center for Fire and Hazardous Materials Research; Instructor in Fire Protection Technology; Director of Operations, Center for Fire and Hazardous Materials Research* (1983) A.A.S., B.S.Tech.Ed., The University of Akron, 1982.

DAVID P. HORN, *Assistant Director of Development* (1984) B.A., Borromeo Seminary College, 1969.

JANICE D. HOUSER, *Instructor in Modern Languages* (1965) A.B., Butler University; M.A., Indiana University at Bloomington, 1964.

JOHN J. HOUSER, *Professor of Chemistry* (1965) B.S., Villanova University; Ph.D., Pennsylvania State University, 1964.

ELMORE J. HOUSTON, *Assistant Dean of the Evening College and Summer Sessions* (1972) B.A., Purdue University; M.A., The University of Akron, 1968.

WILLIAM G. HOYT, JR., *Assistant Professor of Music* (1981) B.M., University of Wisconsin; M.M., Yale School of Music, 1975.

MYRON J. HUBLER, JR., *Assistant Professor of Accounting* (1982) B.S.B.A., The Ohio State University; M.B.A., Case Western Reserve University, 1968; C.P.A.

MARLENE S. HUFF, *Instructor in Nursing* (1984) B.S.N., M.S.N., The University of Akron, 1984.

ROBERT J. HUFF, *Associate Professor of Art* (1980) B.F.A., The University of Akron; M.F.A., The Ohio State University, 1980.

JACK D. HUGGINS, *Associate Professor of Business Management Technology* (1971) B.A., Saint Francis College; M.B.A., University of Colorado, 1970.

ROBERT E. HUGGINS, *Head Basketball Coach* (March 1984) B.S., M.A., West Virginia University, 1978.

WILSON R. HUHN, *Assistant Professor of Law* (1984) B.A., Yale College; J.D., Cornell Law School, 1977.

JULIA A. HULL, *Assistant Professor of English* (1946) B.A., The University of Akron; M.A., Case Western Reserve University, 1950.

J. MICHAEL HUNGERMAN, *Counseling Psychologist; Educational Programs Coordinator* (1970) B.A., College of Steubenville; M.Ed., Ph.D., Kent State University, 1970.

ANNA M. HUTH, *Supervisor of the Learning Resource Lab* (1979) B.S.N., The Ohio State University; M.S.N., University of Pittsburgh, 1965.

DOREEN D. IAFELICE, *Assistant Professor of Nursing* (1978) B.S.N., M.S.N., The Ohio State University; J.D., The University of Akron, 1985.

NATHAN IDA, *Assistant Professor of Electrical Engineering* (December 1984) B.Sc.E.E., M.Sc.E.E., Ben-Gurion University of the Negev; Ph.D., Colorado State University, 1983.

JAMES E. INMAN, *Professor of Business Law; Director of Graduate Business Programs* (1966) B.A., Baldwin-Wallace College; M.B.A., The Ohio State University; J.D., The University of Akron, 1971.

SYS S. INMAN, *Instructor in Modern Languages* (1968) B.A., Baldwin-Wallace College; M.A., The University of Akron, 1968.

AVRAM I. ISAYEV, *Associate Professor of Polymer Engineering* (1983) M.Sc., Azerbaijan Institute of Oil and Chemistry; M.Sc., Moscow Institute of Electronic Machine Building; Ph.D., USSR Academy of Sciences, 1970.

DEBORAH G. IVEY, *Academic Adviser* (January 1980) B.M., The University of Akron; M.A., The Ohio State University, 1973.

RICHARD J. JACKOBOICE, *Professor of Music* (July 1967) B.M., M.M., University of Michigan, 1965.

DALE L. JACKSON, *Professor of Biology* (1961) B.S., Ph.D., University of Durham (England), 1959.

DONALD M. JACKSON, *Professor of Marketing* (1969) B.A., M.B.A., Cornell University; D.B.A., Kent State University, 1976.

JIM L. JACKSON, *Associate Professor of Geology, Director of Center for Environmental Studies; General Studies Course Director: Natural Science* (1967) B.S.Ed., Kent State University; M.S., Case Western Reserve University; Ph.D., The Ohio State University, 1970.

MICHAEL J. JALBERT, *Assistant Professor of Labor Studies* (1979) B.S.B.A., University of Rhode Island; M.S., University of Massachusetts; J.D., The University of Akron, 1983.

DAVID L. JAMISON, *Professor of Communication* (1972) B.A., Muskingum College; M.A., J.D., University of Michigan at Ann Arbor, 1969.

LOUIS M. JANELLE, JR., *Assistant Professor of Mathematical Sciences (Wayne General and Technical College)* (1981) B.A., St. Michael's College; M.A.T., Bowling Green State University, 1971.

DONALD M. JENKINS, *Dean of the School of Law; Professor of Law* (1965) B.A., J.D., The University of Akron; LL.M., Case Western Reserve University, 1970.

SEBETHA JENKINS-LEGGETTE, *Assistant to the President and Director of Minority Affairs* (August 1986) B.S., Jackson State University; M.Ed., Delta State University; D.Ed., Mississippi State University, 1978.

SHARON E. JEVEC, *Accountant* (October 1984) B.B.A., Ohio University, 1975.

PAUL R. JOHN, *Assistant Professor of Drafting Technology* (1981) B.S., Kent State University; M.S.T.E., The University of Akron, 1985.

DAVID T. JOHNS, *Assistant Professor of Theatre Arts; Technical Director* (1983) B.F.A., Baylor University; M.F.A., University of North Carolina, 1982.

AVIS L. JOHNSON, *Assistant Professor of Management* (January 1984) B.A., Yankton College; M.A., Kansas State University; M.A.B.A., Ph.D., University of Nebraska at Lincoln, 1986.

DUDLEY C. JOHNSON, JR., *Academic Adviser* (July 1961) B.S., University of Vermont; M.S.Ed., University of Southern California, 1961.

LAURA J. JOHNSON, *Assistant Professor in the Community and Technical College* (January 1974) B.A., M.A., The University of Akron, 1975.

LYNN G. JOHNSON, *Assistant Provost; Associate Professor of Education; Center Associate, Center for Urban Studies* (1980) B.A., Yale University; M.Div., Union Theological Seminary; M.A., University of New Hampshire; Ph.D., University of Michigan, 1978.

WENDELL A. JOHNSON, *Associate Professor in the Community and Technical College* (1969) A.A., North Park Junior College; B.S., University of Minnesota; M.Ed., Kent State University; M.S., The University of Akron, 1983.

MARY JEAN JOHNSTON, *Professor of Office Administration* (1965) B.S., Carnegie Institute of Technology; M.Ed., Ph.D., University of Pittsburgh, 1974.

SCOTT A. JOHNSTON, *Associate Professor of Music* (1978) B.M., University of Wisconsin; M.M., The Ohio State University, 1974.

RICHARD L. JOINER, *Director of Administrative Support Services - Physical Facilities* (January 1985) B.S., The University of Akron, 1958.

MIRIAM ANN JOLIAT, *Assistant Professor of Bibliography; Research Librarian* (April 1970) B.S.E., St. John College; M.S.L.S., Case Western Reserve University, 1969.

TUCKER R. JOLLY, *Associate Professor of Music* (1980) B.M., North Texas State University; M.A., University of Connecticut, 1977.

DAVID L. JONES, *Associate Professor of English* (February 1961) B.A., M.A., Ph.D., Harvard University, 1958.

JOHN E. JONES, *Assistant Director of Admissions* (January 1975) B.S., The Ohio State University, 1971.

MICHAEL B. JONES, *Director of University Galleries* (July 1985) B.F.A., M.F.A., The Ohio State University, 1978.

ROBERT H. JONES, *Professor of History* (1971) A.B., M.A., Ph.D., University of Illinois at Urbana, 1957.

WILLIAM S. JORDAN, III, *Associate Professor of Law* (1985) B.A., Stanford University; J.D., University of Michigan Law School, 1974.

JOSEPH P. JOYCE, *Manager of Telecommunications* (January 1986) B.A., M.S.Ed., Kent State University, 1978.

SEBASTIAN V. KANAKKANATT, *Professor of General Technology* (July 1965) B.S., Madras University (India); M.S., Ph.D., The University of Akron, 1969.

GARY W. KANE, *Associate Professor of Education* (1972) A.A., Santa Ana College; B.S., State University of New York at New Paltz; M.Ed., Ed.D., University of Rochester, 1970.

MARIE M. KANE, *Administrative Project Leader* (March 1969) B.A., The University of Akron, 1984.

JAMES M. KARAS, *Accountant* (December 1984) B.S., The University of Akron, 1976.

ARTHUR D. KARLIN, *Professor of Accounting* (1971) B.S., New York University; M.S., Ph.D., University of Illinois at Urbana; J.D., The University of Akron; LL.M., New York University, 1977.

MARJORIE KARLSON, *Manager, Systems Analyst, Mathematical Sciences Computer Laboratory* (August 1984) B.S., Thiel College, 1954.

CHAMAN N. KASHKARI, *Associate Professor of Electrical Engineering* (1969) B.A., Jammu Kashmir University; B.E., Rajasthan University; M.S.E., University of Detroit; Ph.D., University of Michigan at Ann Arbor, 1969.

DARLENE R. KAUSCH, *Associate Professor of Accounting* (1979) B.A., M.S., The University of Akron; D.B.A., Kent State University, 1979; C.P.A., Ohio.

JOLITA E. KAVALIUNAS, *Associate Professor of Modern Languages* (1970) B.A., M.A., Ph.D., Case Western Reserve University, 1972.

AZMI KAYA, *Professor of Mechanical Engineering* (1970) Diploma, Technical College for Men (Turkey); M.S.M.E., University of Wisconsin; M.S.E.E., Ph.D., University of Minnesota, 1970; P.E., Ohio.

ORVILLE R. KEISTER, JR., *Distinguished Professor of Accounting* (1966) B.S.B.A., M.B.A., The Ohio State University; Ph.D., University of Illinois, 1964.

DEBRA S. KELLER, *Information Center Project Analyst* (August 1982) B.S., The University of Akron, 1981.

FRANK N. KELLEY, *Professor of Polymer Science; Director of the Institute of Polymer Science* (1978) B.S., M.S., Ph.D., The University of Akron, 1961.

LAWRENCE R. KELLEY, *Budget Director* (May 1980) B.S.Ed., M.S.Tech.Ed., The University of Akron, 1980.

SAMUEL G. KELLY, III, *Associate Professor of Mechanical Engineering* (August 1982) B.S., M.S., Ph.D., Virginia Polytechnic Institute and State University, 1979.

MARTIN L. KEMP, *Business Manager of Wayne General and Technical College* (July 1972) B.S.Ed., Ashland College; M.S.Ed., Kent State University, 1970.

FRANK J. KENDRICK, *Associate Professor of Urban Studies; Associate Professor of Political Science* (1971) B.A., Grinnell College; M.A., Ph.D., University of Chicago, 1962.

JOSEPH P. KENNEDY, *Distinguished Professor of Polymer Science; Distinguished Professor of Chemistry* (April 1970) B.S., University of Budapest; M.B.A., Rutgers University; Ph.D., University of Vienna, 1954.

MARK S. KENNEDY, *Assistant Professor of Civil Engineering* (1984) B.S., University of Nebraska; M.S., University of Wisconsin; Ph.D., Purdue University, 1984; P.E., Wisconsin.

ROBERT B. KENT, II, *Assistant Professor of Geography* (1983) B.A., M.A., University of California at Davis; Ph.D., Syracuse University, 1983.

DAVID H. KESSLER, *Associate Professor of Law* (1983) B.S., The Ohio State University; J.D., Case Western Reserve University; LL.M., University of Florida, 1980.

WYATT KILGALLIN, *Assistant Professor of Electronic Technology* (1986) A.A.S., B.S., Morehead State University; M.S., University of Tennessee at Knoxville, 1983.

IL-WOON KIM, *Assistant Professor of Accounting* (1985) B.B.A., Yonsei University; M.B.A., Arizona State University; Ph.D., University of Nebraska, 1985.

DENNIS L. KIMMELL, *Professor of Accounting; Coordinator, Accounting Internship Programs* (1976) B.S., University of Wisconsin at Oshkosh; M.S., Southern Illinois University at Carbondale; D.B.A., Kent State University, 1974; C.P.A., Missouri, Ohio, Wisconsin.

SHARON L. KIMMELL, *Assistant Professor of Accounting* (1981) B.A., College of Wooster; M.B.A., University of Wisconsin; D.B.A., Kent State University, 1986; C.P.A., Ohio.

DEBORAH J. KING, *Supervisor, Cartographic and Spatial Analysis* (December 1977) B.S., Ohio University; M.A., University of Georgia, 1977.

JAMES C. KING, *Professor of Education* (1969) B.A., Mount Union College; M.Ed., Kent State University; Ed.D., Indiana University at Bloomington, 1969.

LILLIAN KING, *Associate Professor of Education* (1966) B.S.Ed., The University of Akron; M.Ed., Kent State University, 1965.

MARY C. KING, *Coordinator of the Writing Laboratory* (July 1978) B.A., M.A., The University of Akron, 1978.

RANDALL H. KING, *Associate Professor of Economics* (1978) B.S.B.A., M.A., Ph.D., The Ohio State University, 1978.

DAYAL KIRINGODA, *Assistant Professor of Accounting* (1983) B.A., Vidyodaya University of Ceylon; B.Comm., M.B.A., University of Windsor, Canada; Ph.D., University of Nebraska, 1984.

CHARLES E. KIRKWOOD, *Professor of Law* (1980) B.A., Wheaton College; J.D., Northwestern University School of Law, 1965.

MARY K. KIRTZ, *Assistant Professor of English* (1985) B.A., University of Toronto; M.A.T., Oberlin College; Ph.D., Case Western Reserve University, 1984.

KEITH A. KLAFEHN, *Professor of Management* (1970) B.S., M.S., Clarkson College of Technology; D.B.A., Kent State University, 1973.

DENNIS A. KLEIDON, *Professor of Art; Professor of Commercial Art* (1969) B.F.A., Illinois Wesleyan University; M.S., Illinois State University, 1967.

ROSE A. KLEIDON, *Associate Professor in the Community and Technical College* (1970) B.A., Illinois Wesleyan University; M.A., University of Illinois at Urbana, 1968.

KENNETH L. KLIKA, *Assistant Professor of Construction Technology* (March 1972) A.A.S., B.C.T., M.S.T.E., The University of Akron, 1984.

MONA L. KLINGLER, *Assistant Professor of Communicative Disorders* (1985) B.A., M.A., The University of Akron, 1981.

RICHARD E. KLOSTERMAN, *Associate Professor of Urban Studies* (1983) B.S.C.E., Purdue University; Ph.D., Cornell University, 1976.

GEORGE W. KNEPPER, *Professor of History, University Historian* (1948–49), (August 1954) B.A., The University of Akron; M.A., Ph.D., University of Michigan at Ann Arbor, 1954.

WILLIAM H. KNISELY, *Assistant Budget Director* (1983) B.S.Ed., Ohio University; M.Ed., Xavier University, 1971.

WILLIAM G. KOFRON, *Professor of Chemistry* (1965) B.S., University of Notre Dame; Ph.D., University of Rochester, 1961.

CHRISTINE A. KOLACZEWKSI, *Instructional Assistant, Department of Mathematical Sciences* (July 1981) B.S., M.S., The University of Akron, 1981.

ROSE MARIE KONET, *Assistant to the Director of the Computer Based Education Center; Instructional Programmer - Liaison, Computer Based Education Center* (July 1976) B.S., The University of Akron, 1975.

MARGERY B. KOOSED, *Associate Professor of Law* (1974) B.S.Ed., Miami University; J.D., Case Western Reserve University, 1974.

REBECCA M. KOPANIC, *Cataloger* (1979) B.A., Youngstown State University; M.L.S., Kent State University, 1978.

VINCENT P. KOPY, *Associate Professor of Accounting; Coordinator, College of Business Administration Student Organizations* (1975) B.B.A., M.B.A., Case Western Reserve University, 1959; C.P.A., Ohio.

MARTHA M. KORY, *Assistant Professor of Biology* (1984) B.A., B.S., M.A., Indiana University; Ph.D., University of Nebraska, 1984.

GERALD F. KOSER, *Professor of Chemistry* (1969) B.S., The Ohio State University; M.S., Ph.D., University of Illinois at Urbana, 1968.

RICHARD J. KOVACH, *Professor of Law; Director of the Tax Institute of the School of Law* (1980) A.B., Oberlin College; J.D., Harvard University, 1974.

ERIC W. KREIDER, *Production Coordinator, Community and Public TV* (June 1981) B.A., The University of Akron, 1982.

MARYHELEN C. KREIDLER, *Associate Professor of Nursing; Director, Center for Nursing* (1985) B.S., St. John College; M.A., M.Ed., Ed.D., Columbia University, 1978.

ALAN G. KRIGLINE, *Professor of Management* (1973) B.I.E., University of Florida; M.B.A., Ph.D., Georgia State University, 1977.

ELISE H. KRIGLINE, *Instructor in Home Economics* (1978) B.Ed., University of Miami; M.Ed., Georgia State University, 1973.

LALA B. KRISHNA, *Associate Professor of Mathematical Sciences* (1981) B.Sc., M.Sc., Patna University (India); M.A., Ph.D., Kent State University, 1979.

ALAN F. KRIVIS, *Associate Professor of Chemistry* (1966) A.B., M.A., Columbia University; M.S.Ch., Ph.D., University of Michigan at Ann Arbor, 1958.

MICHELLE A. KROCHMAL, *Associate Director of Development; Director of Annual Giving Programs* (February 1984) B.A., Wayne State University, 1972.

ERNEST A. KUEHLS, *Associate Professor of Mathematical Sciences* (1965) B.S.Ed., M.Ed., Miami University; Ph.D., The University of Akron, 1971.

PATRICIA M. KUHN, *Instructor in Home Economics* (1982) B.A., The University of Akron; M.A., Case Western Reserve University, 1980.

LOUISE M. KUHNS, *Assistant to the Vice President for Institutional Advancement* (December 1983) B.A., Baldwin-Wallace College, 1963.

DIANNE C. KULASA, *Assistant Professor of Nursing* (1983) B.S.N., M.S.N., The Ohio State University, 1981.

A. W. GERHARD KUNZE, *Professor of Geology* (1974) B.S., Ph.D., Pennsylvania State University, 1973.

HENRY A. KUSKA, *Associate Professor of Chemistry* (1965) A.A., Morton College; B.A., Cornell College (Iowa); Ph.D., Michigan State University, 1965.

PAUL J. KUZDRALL, *Associate Professor of Management* (1985) B.S.E., University of Michigan; M.B.A., Southern Illinois University at Edwards; Ph.D., Saint Louis University, 1977.

THEIN KYU, *Assistant Professor of Polymer Engineering* (1983) B.Eng., Kyoto Institute of Technology; M.Eng., D.Eng., Kyoto University, 1980.

DAVID E. KYVIG, *Professor of History* (1971) B.A., Kalamazoo College; Ph.D., Northwestern University, 1971.

GRETCHEN A. LAATSCH, *Associate Director of Gardner Student Center; Director, Calendar and Conference Services Office* (August 1979) B.S., The University of Akron; M.S., Indiana University, 1970.

DONALD V. LACONI, *Instructor in Hospitality Management* (1984) Assoc., B.S.Tech.Ed., The University of Akron, 1974.

PAUL C. LAM, *Associate Professor of Mechanical Engineering* (1980) B.S., Purdue University; M.S., University of Illinois at Urbana; Ph.D., The University of Akron, 1978.

GAYNOR E. LANIK, *Assistant Professor of Nursing* (1975) B.S., University of Washington; M.S.N., The University of Akron, 1981.

JOHN C. LANSHE, *Academic Adviser* (June 1981) B.A., The University of Akron; M.A., Bowling Green State University, 1981.

ELIZABETH A. LARIVIERE, *Assistant Professor of Office Administration* (1985) A.A., Cape Cod Community College; B.S., Salem State College; M.Ed., Florida Atlantic University; Ph.D., Arizona State University, 1984.

EDWARD B. LASHER, *Associate Professor of Education; Coordinator of the Educational Media Lab* (1972) B.S., State University of New York College at Oneonta; M.S., Ed.S., Indiana University at Bloomington; Ed.D., University of North Dakota, 1971.

GERALD R. LASKO, *Assistant Football Coach* (December 1985) B.S., Saint Joseph's College; M.S., Indiana State University, 1973.

JOSEPH C. LATONA, *Professor of Business Administration; Director of Center of Organizational Development and Research* (1961) (1971) B.A.Ed., The University of Akron; M.B.A., D.B.A., Kent State University, 1970.

EDWARD J. LAUGHNER, *Assistant Professor of Art* (1984) B.S., Youngstown State University; M.A., Kent State University; M.A., The Ohio State University, 1982.

CAROL W. LAWRENCE, *Associate Professor of Communicative Disorders* (1985) B.S., The Ohio State University; M.A., Ph.D., Kent State University, 1980.

DIANE L. LAZZERINI, *Academic Adviser* (July 1979) B.A., M.A., The University of Akron, 1970.

PETER J. LEAHY, *Associate Professor of Urban Studies; Center Associate, Center for Urban Studies* (January 1980) B.A., St. Peters College; M.A., The University of Akron; Ph.D., Syracuse University, 1975.

NOEL L. LEATHERS, *Professor of History* (July 1972) B.S., M.A., Oklahoma State University; Ph.D., University of Oklahoma at Norman, 1963.

NADA LEDINKO, *Professor of Biology* (1971) B.S., The Ohio State University; M.S., Pennsylvania State University; Ph.D., Yale University, 1952.

KAI-FONG LEE, *Professor of Electrical Engineering* (August 1985) B.Sc., M.Sc., Queen's University; Ph.D., Cornell University, 1966.

SUNGGYU LEE, *Associate Professor of Chemical Engineering; Associate Professor of Biomedical Engineering* (1980) B.S., M.S., Seoul National University; Ph.D., Case Western Reserve University, 1980.

MARY S. LEFEVRE, *Academic Adviser* (June 1981) B.S., Columbia University, 1945.

WALTER D. LEHRMAN, *Associate Professor of English* (1956) B.S., M.A., Columbia University; Ph.D., Case Western Reserve University, 1972.

CONSTANCE L. LEISTIKO, *Assistant Dean for External Programs* (November 1983) B.S., M.A., Florida State University; J.D., The University of Akron, 1979.

JAMES V. LENAVITT, *Associate Professor of Art* (1969) B.F.A., M.F.A., Ohio University, 1969.

JOSEPH R. LENTINI, *Professor of Criminal Justice* (1969) B.A., State College at Bridgewater (Massachusetts); M.S.T.E., The University of Akron, 1971.

BRIAN P. LEONARD, *Professor of Mechanical Engineering* (1985) B.M.E., University of Melbourne; M.A.E., Ph.D., Cornell University, 1965.

ARNO K. LEPKE, *Professor of Modern Languages; Master of University Honors Program* (1961) University of Greifswald (Germany); Ph.D., University of Marburg (Germany), 1947.

SHARON A. LESNER, *Associate Professor of Communicative Disorders* (1979) B.A., Hiram College; M.A., Kent State University; M.A., Wayne State University; Ph.D., The Ohio State University, 1979.

RICHARD H. LEWANDOWSKI, *Assistant Professor of Business Management Technology* (January 1984) B.S., United States Military Academy; M.A., Georgetown University; M.B.A., The University of Akron, 1981.

RUTH B. LEWIS, *Professor of Communication* (1966) B.S., Wittenberg University; M.A., Ph.D., The Ohio State University, 1961.

DALE M. LEWISON, *Professor of Marketing* (1981) B.Ed., University of Wisconsin; M.A., Ph.D., University of Oklahoma, 1974.

MARTHA C. LEYDEN, *Associate Professor of Education* (1971) B.S.E., St. John College; M.Ed., Kent State University; Ed.D., Columbia University, 1971.

WILLIAM F. LEYDORF, JR., *Professor of Aerospace Studies* (August 1984) B.S., U.S. Air Force Academy; M.S., Purdue, 1967; Lieutenant Colonel, USAF, Pilot.

ALBERT H. LEYERLE, *Associate Professor of Law* (1974) B.S., The Ohio State University; J.D., Case Western Reserve University, 1960.

ROBERT YING-KO LIANG, *Assistant Professor of Civil Engineering* (1985) B.S.C.E., Tamkang University; M.S.C.E., North Carolina State University; Ph.D., University of California at Berkeley, 1985.

ALVIN H. LIEBERMAN, *Associate Professor of Accounting; Coordinator of Taxation Studies* (1969) B.S., J.D., M.B.A., The University of Akron, 1969; C.P.A., Ohio.

CARL LIEBERMAN, *Associate Professor of Political Science;* (1967) B.A., Temple University; M.A., Ph.D., University of Pittsburgh, 1969.

M. MARTHA LIERHAUS, *Assistant Professor of Mathematical Sciences* (January 1967) B.A., B.S.Ed., M.A., Kent State University, 1963.

HUGO LIJERON, *Professor of Modern Languages; Director of the Latin American Studies Program* (1963) B.A., LaSalle University (Bolivia); LL.D., LL.B., Universidad San Francisco Xavier de Chuquisaca (Bolivia); M.A., Middlebury College; Ph.D., University of Madrid (Spain), 1965.

LUNG-HO LIN, *Associate Professor of Economics* (January 1978) B.A., M.A., National Chengchi University (Taiwan); M.A., Ph.D., University of Notre Dame, 1974.

LINDA G. LINC, *Assistant Professor of Nursing* (January 1980) B.S.N., M.S.N., Ph.D., Kent State University, 1983.

JOY S. LINDBECK, *Professor of Education* (1967) B.S., Carnegie Institute of Technology; M.Litt., M.Ed., D.Ed., University of Pittsburgh, 1964.

SHELDON B. LISS, *Professor of History* (1967) A.B., American University; M.A., Duquesne University; Ph.D., American University, 1964.

MICHAEL P. LITKA, *Professor of Business Law* (1971) A.B., Grinnell College; M.A., J.D., University of Iowa, 1958.

HELEN P. LIVINGSTON, *Associate Professor of Bibliography; Assistant Director of University Library and Learning Resources, Access Services* (February 1970) B.A., Bishop's University; M.S., Simmons College, 1954.

KRIEMHILDE I.R. LIVINGSTON, *Instructor in Modern Languages* (1968) Diploma, University of Munich (Germany); Diploma, Bavarian Interpreter School (Germany), 1947.

DONALD L. LOGSTON, *Assistant Professor of Aerospace Studies* (July 1986) B.S., M.S., West Virginia University, 1982; Captain, USAF, Project Engineer.

ANDU T. LONG, *Associate Director, Alumni Relations* (1984) Assoc., B.S., The University of Akron, 1981.

ROBERT G. LORD, *Professor of Psychology* (1974) B.A., University of Michigan at Ann Arbor; M.S., Ph.D., Carnegie-Mellon University, 1975.

MARIAN J. LOTT, *Associate Professor of Music* (1967) B.M., M.M., Roosevelt University, 1951.

DAVID J. LOUSCHER, *Professor of Political Science* (1970) A.B., Morningside College; M.A., American University; M.A., Ph.D., University of Wisconsin, 1972.

SUSAN J. LOUTHAN, *Assistant Director of Student Financial Aid* (August 1985) A.D., B.S., The University of Akron, 1983.

LLOYD B. LUEPTOW, *Professor of Sociology* (1967) B.S., M.S., Ph.D., University of Wisconsin, 1964.

THOMAS P. LUKES, *Producer/Director of Instructional T.V.* (August 1981) B.A., University of Wisconsin, 1973.

STANISLAW A. LUKOWSKI, *Associate Professor of Mechanical Engineering* (1982) M.S., Ph.D., Technical University of Wroclaw, Polano, 1970.

ALLAN R. LUNDELL, *Assistant Professor of Urban Studies* (1986) B.A., Rice University; M.A., Tulane University, 1985.

RICHARD C. LUTZ, *Professor of Management* (January 1973) B.S., M.S., Southern Illinois University at Carbondale; D.B.A., Texas Technical University, 1972.

F. DENNIS LYNCH, *Associate Professor of Communication* (1980) B.A., Michigan State University; M.A., Ph.D., University of Iowa, 1972.

JAMES M. LYNN, *Associate Professor of Communicative Disorders* (1980) B.S., M.A., Ph.D., University of Iowa, 1975.

LAURENCE J. C. MA, *Professor of Geography; Director of International Programs* (1971) B.A., National Taiwan University; M.A., Kent State University; Ph.D., University of Michigan at Ann Arbor, 1971.

MARY JO MacCRACKEN, *Associate Professor of Physical Education* (1968) B.A., College of Wooster; M.A., The University of Akron; Ph.D., Kent State University, 1980.

KRISTINE G. MacDERMOTT, *Associate Director of Admissions* (1977) B.A., David Lipscomb College; M.A., The University of Akron, 1984.

ALICE J. MacDONALD, *Instructor in English* (1969) B.A., M.A., The University of Akron, 1969.

JOHN A. MacDONALD, Jr., *Professor of Music* (1959) B.M.Ed., Oberlin College; M.A., Ph.D., University of Michigan at Ann Arbor, 1964.

KENNETH E. MacDONALD, *Director of Sports Information* (January 1965) B.S., The University of Akron, 1963.

BARBARA J. MacGREGOR, *Associate Professor of Music* (January 1970) B.M., The University of Akron; M.M., Cleveland Institute of Music, 1967.

LAZARUS W. MACIOR, *Professor of Biology* (1967) B.A., M.A., Columbia University; Ph.D., University of Wisconsin, 1959.

JUDITH E. MAFFETT, *Assistant Professor of Physical Education* (1968) B.S.Ed., M.Ed., Kent State University, 1962.

EUGENE A. MAIO, *Professor of Modern Languages* (1970) B.A., M.A., S.T.L., St. Louis University; Ph.D., University of California at Los Angeles, 1967.

MARVIN H. MAIRE, *Professor of Education* (January 1983) B.A., Coe College; M.A., University of Iowa; Ph.D., University of Wisconsin, 1965.

GEORGE J. MAKAR, *Professor in the Community and Technical College* (1973) B.S., Pennsylvania State University; M.Ed., Duquesne University; Ed.D., University of Pittsburgh, 1973.

DEVINDER M. MALHOTRA, *Associate Professor of Economics* (1979) B.A., M.A., University of Delhi; Ph.D., Kansas State University, 1979.

YOGENDRA K. MALIK, *Professor of Political Science* (1969) B.A., M.A., Punjab University; M.A., Ph.D., University of Florida, 1966.

TED A. MALLO, *Director of Office of Legal Affairs; Adjunct Associate Professor of Education, Industrial Security Supervisor* (July 1969) B.S., M.S., J.D., The University of Akron, 1972.

CARLO R. MALTEMPI, *Coordinator of Off-Campus Courses* (1983) B.A., M.A., Kent State University, 1970.

EUGENE R. MANCINI, *Associate Professor of Music* (1967) B.M., M.M., Cleveland Institute of Music, 1953.

AARON R. MANN, *Assistant Professor of Social Work* (1981) B.A., Central State University; M.S.W., M.S., Ph.D., University of Pittsburgh, 1981.

JOHN L. MAPLES, *Academic Adviser* (July 1972) B.A.Ed., M.A., The University of Akron, 1974.

JOANNE M. MARCHIONE, *Associate Professor of Nursing* (1973) B.S.N., Case Western Reserve University; M.A.Ed., University of Santa Clara; M.A., University of Washington, 1968.

TIMOTHY S. MARGUSH, *Assistant Professor of Mathematical Sciences* (1982) B.S., Indiana University of Pennsylvania; M.A., Ph.D., Bowling Green State University, 1980.

FRANK MARINI, *Senior Vice President and Provost; Professor of Political Science; Professor of Urban Studies* (July 1985) B.A., M.A., Arizona State University; Ph.D., University of California at Berkeley, 1966.

JESSE F. MARQUETTE, *Professor of Political Science* (1971) B.A., M.A., Ph.D., University of Florida, 1971.

ROBERTA P. MARQUETTE, *Professor of Accounting* (1981) B.S., University of Florida; M.B.A., The University of Akron; D.B.A., Kent State University, 1980; C.P.A., Ohio.

R. KENT MARSDEN, *Director of Corporate and Foundation Support Programs* (January 1984) B.S., The University of Akron, 1970.

REBECCA S. MARSH, *Assistant Professor of Data Processing* (1981) B.A., M.A., Memphis State University, 1973.

DONALD N. MARSHALL, *Athletic Trainer* (January 1974) B.S., M.S., The University of Akron, 1983.

RODNEY S. MARSHALL, *Manager of the Information Center* (1972) B.S.B.A., Bowling Green State University; M.S.T.E., The University of Akron, 1978.

SPENCER MARSTON, JR., *Director of Gardner Student Center* (1970) B.S.L.E., M.S.Tech.Ed., The University of Akron, 1976.

ANDRE D. MARTIN, *Assistant Law Librarian* (March 1969) B.A., The University of Akron; M.L.S., Kent State University; M.A., The University of Akron, 1983.

LAWRENCE T. MARTIN, *Associate Professor of English* (1977) A.B., Saint Francis Seminary; M.A., Ph.D., University of Wisconsin, 1977.

ROBERTA R. MARTIN, *Academic Adviser* (July 1968) B.S., M.A., The Ohio State University, 1968.

JANET MARTING, *Assistant Professor of English; General Studies Course Director: English Composition* (1984) B.A., University of Vermont; M.A., Colorado State University; Ph.D., Michigan State University, 1982.

JOHN P. MARWITT, *Professor of Anthropology* (1971) B.S., Florida State University; Ph.D., University of Utah, 1971.

KENNETH E. MAST, *Associate Professor of Marketing; Associate Dean, College of Business Administration* (1970) B.A., M.B.A., The Ohio State University; D.B.A., Kent State University, 1980.

WAYNE L. MATTICE, *Alex Schulman Professor of Polymer Science* (July 1986) B.A., Grinnell College; Ph.D., Duke University, 1968.

RUTH E. MATTY, *Accountant* (March 1980) B.S., The University of Akron, 1979.

WILLIAM A. MAVRIDES, *Assistant Professor of Education; Director of Learning Resources Center* (July 1960) B.A., The University of Akron; M.A., Peabody College for Teachers, 1958.

ARMOLENE J. MAXEY, *Associate Professor of Sociology (Wayne General and Technical College)* (1972) B.S., University of Nebraska; M.A., Kent State University, 1967.

MARY E. MAXWELL, *Assistant Professor of Mathematical Sciences* (January 1975) B.S., Ashland College; M.S., The University of Akron, 1974.

GAIL C. McCAIN, *Assistant Professor of Nursing* (1982) B.A., Baldwin-Wallace College; M.A., Kent State University; M.S., State University of New York at Buffalo, 1976.

McKEE J. McCLENDON, *Professor of Sociology* (1972) B.A., M.A., Ph.D., University of Kansas, 1972.

KENNETH L. J. McCORMICK, *Professor of Criminal Justice* (1973) B.S., Michigan State University; M.A., Central Michigan University, 1972.

ARTHUR A. McCREARY, *Assistant Athletic Trainer* (1982) B.A.Ed., M.A.Ed., The University of Akron, 1983.

EDWARD E. McDONALD, *Associate Professor of Mechanical Technology* (1972) B.S.M.E., M.S.T.E., The University of Akron, 1976; P.E., Ohio.

RONALD L. McDONALD, *Associate Director of Residence Halls* (August 1979) B.A., The University of Akron; M.A., Bowling Green State University, 1976.

RICHARD B. McDOWELL, *Academic Programmer/Analyst* (1984) B.S., The Ohio State University, 1953.

ROBERT L. McELWEE, *Associate Dean of Wayne General and Technical College; Associate Professor of Political Science (Wayne General and Technical College)* (1972) B.A., M.A., Kent State University, 1969.

RICHARD E. McGRAW, *Manager - Media Production Facilities* (July 1973) B.A., The University of Akron, 1980.

WILLIAM McGUCKEN, *Professor of History* (1968) B.Sc. (Mathematics), B.Sc. (Physics), M.A., Queens University, Belfast (N. Ireland); Ph.D., The University of Pennsylvania, 1968.

ALLAN J. McINTYRE, *Professor of Modern Languages* (1967) B.A., Williams College; M.A., Columbia University; Ph.D., University of Pennsylvania, 1967.

DONALD McINTYRE, *Professor of Chemistry; Professor of Polymer Science* (1966) A.B., Lafayette College; Ph.D., Cornell University, 1954.

KATHLEEN A. McINTYRE, *Coordinator of the Tutorial Program; Counselor in Developmental Programs* (1977) B.A., Ursuline College; M.A., The University of Akron, 1977.

SUSAN P. McKIERNAN, *Assistant to the Head of the Department of Art* (May 1979) B.F.A., The University of Akron, 1977.

REGIS Q. McKNIGHT, *Associate Professor of Education* (1972) B.S., M.Ed., Ed.D., Pennsylvania State University, 1971.

MARTIN M. McKOSKI, *Associate Professor of English; Director of Developmental Programs* (1974) B.A., Saint Joseph's College; M.A., The University of Akron; Ph.D., Florida State University, 1972.

SUSAN S. McLAUGHLIN, *Instructor in Nursing* (1976) B.S.N., The Ohio State University; M.S.N., Case Western Reserve University, 1975; R.N.

WILLIAM McMAHON, *Professor of Philosophy* (1969) B.A., University of Notre Dame; M.A., Brown University; Ph.D., University of Notre Dame, 1970.

CARL R. McMILLIN, *Associate Professor of Biomedical Engineering; Director, Cardiovascular Lab* (1983) B.M.E., General Motors Institute of Technology; M.S., Ph.D., Case Western Reserve University, 1974.

MARTHA McNAMARA, *Instructor in the English Language Institute* (August 1982) B.A., State University of New York at Oneonta; M.Ed., State University of New York at Buffalo; M.A., University of Pittsburgh, 1980.

RALPH B. McNERNEY, *Director of Cooperative Education* (January 1982) B.A., Cleveland State University; M.Ed., Ed.S., Kent State University, 1974.

MARION W. McPHERSON, *Associate Professor of Psychology; Associate Director of the Archives of History of American Psychology* (1967) B.A., M.A., University of Maine at Orono; Ph.D., Indiana University at Bloomington, 1949.

CHRISTINE M. McQUISTON, *Instructor in Nursing* (1983) A.A.S., Sinclair Community College; B.S.N., University of Cincinnati; M.S.N., Virginia Commonwealth University, 1981.

CLAUDE Y. MEADE, *Professor of Modern Languages* (1964) B.A., M.A., University of Minnesota; Ph.D., University of California at Berkeley, 1957.

LAVERNE J. MECONI, *Professor of Education* (1967) B.S., West Chester State College (Pennsylvania); M.A., University of Pennsylvania; Ph.D., The Ohio State University, 1966.

GARY E. MEEK, *Professor of Management* (1971) B.S., Cleveland State University; Ph.D., Case Western Reserve University, 1970.

CAROLYN L. MEHL, *Assistant Vice President for Institutional Advancement—University Communications* (November, 1979) B.F.A., B.S.Ed., Bowling Green State University; M.S.Ed., The University of Akron, 1983.

EBERHARD A. MEINECKE, *Professor of Mechanical Engineering; Professor of Polymer Science; Professor of Biomedical Engineering* (October 1963) D. Eng., Brauschweig Institute of Technology (Germany), 1960.

WARNER D. MENDENHALL, *Professor of Political Science (Wayne General and Technical College)* (1972) B.S., Davidson College; M.A., Duke University; Ph.D., Kent State University, 1982.

JACK F. MERCER, *Professor in the Community and Technical College* (1965) A.B., Ohio University; M.A., Case Western Reserve University, 1958.

R. PAUL MERRIX, *Professor of English* (1966) A.B., M.A., Butler University; Ph.D., University of Cincinnati, 1966.

DONALD J. METZGER, *Associate Professor of Anthropology* (1968) B.A., Youngstown University; Ph.D., University of Pittsburgh, 1968.

CHRISTOPHER P. MEYER, *Associate Professor of Art* (1972) B.A., Washington and Lee University; M.F.A., The Ohio State University, 1972.

DENNIS A. MEYER, *Associate Professor of Art* (1969) B.A., St. Norbert College; M.F.A., Ohio University, 1969.

MARY C. MEYERS, *Assistant Director of Print Communications* (December 1985) B.A., The University of Akron, 1976.

ROSIE C. MICKEY, *Assistant to the Dean of the Community and Technical College; Assistant Professor of Office Administration* (July 1984) B.S., Indiana University; M.S., Ed.D., The University of Akron, 1983.

CHAND MIDHA, *Associate Professor of Mathematical Sciences* (1983) M.S., Indian Agricultural Research Institute; Ph.D., Iowa State University, 1980.

JOSEPH MIGDEN, *Academic Adviser* (July 1975) B.B.A., M.Ed., Kent State University, 1973.

ADEL A. MIGID, *Associate Professor of Theatre Arts* (1980) B.F.A., School of Dramatic Arts, Cairo; M.F.A., Ohio University, 1972.

THOMAS T. MILES, *Associate Professor of Communication* (October 1972) B.S., M.S., Ed.A., Indiana State University; Ph.D., University of Iowa, 1973.

BARBARA A. MILLER, *Director of Special Education Resources Center* (February 1980) B.S.Ed., The Ohio State University; M.S.Ed., The University of Akron, 1973.

JOHN V. MILLER, JR., *Associate Professor of Bibliography; Director of Archival Services; Director of the American History Research Center; University Records Officer* (July 1972) B.A., Franklin and Marshall College; M.A., University of Delaware, 1965.

LYNN M. MILLER, *Assistant Law Librarian for Reference and Computer Research* (October 1981) B.A., College of Wooster; M.L.S., University of Pittsburgh, 1981.

WILLIAM I. MILLER, *Associate Professor of Modern Languages* (1970) B.A., Wittenberg University; Ph.D., University of Florida, 1970.

FRANK A. MILLS, *Assistant Director of Alumni and Constituency Relations* (November 1985) B.A., John Brown University; M.Div., Gordon-Conwell Divinity School, 1980.

KYONSUKU MIN, *Senior Principal Engineer, Polymer Engineering Center* (August 1983) B.Eng., M.Eng., Kyoto Institute of Technology; Ph.D., University of Tennessee, 1984.

JANET L. MINC, *Associate Professor of English (Wayne General and Technical College)* (1978) B.A., Hofstra University; Ph.D., State University of New York at Binghamton, 1979.

JOYCE E. MIRMAN, *Assistant Professor of Data Processing* (July 1976) A.A.S., B.S.Tech.Ed., M.S.Tech.Ed., The University of Akron, 1980.

CHARLES B. MONROE, *Associate Professor of Geography; Center Associate, Center for Urban Studies* (1981) B.A., University of Wisconsin; M.A., Ph.D., Pennsylvania State University, 1974.

JOHN B. MONROE, *Professor in the Community and Technical College* (1966) B.A., College of Wooster; M.A., Rutgers University, 1963.

CHARLES K. MOORE, JR., *Professor of Accounting* (January 1973) A.A., Angelo State University; B.B.A., M.B.A., D.B.A., Texas Technical University, 1973; C.P.A., Texas.

LINDA L. MOORE, *Assistant to the Senior Vice President and Provost; Associate Professor of Communication* (1978) B.S., M.A., Bradley University; Ph.D., Kent State University, 1973.

MARVIN M. MOORE, *Professor of Law* (July 1960) B.A., Wayne State University; J.D., LL.M., J.S.D., Duke University, 1968.

DOROTHY C. MOSES, *Assistant Professor of Allied Health Technology; Assistant Professor of Biology* (1981) B.S., Bates College; M.A., Mount Holyoke College; Ph.D., Kent State University, 1983.

RICHARD A. MOSTARDI, *Professor of Biology; Professor of Biomedical Engineering* (1967) B.S.Ed., M.Ed., Kent State University; Ph.D., The Ohio State University, 1968.

ELAINE E. MOTT, *Instructor in Nursing* (1984) B.S.N., Pennsylvania State University; M.S.N., University of Texas at Austin, 1984.

JUDITH K. MOWERY, *Associate Professor of Bibliography; Assistant Director of University Library and Learning Resources, Information Services* (May 1967) B.A., Ohio University; M.S.L.S., Case Western Reserve University; M.A., The University of Akron, 1972.

ROBERT J. MRAVETZ, *Associate Professor of Physical Education* (1970) B.S.Ed., Miami University; M.Ed., Ohio University; Ph.D., The Ohio State University, 1970.

KAREN M. MUDRY, *Associate Professor of Electrical Engineering; Associate Professor of Biomedical Engineering; Director, Institute for Biomedical Engineering Research* (1979) B.E.E., Villanova University; M.S., Johns Hopkins University; Ph.D., Cornell University, 1978.

SAMUEL A. MUELLER, *Associate Professor of Sociology* (1973) B.A., Valparaiso University; M.A., Roosevelt University; Ph.D., Northwestern University, 1971.

BEVERLY MUGRAGE, *Professor in the Community and Technical College* (1972) B.S., Kent State University; M.S., Ph.D., The University of Akron, 1982.

JOHN E. MULHAUSER, *Associate Professor of Geography; Director of Research Services and Sponsored Programs* (1966) B.A., M.A., Kent State University; J.D., The University of Akron, 1976.

FRED L. MULLEN, *Professor of Mechanical Technology* (1967) B.S.E.E., Case Western Reserve University; M.S.E., The University of Akron, 1966; P.E., Ohio.

JOHN MUMPER, *Assistant Professor of Community Services Technology* (January 1977) B.A., The University of Akron; M.S.S.W., University of Louisville; J.D., The University of Akron, 1981.

MARTIN D. MURPHY, *Associate Professor of Psychology* (1975) A.B., Dartmouth College; M.S., Ph.D., University of Illinois at Urbana, 1975.

RUTH C. MURRAY, *Rubber Division Literature Chemist* (July 1970) B.S., Chatham College, 1944.

HARRY MURUTES, *Assistant Professor of Art* (1982) B.S., M.A., Kent State University; M.A., The Ohio State University; Ph.D., University of Michigan, 1983.

JEROME MUSHKAT, *Professor of History* (1962) B.A., M.A., D.S.S., Syracuse University, 1964.

CATHERINE L. MYERS, *Assistant Director of Student Financial Aid* (August 1981) B.S.Ed., The University of Akron, 1979.

STEVEN C. MYERS, *Associate Professor of Economics* (1979) B.S.Ec., M.A., West Virginia University; M.A., Ph.D., The Ohio State University, 1980.

LAURA L. NAGY, *Editor of University Communications* (April 1986) B.A., Baldwin-Wallace College; M.A., Ph.D., Kent State University, 1983.

NOBUYUKI NAKAJIMA, *Professor of Polymer Engineering* (1984) B.S., Tokyo University; M.S., Polytechnic Institute; Ph.D., Case Institute of Technology, 1958.

CANCHEPURAM R. NARAYANASWAMY, *Assistant Professor of Finance* (1984) B.E., University of Madras; M.B.A., Indian Institute of Management; Ph.D., Temple University, 1984.

THOMAS L. NASH, *Professor of Geography; Center Associate, Center for Urban Studies* (1967) B.A., M.A., Ph.D., Kent State University, 1973.

RICHARD NEAL, *Affirmative Action Officer; Equal Employment Opportunity Officer* (March 1970) B.S., The University of Akron, 1961.

DANIEL M. NELSON, *Professor of History* (1970) B.A., Ohio Wesleyan University; M.A., The Ohio State University; Ph.D., University of Wisconsin, 1967.

WILLIAM E. NEMEC, *Professor of Education* (1974) B.S.S.S., John Carroll University; M.Ed., Ohio University; Ph.D., The Ohio State University, 1974.

HENRY NETTLING, *Controller* (February 1964) B.S.B.A., The University of Akron, 1959.

DAVID L. NEWELL, *Instructor in Physical Education* (August 1975) B.S., M.A., The University of Akron, 1974.

DANIEL M. NEWLAND, *Coordinator of Academic Orientation and Retention* (August 1971) B.A., Coe College (Iowa); M.S., Indiana University at Bloomington, 1971.

ISADORE NEWMAN, *Professor of Education* (1971) B.A., University of Miami; M.A., New School for Social Research (New York); Ph.D., Southern Illinois University at Carbondale, 1971.

KATHRYN L. NEWSWANGER, *Director of the Learning Resources Center (Wayne General and Technical College)* (1981) B.A., Eastern Mennonite College; M.S.L.S., Drexel University, 1965.

DAVID L. NICHOLS, *Associate Professor of Accounting* (1971) B.B.A., M.B.A., University of Houston; Ph.D., University of Arkansas, 1978; C.P.A., Texas.

ELAINE F. NICHOLS, *Assistant Professor of Nursing* (1980) B.S.N., Western Reserve University; M.S.N., Case Western Reserve University, 1971.

WILLIAM T. NICHOLS, *Assistant Dean of Continuing Education and Public Services* (July 1984) B.S., M.P.A., Ed.D., The University of Tennessee, 1979.

JOELLE R. NICKEL, *Assistant Director of Admissions* (June 1986) B.A., The Ohio State University, M.A.Ed., The University of Akron, 1985.

ALLEN G. NOBLE, *Professor of Geography* (1964) B.A., Syracuse University; M.A., University of Maryland at College Park; Ph.D., University of Illinois at Urbana, 1957.

JUDITH A. NOBLE, *Professor of Education* (1970) B.S., M.A., Central Michigan University; Ph.D., Michigan State University, 1971.

WALLACE H. NOLIN, *Professor of Music* (1969) B.S., Muskingum College; M.M.E., Kent State University; Ph.D., The Ohio State University, 1969.

JAMES W. NOLTE, *Associate Professor of Real Estate* (1972) B.A., M.A., The University of Akron, 1972.

TIMOTHY S. NORFOLK, *Assistant Professor of Mathematical Sciences* (January 1984) B.Sc., Exeter University (England); M.S., The University of Akron; Ph.D., Kent State University, 1984.

DAVID J. O'BRIEN, *Professor of Sociology* (1972) B.A., Boston College; M.A., University of Notre Dame; Ph.D., Indiana University at Bloomington, 1972.

PHYLLIS O'CONNER, *Head, Circulation Department* (1976) B.A., The University of Akron, 1976.

TAWIA MODIBO OCRAN, *Associate Professor of Law* (1984) B.L., LL.B., University of Ghana; M.L.I., Ph.D., University of Wisconsin at Madison, 1971.

JOHN H. OLIVE, *Professor of Biology* (1970) B.S., The Ohio State University; M.A., Ph.D., Kent State University, 1964.

GARY H. OLLER, *Assistant Professor of Classics* (1979) B.A., Dickinson College; Ph.D., University of Pennsylvania, 1977.

GRACE E. OLMSTEAD, *Coordinator of Handicapped Student Services* (October 1977) B.A., Wilberforce University; M.Ed., Kent State University, 1972.

CAROL A. OLSON-ELLYSON, *Assistant Professor of Law* (1986) B.A., Washington College; M.A., M.Ed., University of Delaware; J.D., University of the Pacific, 1983.

CARMEN OR, *Artist in Residence* (1985) M.M., Tel Aviv University, 1978.

F. SCOTT ORCUTT, JR., *Associate Professor of Biology* (1971) B.S., M.S., Ph.D., Cornell University, 1969.

DONALD W. OTT, *Associate Professor of Biology* (1974) B.S., Southeastern Louisiana University; Ph.D., University of North Carolina at Chapel Hill, 1973.

JOHN W. OWEN, *Director of Admissions* (June 1965) B.A., Johns Hopkins University; M.A., The University of Akron, 1973.

MARC C. OZANICH, *Associate Professor of Dance* (1973) A.A., Bakersfield College; B.A., University of California at Santa Barbara; M.A., University of California at Los Angeles, 1968.

JOSEPH PADOVAN, *Professor of Mechanical Engineering; Professor of Polymer Engineering* (1970) B.S.M.E., M.S.M.E., Ph.D., Polytechnic Institute of New York, 1969.

KENNETH J. PAKENHAM, *Associate Professor of English; Director of the English Language Institute* (August 1980) B.A., Trinity College (Ireland); M.A., University of Essex (England); Ph.D., University of Pittsburgh, 1980.

ARTHUR L. PALACAS, *Associate Professor of English* (1976) B.A., Harvard University; Ph.D., Indiana University at Bloomington, 1970.

JUDITH A. PALAGALLO, *Associate Professor of Mathematical Sciences* (1978) B.S., Westminster College; M.S., Purdue University; Ph.D., Colorado State University, 1976.

ROLAND R. PAOLUCCI, *Assistant Professor of Music; Coordinator of Jazz Studies; Director of the Jazz Ensemble* (1975) B.S., State University of New York; M.A., The University of Akron, 1985.

HAI G. PARK, *Assistant Professor of Accounting* (1986) B.B.A., M.B.A., Seoul National University; Ph.D., University of Oklahoma, 1983.

STEPHEN J. PARKER, *Instructor in Physical Education* (April 1980) B.Ed., W.E.S. Kent State College, 1973.

MANOUCHER PARVIN, *Professor of Economics* (1978) B.S., University of Toledo; Ph.D., Columbia University, 1969.

KYLE S. PASSMORE, *Assistant Law Librarian, Technical Services* (August 1977) B.A., Capital University; M.L.S., Kent State University, 1977.

JAYPRAKASH G. PATANKAR, *Associate Professor of Management* (1978) B.S., Bombay University (India); M.S., Ph.D., Clemson University, 1978.

D'ORSAY W. PEARSON, *Professor of English* (1966) B.A., University of North Carolina at Greensboro; M.A., University of Florida; Ph.D., Kent State University, 1969.

NORMA J. PEARSON, *Assistant Professor of Bibliography; Head, Science Technology Department; Natural Sciences Bibliographer* (May 1979) B.A., M.L.S., M.A., Kent State University, 1978.

GEORGIA K. PEEPLES, *Assistant Professor of Music* (1983) B.M., Baylor University; M.A., University of North Carolina; D.M.A., University of Maryland, 1981.

WOLFGANG PELZ, *Associate Professor of Mathematical Sciences* (1978) B.S., Rose Human Institute of Technology; M.S. (Statistics), Ph.D., M.S. (Computer Science), Virginia Polytechnic Institute and State University, 1984.

BRIAN F. PENDLETON, *Acting Associate Dean of Graduate Studies and Research; Associate Professor of Sociology* (1978) B.A., University of Minnesota at Duluth; M.A., University of North Dakota; Ph.D., Iowa State University, 1977.

JON ROBERT PESKE, *Associate Professor in the Community and Technical College* (1969) B.A., M.A., The University of Akron, 1969.

ANNE L. PETERSON, *Reference Librarian* (1978) B.A., College of Wooster; M.L.S., University of Illinois; J.D., The University of Akron, 1984.

JOHN M. PETERSON, *Director of Purchasing and Communication Services* (July 1985) B.S., Massachusetts Institute of Technology; J.D., The University of Akron, 1962.

DEANE VAN PHAM, *Assistant Professor of Management* (1983) Baccalaureate, Can Thang Polytechnical School (Vietnam); B.S., Southern Illinois University; M.B.A., Ph.D., University of Arkansas, 1986.

MARVIN E. PHILLIPS, *Director of Public Services* (July 1972) A.A., Flint Community College; B.A., Albion College; M.A., Michigan State University, 1952.

PHILIP E. PHILLIPS, *Instructor in Business Management Technology* (1979) B.S., M.B.A., University of Wisconsin at Madison, 1955.

ROBERT F. PHIPPS, *Assistant Director of Print Communications* (November 1982) B.A., Iowa State University, 1980.

IRJA PIIRMA, *Professor of Polymer Science* (December 1952) Diploma in Chemistry, Technische Hochschule of Darmstadt (Germany); M.S., Ph.D., The University of Akron, 1960.

HARRY T. PINNICK, *Associate Professor of Physics* (1964) B.A., Southwestern College (Kansas); Ph.D., State University of New York at Buffalo, 1955.

JOHN C. PITTS, *Associate Director of Student Financial Aid* (July 1971) B.A., The University of Akron, 1968.

TROXEL O. PLUMMER, *Assistant Professor of Aerospace Studies* (1985) B.S., Southern Illinois University; M.S., United States International University, 1981; Captain, USAF, Data Operations.

ELLEN SUE POLITELLA, *Associate Professor of History (Wayne General and Technical College)* (1972) B.A., Kent State University; M.A., Oberlin College, 1960.

ARTHUR R. POLLOCK, JR., *Professor in the Community and Technical College* (1967) B.S.Ed., Indiana University of Pennsylvania; M.A., Case Western Reserve University, 1968.

MARGARET M. POLOMA, *Professor of Sociology* (1970) A.B., Notre Dame College of Ohio; M.A., Ph.D., Case Western Reserve University, 1970.

VELMA E. POMRENKE, *Assistant Professor in the Community and Technical College* (January 1978) B.A., University of Western Ontario; M.A., New York University; Ph.D., The University of Akron, 1979.

GEORGE S. POPE, *Associate Professor of Music* (1978) B.M.E., University of Tulsa; M.M., Northwestern University, 1975.

ROBERT F. POPE, JR., *Associate Professor of English* (1977) B.A., University of California at Berkeley; M.A., California State University, San Diego; M.F.A., University of Iowa, 1976.

JOHN A. POPPLESTONE, *Professor of Psychology; Director of the Archives of the History of American Psychology* (1961) B.A., University of Michigan at Ann Arbor; M.A., Wayne State University; Ph.D., Washington University, 1958.

RALPH J. PRALL, *Assistant Professor of Business Management Technology* (1979) B.S., M.S., Youngstown State University; Ph.D., The Ohio State University, 1980.

PETER C. PREUSCH, *Assistant Professor of Chemistry* (1983) B.S., Pennsylvania State University; Ph.D., Cornell University, 1979.

PAMELA T. PRICE, *Assistant Professor of Home Economics* (1980) B.A., The University of Akron; M.S., Case Western Reserve University, 1978.

THOMAS E. PRICE, JR., *Associate Professor of Mathematical Sciences; Associate Professor of Biomedical Engineering* (1976) B.S., M.S., Ph.D., University of Georgia, 1976.

MINNIE C. PRITCHARD, *Assistant Professor of Surveying and Construction Technology; Assistant Professor of Drafting Technology* (1971) B.S.C.E., M.S. Tech. Ed., The University of Akron, 1981.

GEORGE E. PROUGH, *Associate Professor of Marketing* (1968) M.A., Michigan State University; D.B.A., Kent State University, 1977.

GEORGE W. PRUET, JR., *Assistant Professor of Political Science* (1984) B.A., University of Alabama; M.S., Ph.D., Florida State University, 1983.

ROGER D. PURDY, *Associate Professor of Law* (1981) A.B., Harvard University; J.D., Boston University, 1978.

ANTONIO R. QUESADA, *Associate Professor of Mathematical Sciences* (1984) M.S., Ph.D., University of Florida, 1978.

THOMAS J. QUICK, *Research Associate in Geology* (1983) A.S., B.S., M.S., The University of Akron, 1983.

RODERIC P. QUIRK, *Professor of Polymer Science* (October 1983) B.S., Rensselaer Polytechnic Institute; M.S., Ph.D., University of Illinois, 1967.

NEAL C. RABER, *Associate Professor of Mathematical Sciences* (1972) B.S.Ed., Kent State University; M.S., Ph.D., The Ohio State University, 1972.

GAURI S. RAI, *Professor of Social Work* (1980) B.A., M.A.S., Kashi Vidyapith University; M.S.W., Saint Louis University; Ph.D., Rutgers University at New Brunswick, 1976.

MALCOLM R. RAILEY, *Associate Professor of Electrical Engineering* (1970) B.S.E.E., M.S.E.E., Ph.D.E.E., University of Texas at Austin, 1970; P.E., Texas.

MARY C. RAINEY, *Professor of Home Economics* (1980) B.A., Saint Mary's College; M.A., Ph.D., Michigan State University, 1971.

JONATHON S. RAKICH, *Professor of Management and Health Services Administration; Professor of Biomedical Engineering* (1972) B.A., Oakland University; M.B.A., University of Michigan at Ann Arbor; Ph.D., St. Louis University, 1970.

PENNY RAKOFF, *Associate Professor of Art* (1978) B.F.A., University of Michigan at Ann Arbor; M.F.A., Rochester Institute of Technology, 1976.

HARRIDUTT RAMCHARRAN, *Assistant Professor of Finance* (1986) B.S., Mankato State College; M.A., Ph.D., State University of New York at Binghamton, 1978.

JOHN H. RAMEY, *Associate Professor of Social Work* (1969) B.A., M.A.S.W., The Ohio State University, 1950; A.C.S.W., C.S.W. (Illinois).

DAVID NICHOLAS RANSON, *Associate Professor of English* (1973) B.A., M.A., Cambridge University (England); Ph.D., Case Western Reserve University, 1974.

DARIUS RASTOMJI, *Assistant Professor of Data Processing* (October 1981) B.Comm., M.Comm., University of Poona; A.A.S., M.S.Ec., The University of Akron, 1980.

JAMES S. RAY, *Staff Accountant* (April 1984) B.S., The University of Akron, 1980.

GEORGE E. RAYMER, *Director of Communications/Marketing* (August 1961) B.A., Kent State University; B.A.Ed., M.A.Ed., The University of Akron, 1968.

DONNA JEAN RECTOR, *Accountant* (March 1976) B.S.B.A., Kent State University, 1962.

NARENDER P. REDDY, *Associate Professor of Biomedical Engineering* (March 1981) B.E., Osmania University; M.S., University of Mississippi; Ph.D., Texas A&M University, 1974.

DAVID A. REDLE, *Assistant Professor of Business Law; Assistant to the Director of Graduate Studies* (January 1981) B.B.A., University of Notre Dame; M.B.A., J.D., The University of Akron, 1980.

CHARLENE K. REED, *Administrative Assistant, Office of the President* (October 1982) B.A., The University of Akron, 1982.

DIANA C. REEP*, *Associate Professor of English* (1980) B.S., M.A., Ph.D., University of Wisconsin at Milwaukee, 1979.

ELIZABETH A. REILLY, *Assistant Professor of Law* (1984) A.B., Princeton University; J.D., The University of Akron, 1978.

MELVILLE H. REINHART, *Manager of Technical Services; Assistant to the University Architect* (1984) B.S., University of Toledo, 1959.

HOWARD S. REINMUTH, JR., *Associate Professor of History* (1966) B.A., M.A., Ph.D., University of Minnesota, 1958.

NIKOLA RESANOVIC, *Assistant Professor of Music* (1983) B.A., M.A., The University of Akron; D.M.A., Cleveland Institute of Music, 1981.

JANET R. REUTER, *Associate Professor of Education* (1975) B.S.Ed., M.Ed., Ohio University; Ph.D., University of Toledo, 1975.

RICHARD S. RICE, *Assistant Director of Cooperative Education—College of Engineering; Assistant Professor of Coordination* (August 1984) B.S.B.A., Bowling Green State University, 1959.

WILLIAM D. RICH, *Assistant Professor of Law* (1981) B.A., University of Rochester; J.D., University of Denver, 1977.

JAMES F. RICHARDSON, *Professor of History; Professor of Urban Studies; General Studies Course Director; Institutions in the United States; Chairman of Division of Social Sciences* (1967) B.A., Iona College; Ph.D., New York University, 1961.

RANDOLPH E. RICHARDSON, *University Architect; Director of Facilities Planning and Construction* (August 1985) B.A., Miami University, 1969.

PAUL RICHERT, *Law Librarian; Associate Professor of Law* (July 1977) A.B., M.S., University of Illinois; J.D., Tulane University of Louisiana, 1977.

HELEN W. RICHTER, *Assistant Professor of Chemistry* (1984) B.A., The Womens College of Georgia; M.S., Ph.D., The Ohio State University, 1974.

DAVID C. RIEDE, *Professor of History* (1955) B.A., M.A., Ph.D., University of Iowa, 1957.

BEVERLY B. ROARK, *Academic Project Analyst* (1984) B.S., University of Alabama, 1961.

CAROLYN B. ROBERTS, *Instructor in Nursing* (January 1981) B.S., Hampton Institute; M.S., Loyola University, 1974.

JANE F. ROBERTS, *Instructor in Social Services Technology (Wayne General and Technical College)* (1985) B.A., Gettysburg College; M.S., Case Western Reserve University, 1975.

RICHARD S. ROBERTS, *Professor of Accounting* (1964) B.B.A., University of Cincinnati; M.B.A., Ph.D., The Ohio State University, 1966; C.P.A., Ohio.

ROBERT W. ROBERTS, *Robert Iredell Professor of Chemical Engineering; Research Associate in the Institute of Polymer Science* (1966) B.S.Ch.E., Washington University; M.S.Ch.E., Ph.D.Ch.E., University of Iowa, 1962.

SUELLEN S. ROBERTS, *Instructor in Home Economics* (January 1984) B.S., M.S., Kent State University, 1980.

BARBARA ROBINSON, *Instructor in English Language Institute; Assistant Director of the English Language Institute* (January 1981) B.A., Dartmouth College; M.S., Georgetown University, 1979.

DAVID J. ROBINSON, *Professor of Electronic Technology* (January 1970) B.S.E.E., The University of Akron; M.S.E., Case Western Reserve University; J.D., The University of Akron, 1975.

DAVID N. ROBINSON, *Professor of Civil Engineering* (January 1983) B.Sc., Northern Arizona University; M.Sc., Ph.D., Brown University, 1966.

EMILY A. ROCK, *Assistant Professor of Biology (Wayne General and Technical College)* (1983) B.S., University of Richmond; M.S., The University of Akron, 1984.

LINDA J. RODDA, *Professor of Office Administration* (1967) B.S.Ed., M.A., The University of Akron, 1969.

LOUIS E. ROEMER, *Professor of Electrical Engineering; Professor of Biomedical Engineering* (1968) B.S., M.S.E.E., Ph.D., University of Delaware, 1967; P.E., Ohio.

HENRY S. ROSENQUIST, *Associate Professor of Psychology* (1965) B.S., M.A., Columbia University; Ph.D., Tulane University of Louisiana, 1964.

MICHAEL B. ROSS, *Associate Professor of Education* (1973) B.S.Ed., Shippensburg State College; M.Ed., Ed.D., Pennsylvania State University, 1974.

MARY A. ROTHERMEL, *Assistant Professor of Management* (1984) B.S., M.B.A., The University of Akron; Ph.D., The Ohio State University, 1981.

JOHN A. RUDE, *Assistant Professor of Accounting* (1983) B.A., M.A., Western Illinois University, 1973.

MARION ALBERT RUEBEL, *Dean of the University College; Professor of Education* (1970) B.A., M.A., University of Northern Iowa; Ph.D., Iowa State University, 1969.

ROBERT E. RUESCHMAN, *Assistant Director of Purchasing* (March 1978) B.B.A., Kent State University, 1968.

PAMELA R. RUPERT, *Coordinator of Developmental Reading; Adjunct Assistant Professor of Education* (July 1978) B.S.Ed., Kent State University; M.S.Ed., Ph.D., The University of Akron, 1979.

DIANE RUPPELT-DALSKY, *Associate Director of Development, College Centered Programs* (January 1984) B.A., Michigan State University, 1969.

HELEN LENORE RYAN, *Associate Professor of Modern Languages* (1968) B.A., Ohio Wesleyan University; M.A. (Spanish), M.A. (French), D.M.L., Middlebury College, 1980.

ROGER N. RYAN, *Associate Vice President of Administrative Services for Physical Facilities; Curator for the Hower House* (May 1976) B.S., University of Cincinnati; M.A., The University of Akron, 1984.

GARNETT RYLAND, *Assistant Professor of Mechanical Engineering* (1984) B.S., University of Richmond; M.S., Ph.D., Virginia Polytechnic Institute, 1982.

RICHARD W. RYMER, *Counseling Psychologist* (August 1970) B.S., M.A., Kent State University, 1961.

JAMES RYON, *Assistant Professor of Music* (1984) B.S., Yale University; B.M., M.M., The Juilliard School, 1978.

ARJAN T. SADHWANI, *Professor of Accounting* (1970) B.A., B.Com., M.Com., Bombay University; Ph.D., Michigan State University, 1971.

ATEF F. SALEEB, *Assistant Professor of Civil Engineering* (1983) B.Sc., Cairo University; M.Sc., Ph.D., Purdue University, 1981.

CHARLES T. SALEM, *Associate Professor in the Community and Technical College* (1965) B.S.S.S., M.A., John Carroll University, 1965.

RONALD L. SALISBURY, *Assistant Professor of Biology* (1982) A.B., Greensboro College; M.S., University of Richmond; Ph.D., Virginia Commonwealth University, 1979.

RAYMOND E. SANDERS, *Associate Professor of Psychology* (1969) B.A., M.A., Ph.D., University of Arizona, 1969.

EVERETT R. SANTEE, JR., *Manager of the N.M.R. Center; Research Associate in the Institute of Polymer Science* (1966) B.S., West Virginia State College, 1962.

MOSTAFA H. SARHAN, *Assistant Professor of Accounting* (January 1983) B.C., Cairo University; M.B.A., Texas A&M University; Ph.D., University of Arkansas, 1983.

SIMSEK SARIKELLE, *Professor of Civil Engineering* (1967) B.S.C.E., Robert College; M.S.C.E., Ph.D., West Virginia University, 1966; P.E., Ohio, West Virginia.

RITA S. SASLAW, *Professor of Education* (1975) B.S., M.A., Ph.D., Case Western Reserve University, 1971.

MICHAEL SAVAGE, *Professor of Mechanical Engineering; Professor of Biomedical Engineering* (1979) B.M.E., Manhattan College; M.S.M.E., Ph.D., Purdue University, 1969; P.E., Indiana, Ohio.

ROBERT F. SAVINELL, *Associate Professor of Chemical Engineering* (1979) B.Che., Cleveland State University; M.S., Ph.D., University of Pittsburgh, 1977.

BLIN B. SCATTERDAY, *Professor in the Community and Technical College* (1964) B.A., M.A.Ed., The University of Akron, 1963.

RUDOLPH J. SCAVUZZO, JR., *Professor of Mechanical Engineering* (1973) B.S.M.E., Lehigh University; M.S.M.E., Ph.D., University of Pittsburgh, 1962; P.E., Ohio.

MARY G. SCHILLER, *Associate Professor of Music* (1982) B.M., University of North Carolina at Greensboro; M.M., D.M.A., The Ohio State University, 1979.

MARY SCHMEDIA, *Instructor in Nursing* (1984) B.S.N., The University of Akron; M.S.N., Kent State University, 1984.

PHILLIP H. SCHMIDT, *Professor of Mathematical Sciences* (1972) B.S., M.S., Ph.D., Purdue University, 1972.

SUSAN M. SCHMIDT, *Administrative Project Leader* (April 1984) B.S., M.S., Purdue University, 1971.

RONALD E. SCHNEIDER, *Associate Professor of Physics* (1962) B.S., The University of Akron; M.S., Virginia Polytechnic Institute; M.S., John Carroll University; Ph.D., Case Western Reserve University, 1964.

WILLEANE V. SCHROCK, *Assistant Professor of Nursing* (1974) B.S., Goshen College; M.S., Case Western Reserve University, 1962; R.N.

JOHANNA S. SCHRUBEN, *Associate Professor of Mathematical Sciences* (1982) B.S., Queens College; A.M., Ph.D., University of Michigan, 1968.

FREDERICK M. SCHULTZ, *Professor of Education* (1969) B.S., M.S., Ph.D., Indiana University at Bloomington; B.A., The University of Akron, 1985.

SUSAN J. SCHUNK, *Instructor in Modern Languages* (1971) B.S.Ed., Indiana University of Pennsylvania; M.A., The Ohio State University, 1968.

HAROLD M. SCHWARZ, *Director of Health Services* (1977) B.S., University of South Carolina; M.D., St. Louis University, 1950.

JOAN C. SEIFERT, *Professor of Education* (1967) B.S.Ed., M.Ed., Ph.D., Kent State University, 1967.

RICHARD H. SEIVERT, *Assistant Director of Administrative Systems and Programming* (July 1981) B.S.Ed., University of North Dakota; M.B.A., The Ohio State University, 1970.

GARY E. SELLERS, *Associate Professor of Economics* (1976) B.A., Shippensburg State College; M.A., Ph.D., University of Cincinnati, 1977.

JOHN S. SERAFINI, *Associate Professor of Mechanical Engineering* (January 1982) B.A.E., M.A.E., Rensselaer Polytechnic Institute; Ph.D., Case Western Reserve University, 1962.

MICHAEL D. SERMERSHEIM, *Associate Director of Office of Legal Affairs* (December 1976) B.A., J.D., The University of Akron, 1973.

GAYLE A. SEYMOUR, *Academic Project Leader* (1975) B.A., M.S., The University of Akron, 1980.

JAMES L. SHANAHAN, *Director of the Center for Urban Studies; Professor of Urban Studies, Center Associate, Center for Urban Studies* (1970) B.B.S., West Virginia State College; M.A., West Virginia University; Ph.D., Wayne State University, 1972.

RICHARD L. SHANKLIN, *Assistant Professor of Music* (1982) B.S., Illinois State University; M.M., North Texas State University, 1973.

LAURENCE D. SHAPIRO, *Associate Professor of Music* (1983) B.M., University of Delaware; M.A., University of Evansville, 1975.

ROBERT J. SHARDY, SR., *Manager/Analyst, Engineering Computer Graphics Facility* (August 1984) B.S., The University of Akron, 1972.

DOUGLAS V. SHAW, *Associate Professor of Urban Studies* (1972) B.A., Lebanon Valley College; M.A., Brown University; Ph.D., University of Rochester, 1972.

ROBERT H. SHAW, *Assistant Football Coach* (December 1985) B.S., Clarion University; M.S., Westminister College, 1959.

ROBERT J. SHEDLARZ, *Professor of Business Law* (1972) B.A., New York University; J.D., Notre Dame Law School, 1972.

DANIEL B. SHEFFER, *Associate Professor of Biology; Associate Professor of Biomedical Engineering; Director, Biostereometrics Laboratory; Acting Director of the Institute for Biomedical Engineering Research* (July 1980) B.S., M.Ed., Northwestern State College; Ph.D., Texas A&M University, 1976.

WALTER ALVIN SHEPPE, *Professor of Biology* (1968) B.S., College of William and Mary; M.A., Ph.D., University of British Columbia, 1958.

KARL A. SHILLIFF, *Professor of Management* (1967) B.S.Ch.E., Pennsylvania State University; M.B.A., The University of Akron; Ph.D., Pennsylvania State University, 1971.

DEBORAH L. SHIMKO, *Coordinator, Electronic Systems* (April 1984) B.S., The University of Akron, 1983.

RICHARD SHIREY, *Professor of Music* (1967) B.M., Oberlin College; M.M., University of Illinois at Urbana, 1965.

JOHN B. SHORROCK, *Assistant Vice President for Institutional Advancement—Development* (October 1984) B.A., Tusculum College; M.A., Virginia Polytechnic Institute and State University; Ph.D., West Virginia University, 1975.

RAYMOND SIBBERSON, *Assistant Professor of Respiratory Therapy Technology* (1978) A.A.S., Cuyahoga Community College; B.S.Ed., M.S.Tech.Ed., The University of Akron, 1981.

MARTIN H. SIEGEL, *Associate Professor of Marketing and Sales Technology* (1972) B.F.A., M.A., Hunter College, 1965.

S. MARC SILLING, *Coordinator of Testing Services; Counseling Psychologist* (November 1981) B.A., Marietta College; M.A., Cleveland State University; Ph.D., Kent State University, 1981.

KENNETH T. SILOAC, *Associate Professor of Communicative Disorders; Director of the Speech and Hearing Center* (1971) B.S., M.Ed., Ph.D., Wayne State University, 1971.

STANLEY B. SILVERMAN, *Assistant Professor in the Community and Technical College* (January 1981) B.S., The Ohio State University; M.A., Middle Tennessee State University, 1973.

FRANKLIN B. SIMMONS, III, *Associate Professor of Management* (January 1982) B.A., M.A., Ph.D., University of Cincinnati; J.D., The University of Akron, 1986; C.P.M.

ANDREW L. SIMON, *Professor of Civil Engineering; Executive Director of Institute for Technological Assistance* (1965) C.E. Diploma, Technical University of Budapest; Ph.D., Purdue University, 1962; P.E., Ohio, West Virginia, Indiana.

PAUL D. SIMPSON, *Assistant Professor of Construction Technology* (January 1983) B.S.C.E., M.S.C.E., The University of Akron, 1976; P.E., Ohio.

GARY J. SIPPS, *Assistant Professor of Psychology* (1981) B.A., Rutgers University; M.A., Ph.D., University of Maryland, 1981.

HOLLY C. SLACK, *Assistant to the Dean of the Community and Technical College; Instructor in the Community and Technical College* (July 1981) B.A., M.Ed., Cleveland State University, 1972.

HOWARD K. SLAUGHTER, *Professor of Theatre Arts* (1967) A.A., San Francisco City College; B.A., University of California at Berkeley; M.A., University of Hawaii; Ph.D., University of Pittsburgh, 1966.

SALLY KENNEDY SLOCUM, *Associate Professor of English* (1966) A.B., Columbia College; M.A., Ph.D., University of Tennessee at Knoxville, 1968.

DANIEL J. SMITH, *Associate Professor of Chemistry; Associate Professor of Biomedical Engineering* (1977) B.S., Wisconsin State University; Ph.D., University of California at Berkeley, 1974.

FORREST SMITH, *Associate Professor of Biology (Wayne General and Technical College)* (January 1975) B.A., Hiram College; M.S., Purdue University; M.A., Kent State University, 1982.

HERBERT W. SMITH, JR., *Professor of Modern Languages* (1956) A.B., Brigham Young University; M.A., Ph.D., University of Wisconsin, 1956.

LOIS M. SMITH, *Accountant* (December 1980) B.A., Walsh College, 1976.

SHAANETTE M. SMITH, *Coordinator of Cooperative Education* (March 1982) B.A., Mount Union College, 1976.

LYNN A. SMOLEN, *Assistant Professor of Education* (1981) B.A., American University; M.Ed., Ph.D., University of Florida, 1981.

LARRY D. SNIDER, *Associate Professor of Music* (1977) B.S., Illinois State University; M.M.E., North Texas University; D.M.A., University of Illinois, 1983.

GLENN H. SNYDER, *Associate Professor of Community Services Technology* (1973) B.A.Ed., The University of Akron, M.Ed., Kent State University, 1972.

NANCY M. SOMERICK, *Associate Professor of Communication* (1978) B.S.J., Ohio University; M.A.J., Kent State University; Ph.D., Ohio University 1974.

GAIL A. SOMMERS, *Assistant Director of the Center for Urban Studies* (January 1984) B.A., M.A., Western Reserve University; M.A., The University of Akron, 1981.

MARK E. SOPPELAND, *Associate Professor of Art* (1976) B.F.A., University of Colorado; M.F.A., The Ohio State University, 1976.

DIANA J. SOUSA, *Assistant Professor of Nursing* (1979) B.S.N., Salve Regina College; M.S.N., University of Pennsylvania, 1978; R.N.

ROBERT J. SOVCHIK, *Professor of Education* (1973) B.S., Kent State University; M.A., Cleveland State University; Ph.D., Kent State University, 1974.

NORMA L. SPENCER, *Associate Professor of Education* (1970) B.S.Ed., M.S., The University of Akron, 1970.

GARY N. SPONSELLER, *Academic Project Leader* (July 1977) B.A., B.A., The University of Akron, 1977.

ROBERT D. SPROAT, *Instructor in Marketing* (1983) B.S., Virginia Commonwealth University, 1976.

JOHN F. STAFFORD, JR., *Assistant Director of Admissions* (July 1979) B.S., Hampton Institute; M.Ed., Kent State University, 1979.

KATHY L. STAFFORD, *Vice President for Institutional Advancement, Adjunct Associate Professor of Political Science* (February 1985) B.A., Kent State University; M.A., Ph.D., The Ohio State University, 1982.

DAVID B. STARK, *Assistant Professor of Mathematical Sciences* (1981) B.A., Weber State College; M.S., J.D., Brigham Young University; Ph.D., University of Texas at Austin, 1981.

RALPH R. STAUB, *Assistant Football Coach* (December 1985) B.S., University of Cincinnati; M.A., Miami University, 1962.

SUSAN J. STEARNS, *Associate Professor of Nursing* (1974) B.S.N., Saint John's College; M.S.N., Catholic University of America, 1963.

STEPHEN P. STEHLE, *Assistant Professor of Mathematical Sciences* (January 1983) B.S., Saint Mary's College; M.S., The University of Akron; Ph.D., Kent State University, 1981.

RAMON F. STEINEN, *Professor of Education* (1969) B.A., M.A., Montclair State College; Ph.D., The Ohio State University, 1966.

RICHARD P. STEINER, *Assistant Professor of Mathematical Sciences* (1983) B.S., Grove City College; M.S., Clarion State College; M.P.H., Ph.D., University of Michigan, 1985.

KAY E. STEPHAN, *Assistant Professor of Business and Office Technology (Wayne General and Technical College)* (January 1979) B.S.Ed., Wittenberg University; M.S., The University of Akron, 1978.

CHARLES R. STEPHENS, *Academic Adviser* (August 1979) B.A., Wilberforce University; M.Ed., Kent State University, 1970.

EUGENE STEPHENS, *Associate Director of Purchasing* (1974) B.S.I.M., M.B.A., The University of Akron, 1981.

WALLACE STERLING, *Associate Professor of Theatre Arts* (1966) B.A., M.A., University of Florida; Ph.D., Southern Illinois University at Carbondale, 1966.

HARVEY L. STERNS, *Professor of Psychology; Director of the Institute for Life-Span Development and Gerontology* (1971) A.B., Bard College; M.A., State University of New York at Buffalo; Ph.D., West Virginia University, 1971.

SHERYL A. STEVENSON, *Assistant Professor of English* (1986) B.A., M.A., Ph.D., University of Maryland, 1986.

JERRY N. STINNER, *Assistant Professor of Biology* (1982) B.S., California Baptist College; Ph.D., University of California at Riverside, 1980.

DONALD P. STORY, *Associate Professor of Mathematical Sciences* (1976) B.A., M.A., Ph.D., University of Florida, 1976.

WARREN P. STOUTAMIRE, *Professor of Biology* (1966) B.S., Roanoke College; M.S., University of Oregon; Ph.D., Indiana University at Bloomington, 1954.

RICHARD W. STRATTON, *Associate Professor of Economics* (1978) B.A., Drew University; M.A., Ph.D., University of Connecticut, 1977.

JOHN M. STREET, *Instructor in Physical Education* (July 1982) B.A., The University of Akron; M.A., Miami University, 1979.

CHARMAINE C. STREHARSKY, *Assistant to the Director of Research Services and Sponsored Programs; Deputy Industrial Security Officer* (1964) A.A.S., B.S.T.E., The University of Akron, 1985.

DONALD E. STULL, JR., *Assistant Professor of Sociology* (1986) B.A., M.A., University of Washington, 1981.

FREDERICK JOHN STURM, *Acting Dean of the Community and Technical College; Associate Professor of Business Management Technology* (August 1968) B.A., M.A., Ed.D., The University of Akron, 1979.

PHILLIP STUYVESANT, *Associate Professor of Modern Languages* (1966) B.A., Thiel College; M.A., Ph.D., Case Western Reserve University, 1970.

LINDA M. SUBICH, *Assistant Professor of Psychology* (1981) B.S., University of Wisconsin at Milwaukee; M.A., Ph.D., The Ohio State University, 1981.

LINDA ELLISON SUGARMAN, *Assistant Professor of Accounting* (1970) B.B.A., M.S.Ed., Hofstra University, 1968; C.P.A., Ohio, New York.

MICHAEL N. SUGARMAN, *Professor of Education* (1970) B.S.B.A., Ed.M., Ed.D., State University of New York at Buffalo, 1966.

DENNIS K. SULLIVAN, *Associate Professor of Manufacturing Technology* (1977) B.S.B.A., M.S.T.E., The University of Akron, 1974.

ROBERT C. SULLIVAN, *Assistant Dean for Placement and Internal Functions* (July 1976) B.S., M.Ed., Kent State University, 1976.

GERARD M. SWEENEY, *Professor of English* (1971) B.S., Manhattan College; M.A., New York University; Ph.D., University of Wisconsin, 1971.

LEONARD SWEET, *Professor of Mathematical Sciences* (1959) B.A.Ed., The University of Akron; M.Ed., Kent State University; Ph.D., Case Western Reserve University, 1970.

JAMES D. SWITZER, *Associate Professor in the Community and Technical College* (1965) B.A., College of Wooster; M.A., Kent State University, 1965.

JOHN P. SZABO, *Associate Professor of Geology* (1975) B.S., University of Notre Dame; Ph.D., University of Iowa, 1975.

LYNNE A. SZABO, *Accountant* (July 1979) B.S., The University of Akron, 1978.

GEORGE L. SZOKE, *Associate Professor of Mathematical Sciences* (1963) B.S.M.E., Polytechnical University of Budapest; M.S.E., The University of Akron; Ph.D.Eng., Technical University of Budapest, 1980.

JAMES W. TAGGART, *Professor of Business Management Technology* (1969) B.S., Youngstown State University; M.B.A., Pennsylvania State University; J.D., The University of Akron, 1974.

JOSEPH A. TAKACS, *Associate Professor of Electronic Technology* (1973) B.S.E.E., M.S.E.E., The University of Akron, 1961.

HUI-QIAN TAN, *Assistant Professor of Mathematical Sciences* (January 1986) B.A., Oberlin College; M.S., Ph.D., Kent State University, 1986.

KAREN S. TARPEY, *Associate Professor of Nursing* (1983) B.S., Saint Louis University; M.S.N., University of California; Ph.D., University of Illinois, 1981; R.N.

MICHAEL J. TASCHNER, *Assistant Professor of Chemistry* (1982) B.S., University of Wisconsin; Ph.D., Iowa State University, 1980.

MARK B. TAUSIG, *Assistant Professor of Sociology* (1983) B.A., University of Wisconsin; M.A., Cornell University; Ph.D., State University of New York at Albany, 1979.

BRUCE C. TAYLOR, *Research Associate Professor of Biomedical Engineering* (May 1984) B.A., Hiram College; M.A., Ph.D., Kent State University, 1971.

HOWARD L. TAYLOR, *Professor of Management* (1963) B.S., The University of Akron; M.S., Ph.D., Iowa State University, 1958.

PATRICIA TAYLOR, *Assistant Professor of Physical Education* (1962) B.S.Ed., The University of Akron; M.A., Kent State University, 1972.

RONALD D. TAYLOR, *Professor of Art* (1964) B.F.A., M.A., The Ohio State University, 1963.

WILLIAM M. TAYLOR, *Instructional Programmer/Systems Analyst* (January 1984) B.S., The University of Akron, 1976.

JAMES W. TEETER, *Professor of Geology* (1965) B.S.C., M.S.C., McMaster University; Ph.D., Rice University, 1966.

LUCILLE B. TERRY, *Associate Professor of Home Economics* (1986) B.A., Wartburg College; M.S., Ph.D., University of North Carolina at Greensboro, 1978.

ROBERT M. TERRY, *Professor of Sociology* (1971) B.A., M.A., Ph.D., University of Wisconsin, 1965.

EDWIN THALL, *Associate Professor of Chemistry (Wayne General and Technical College)* (1974) B.S., Pratt Institute; M.S., New Mexico Highlands University; Ph.D., The University of Akron, 1972.

HELENE S. THALL, *Director of Student Services (Wayne General and Technical College)* (January 1980) B.S., M.S., Pratt Institute, 1969.

JOHN THANOPOULOS, *Associate Professor of Marketing, Director of International Business* (January 1983) B.A., Athens Graduate School of Economics and Business Sciences; M.Sc., City University, London; Ph.D., University of Arkansas, 1983.

FRANCIS B. THOMAS, *Director of Computer Services* (December 1970) B.S., University of Cincinnati; M.A., Kent State University; Ph.D., The University of Akron, 1983.

JACK E. THOMPSON, *Assistant Professor of Business Management Technology* (January 1974) B.S.B.A., Kent State University; M.S., The University of Akron, 1975; C.P.A.

OLETHA THOMPSON, *Academic Adviser* (March 1984) B.A., M.Ed., Howard University, 1973.

STEPHEN J. THOMPSON, *Professor of Education* (1973) B.S., University of Wisconsin at Oshkosh; M.A., University of Northern Colorado; Ph.D., Syracuse University, 1973.

DONALD C. THORN, *Professor of Electrical Engineering* (1967) B.S.E.E., Texas A&M College; M.S.E.E., Ph.D.E.E., University of Texas at Austin, 1958; P.E., New Mexico, Ohio, Texas.

JAMES L. THRONE, *Professor of Polymer Engineering* (1986) B.S., Case Institute of Technology; M.S., Ph.D., University of Delaware, 1964.

GEORGE E. TILDEN, *Assistant Director, Gardner Student Center* (1980) B.A., The University of Akron, 1980.

DAVID H. TIMMERMAN, *Associate Professor of Civil Engineering* (1962) (1967) B.S.C.E., M.S., Ohio University; Ph.D., Michigan State University, 1969; P.E., Ohio.

VIOLET E. TOMI, *Director of University Nursery Center* (1974) B.S.Ed., M.S.Ed., Ph.D., The University of Akron, 1985.

ARLENE A. TOTH, *Instructor in English* (1969) B.A., M.A., The University of Akron, 1969.

JOHN G. TRAVENY, *Academic Adviser* (1981) B.S., M.A., The University of Akron, 1980.

MARY ANN TRIPODI, *Assistant Professor of Physical Education; Assistant Director of Athletics* (1971) B.S., M.Ed., Kent State University, 1970.

DAWN TROUARD, *Associate Professor of English* (1980) B.A., M.A., Texas A&M University; Ph.D., Rice University, 1981.

RALPH B. TUREK, *Associate Professor of Music* (1980) B.S., M.M., Duquesne University; D.M.A., University of Cincinnati, 1975.

GENEVIEVE H. TURLIK, *Assistant Professor of Medical Assisting Technology* (1971) B.A., M.S.Tech.Ed., The University of Akron, 1980.

KAREN B. TURNER, *Associate Professor of Communicative Disorders; Associate Professor of Handicapped Services* (April 1971) B.S., Kent State University; M.S.Ed., The University of Akron, 1974.

MONTE E. TURNER, *Assistant Professor of Biology* (1982) B.S., M.S., Brigham Young University; Ph.D., University of Georgia, 1982.

TYRONE M. TURNING, *Dean of Wayne General and Technical College; Associate Professor of Speech* (July 1980) B.A., Southern Illinois University; M.A., Ed.D., Northern Illinois University, 1974.

ANDREW N. URBANIC, *Assistant Football Coach* (January 1986) B.A., Bethany College, 1959.

RAMESH VAKAMUDI, *Facilities Planner* (July 1985) B.A., Jawaharial Nehru Technical University; M.S., Pennsylvania State University; M.A., The University of Akron, 1985.

JANET B. VAN DOREN, *Assistant Professor of Chemical Technology* (1983) B.S., University of Illinois; M.S., Michigan State University, 1956.

SHERMAN D. VANDER ARK, *Professor of Music* (1973) A.B., Calvin College; M.A., Ph.D., The Ohio State University, 1970.

PATSY VEHAR, *Instructor in Business and Office Technology (Wayne General and Technical College)* (1984) B.A., B.S., Ohio University; M.Ed., Kent State University, 1983.

TRINA L. VELEZ, *Assistant to the Associate Vice President of Administrative Services for Physical Facilities - Management Coordination; Assistant Curator of the Hower House* (January 1978) B.A., University of Tampa, 1974.

VICTOR VELEZ, *Assistant Director of Career Planning and Placement* (July 1977) B.A., M.A., University of Tampa, 1977.

RICHARD F. VIERING, *Professor of Education; Director of Teacher Placement* (1982) B.S., M.S., Ph.D., Kent State University, 1970.

RONALD E. VIOLA, *Associate Professor of Chemistry* (1984) B.S., Fordham University; M.S., Ph.D., Pennsylvania State University, 1976.

ERNST D. VON MEERWALL, *Professor of Physics; Faculty Research Associate, Institute of Polymer Science* (1971) B.S., M.S., Northern Illinois University; Ph.D., Northwestern University, 1970.

ANNA M. VOORHEES, *Associate Professor of Bibliography; Head, Cataloging Department* (1971) B.S.Ed., B.Mus., The Ohio State University; M.A., Kent State University, 1964.

VLADA VUKADINOVIC, *Assistant Professor of Art* (1983) Assoc., Cuyahoga Community College; B.F.A., Cleveland State University; M.F.A., Kent State University, 1982.

DIANE VUKOVICH, *Coordinator of Developmental Mathematics; Assistant Director of Developmental Programs* (1976) B.S., Youngstown State University; M.Ed., Kent State University; Ph.D., The University of Akron, 1975.

THOMAS J. VUKOVICH, *Assistant Dean of the University College* (July 1972) B.S., Ohio Northern University; M.Ed., Ph.D., Kent State University, 1982.

MARTHA W. VYE, *Associate Professor of Office Administration* (1973) B.S., Appalachian State University; M.Ed., Bowling Green State University, 1965.

MELVIN C. VYE, *Associate Professor of Electronic Technology* (1972) B.S.E.E., Ohio University; M.E., Pennsylvania State University, 1969.

EDWIN E. WAGNER, *Professor of Psychology* (1959) B.A., M.A., Ph.D., Temple University, 1959.

JOHN R. WALKER, *Accountant* (March 1978) B.S., The University of Akron, 1974.

ALF H. WALLE, III, *Assistant Professor of Marketing* (1984) B.S., Ashland College; M.A., State University of New York, Binghamton, Ph.D., State University of New York at Buffalo; M.B.A., The University of Akron, 1982.

WINIFRED J. WALTER, *Assistant Professor of Nursing* (1983) B.S.N., Saint Louis University; M.S.N., Case Western Reserve University, 1972; R.N.

JOSEPH M. WALTON, *Acting Dean of Graduate Studies and Research, Professor of Education* (1970) B.S.Ed., University of Cincinnati; M.Ed., Xavier University; Ph.D., The Ohio State University, 1970.

JOAN E. WARNER, *Professor of Office Administration* (1964-1971) (1975) B.S., M.S.Ed., The University of Akron, 1966.

DAVID G. WASIK, *Manager of Administrative Systems and Programming* (June 1973) B.S., The University of Akron, 1973.

VIRGINIA J. WATKINS, *Associate Professor of Office Administration* (1967) B.A.Ed., M.A.Ed., Arizona State University, 1953.

WINIFRED T. WATSON-FLORENCE, *Associate Professor of Communicative Disorders; Clinical Supervisor in Communicative Disorders* (1976) B.A., M.A., Wichita State University, 1972.

JOHN STEWART WATT, *Professor of Education* (1956) B.A., The University of Akron; M.A., Ph.D., University of Chicago, 1950.

ADELE A. WEBB, *Instructor in Nursing* (1985) B.S.N., The University of Akron; M.S.N., The Ohio State University, 1985.

DONNA S. WEBB, *Associate Professor of Art* (1981) B.F.A., Eastern Michigan University; M.F.A., University of Michigan, 1971.

JAMES R. WEBB, *Professor of Finance* (1982) B.S., M.B.A., Northern Illinois University; Ph.D., University of Illinois, 1982.

THOMAS DEWITT WEBB, *Associate Professor of Art* (1970) B.F.A., M.F.A., University of Michigan at Ann Arbor, 1970.

WILLIAM V. WEBB, *Assistant Professor in the Community and Technical College* (1968) B.A., University of Notre Dame; M.S., John Carroll University, 1960.

WYATT M. WEBB, *Associate Professor of Physical Education* (1967) B.S.Ed., The University of Akron; M.S.Ed., University of Cincinnati; Ph.D., The Ohio State University, 1967.

DEBORAH S. WEBER, *Assistant Professor in the Community and Technical College* (1982) B.A., Denison University; M.A., The Ohio State University, 1972.

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., Loras College; M.Ed., Ohio University; Ph.D., The Ohio State University, 1967.

JOHN T. WELCH, JR., *Associate Professor of Electrical Engineering; Director of the Engineering Computer Graphics Facility* (1973) B.S., M.S., Ph.D., North Carolina State University at Raleigh, 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, *Professor of Office Administration* (1971) B.S., Salem College; M.S.Ed., Madison College, 1965.

ROBERT C. WEYRICK, *Acting Associate Provost for Academic Services; 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.

JUDY D. WILKINSON, *Associate Professor of Marketing* (1984) B.S., M.B.A., Louisiana Polytechnic Institute; Ph.D., University of Alabama, 1972.

DENNIS WILLIAMS, *Assistant Professor of Aerospace Studies* (August 1984) B.A., University of Southern California; M.A., Webster College, 1982; Lieutenant, USAF, Missile Maintenance Officer.

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 at Milwaukee, 1973.

RICHARD A. WILLIAMS, *Associate Professor of Electrical Engineering* (1968) B.S., M.S., Ph.D., The Ohio State University, 1965; P.E., Ohio.

MAX S. WILLIS, JR., *Professor of Chemical Engineering; Professor of Biomedical 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 at Ann Arbor; Ph.D., Washington University, 1952.

ERNEST LEE WILSON, *Assistant to the Dean, College of Business Administration; Director of Internship Programs, College of Business Administration* (1972), (1974), (1976) B.S.B.A., The Ohio State University; M.B.A., The University of Akron, 1969; C.M.A.

G. EDWIN WILSON, JR., *Professor of Chemistry* (1984) S.B., Massachusetts Institute of Technology; Ph.D., University of Illinois, 1964.

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 at Urbana, 1960.

BERNARD S. WINICK, *Associate Professor of Business Law; Director of Undergraduate Studies* (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; Manager of Applied Research, Institute of Polymer Science* (October 1969) B.S., Ashland College; M.S., The University of Akron, 1972.

CYNTHIA D. WITNER, *Assistant Director of Public Relations* (August 1984) B.A., Kent State University, 1978.

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 Office Administration* (1971) (1972) B.S., The University of Akron, M.E., Ohio University, 1951.

MICHAEL P. WOODFORD, *Assistant Football Coach* (January 1986) B.A., University of Arizona, 1982.

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, *Assistant Professor of Communicative Disorders* (1980) B.A., M.A., Ph.D., The University of Akron, 1985.

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 at Bloomington, 1971.

GERALD W. YOUNG, *Assistant Professor of Mathematical Sciences* (1985) B.S., The University of Akron; Ph.D., Northwestern University, 1985.

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., *Associate Professor of Music* (1977) B.M.E., The Ohio State University; M.M., University of Illinois, 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.

JOHN J. ZARSKI, *Professor of Education* (1985) B.S., Bloomsburg State College; M.A., University of Maryland; Ph.D., Ohio University, 1975.

HANS O. ZBINDEN, *Assistant Professor of Modern Languages* (1965) B.A., Wittenberg University; M.A., University of Pennsylvania; Ph.D., Pennsylvania State University, 1971.

DALE L. ZIMMERMAN, *Assistant Professor of Aerospace Studies* (1985) B.S., The University of Akron; M.B.A., University of Missouri, 1984; Captain, USAF, Missile Operations.

DONALD A. ZIMMERMAN, *Associate Professor of Marketing and Sales Technology* (1973) B.S.B.A., Defiance College; M.B.A., University of Pennsylvania, 1968.

NOEL S. ZUGAY, *Academic Adviser* (July 1978) B.A., M.A., Indiana University of Pennsylvania, 1978.

PATRICK D. ZURASKI, *Assistant Professor of Civil Engineering* (1986) B.S., M.S., Ph.D., University of Wisconsin-Madison, 1986.

Full-Time Teaching Faculty

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General Studies

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COURSE DIRECTORS: John D. Bee, Robert N. Ganoee, Jim L. Jackson, Janet E. Marting, James F. Richardson.

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ASSOCIATE PROFESSOR: Robert E. Gaebel.

ASSISTANT PROFESSORS: J. Clayton Fant, Gary H. Oller.

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ASSISTANT PROFESSOR: Marianne T. Hill.

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PROFESSORS: Frank J. Costa, Ashok K. Dutt, Laurence J. Ma, Thomas L. Nash.

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ASSISTANT PROFESSOR: Robert B. Kent, II.

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ASSISTANT PROFESSOR: Annabelle Foos.

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ASSISTANT PROFESSOR: J. Clayton Fant.

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Modern Languages

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PROFESSORS: Alan Hart, William E. McMahon.

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Physics

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PROFESSORS: Harry T. Chu, Alan N. Gent, C. Frank Griffin, Ernst D. von Meerwall, Charles W. Wilson, III.

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ASSISTANT PROFESSORS: David R. Bowman, Purushottam Das Gujrati.

Political Science

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ASSISTANT PROFESSORS: Huey-Tsyh Chen, Paul B. Colomy, Donald E. Stull, Jr., Mark B. Tausig.

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College of Engineering

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PROFESSORS: Mamerto L. Chu, Daniel L. Ely, Robert N. Gandee, Howard L. Greene, Frank W. Harris, Eberhard A. Meinecke, Richard A. Mostardi, Jonathon S. Rakich, Louis E. Roemer, Michael Savage, Max S. Willis, Jr.

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PROFESSORS: Chun-Fu Chen, Kai-Fong Lee, Louis E. Roemer, Donald C. Thorn.

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ASSISTANT PROFESSOR: Garnett Ryland.

Polymer Engineering

HEAD: Professor James L. White.

PROFESSORS: Nobuyuki Nakajima, Joseph Padovan, James L. Throne.

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Reserve Officers' Training Corps

July 1986

Army

MAYO A. HADDEN, III, *Professor of Military Science* (August 1985) B.S., University of Alabama; M.B.A., Hardin-Simmons; Graduate of U.S. Air Force War College; Lieutenant Colonel, Infantry.

JAMES L. ANSON, *Assistant Professor of Military Science* (June 1983) B.S., West Virginia University, 1969; Major, (USAR), Infantry.

ERNEST C. BOROWICZ, *Assistant Professor of Military Science* ((July 1983) B.S., Central Michigan University, 1976; Captain, Finance.

JON A. CALVERT, *Assistant Professor of Military Science* (July 1985) B.A., University of Toledo, 1982; Captain (ONG), Engineer.

GARY R. GARRETT, *Assistant Professor of Military Science* (August 1986) B.A., Saint Martin's College, 1986; Captain, Signal Corps.

HILTON E. HEINEKE, III, *Assistant Professor of Military Science* (August 1984) B.A., Westminster College, 1975; Captain, Infantry.

HERSCHEL E. CALDWELL, *Operations NCO* (August 1985) Master Sergeant.

ROBERT N. SCOTT, *Chief Instructor* (July 1984) Sergeant Major.

ROBERT W. HINSHA, *Supply Sergeant* (July 1985) Staff Sergeant.

Air Force

WILLIAM F. LEYDORF, JR., *Professor of Aerospace Studies* (August 1984) B.S., U.S. Air Force Academy; M.S., Purdue, 1967; Lieutenant Colonel, USAF, Pilot.

DONALD L. LOGSTON, *Assistant Professor of Aerospace Studies* (July 1986) B.S., M.S., West Virginia University, 1982; Captain, USAF, Project Engineer.

TROXEL O. PLUMMER, *Assistant Professor of Aerospace Studies* (1985) B.S., Southern Illinois University; M.S., United States International University, 1981; Captain, USAF, Data Operations.

DENNIS WILLIAMS, *Assistant Professor of Aerospace Studies* (August 1984) B.A., University of Southern California; M.A., Webster College, 1982; Lieutenant, USAF, Missile Maintenance Officer.

DALE L. ZIMMERMAN, *Assistant Professor of Aerospace Studies* (1985) B.S., The University of Akron; M.B.A., University of Missouri, 1984; Captain, USAF, Missile Operations.

STEVEN S. FRAME, *NCOIC, POC Records* (1985) Staff Sergeant, USAF, Personnel.

JAMES K. BLAND, *NCOIC, GMC Records* (March 1986) Sergeant, USAF, Administration.

Institute of Polymer Science

FRANK N. KELLEY, *Director of the Institute of Polymer Science; Professor of Polymer Science* (1978) B.S., M.S., Ph.D., The University of Akron, 1961.

VINCENT A. ALTIER, *Research Associate, Institute of Polymer Science* (January 1983) A.B., Youngstown State University; M.S., The University of Akron, 1954.

MICHAEL F. FARONA, *Professor of Chemistry; Faculty Research Associate, Institute of Polymer Science* (1964) B.S., Case Western Reserve University; M.S., Ph.D., The Ohio State University, 1964

EDWARD M. FIRER, *Research Associate, Institute of Polymer Science* (June 1975) B.A., University of Bridgeport; M.S., University of Maryland; Ph.D., The University of Akron, 1973.

JOHN E. FREDERICK, *Associate Professor of Polymer Science; Associate Professor of Chemistry* (1966) B.S.Ch., Glenville State College; Ph.D., University of Wisconsin, 1964.

ALAN N. GENT, *Professor of Polymer Physics* (April 1961) B.S., Ph.D., University of London, 1955.

PURUSHOTTAM DAS GUJRATI, *Assistant Professor of Physics: Assistant Professor of Polymer Science* (1983) B.Sc., Banaras Hindu University, India; M.Sc., Indian Institute of Technology, India; M.A., M.Phil., Ph.D., Columbia University, 1978.

GARY R. HAMED, *Associate Professor of Polymer Science; Associate Professor of Biomedical Engineering* (1980) B.S.C.E., M.S.C.E., Cornell University; Ph.D., The University of Akron, 1978.

FRANK W. HARRIS, *Professor of Polymer Science; Research Associate, Institute of Polymer Science* (1983) B.S., University of Missouri; M.S., Ph.D., University of Iowa, 1968.

H. JAMES HARWOOD, *Professor of Polymer Science; Professor of Chemistry* (October 1959) B.S., The University of Akron, Ph.D., Yale University, 1956.

JOSEPH P. KENNEDY, *Distinguished Professor of Polymer Science; Distinguished Professor of Chemistry* (1970) B.Sc., University of Budapest; M.B.A., General Business, Rutgers University; Ph.D., University of Vienna, 1961.

WAYNE L. MATTICE, *Alex Schulman Professor of Polymer Science* (July 1986) B.A., Grinnell College; Ph.D., Duke University, 1968.

DONALD MCINTYRE, *Professor of Polymer Science; Professor of Chemistry* (1966) A.B., Lafayette College; Ph.D., Cornell University, 1954.

EBERHARD A. MEINECKE, *Professor of Polymer Science; Professor of Mechanical Engineering* (October 1963) D. Eng., Institute of Technology (Braunschweig, Germany), 1960.

IRJA PIIRMA, *Professor of Polymer Science* (December 1952) Diploma in Chemistry, Technische Hochachule of Darmstadt; M.S., Ph.D., The University of Akron, 1960.

RODERIC P. QUIRK, *Professor of Polymer Science* (October 1983) B.S., Rensselaer Polytechnic Institute; M.S., Ph.D., University of Illinois, 1967.

EVERETT SANTEE, JR., *Manager of the NMR Center, Research Associate, Institute of Polymer Science* (1966) B.S., West Virginia State College, 1962.

ERNST D. VON MEERWALL, *Professor of Physics; Faculty Research Associate, Institute of Polymer Science* (1971) B.S., M.S., Northern Illinois University; Ph.D., Northwestern University, 1970.

CHARLES W. WILSON III, *Research Associate, Institute of Polymer Science; Professor of Physics; Professor of Polymer Science* (1965) B.S.E., M.S., University of Michigan; Ph.D., Washington University, 1952.

DAVID WINKLER, *Manager of Applied Research, Institute of Polymer Science; Research Associate* (October 1969) B.S., Ashland College; M.S., The University of Akron, 1972.

Institute for Biomedical Engineering

KAREN M. MUDRY, *Director, Institute for Biomedical Engineering Research; Associate Professor of Electrical Engineering; Associate Professor of Biomedical Engineering* (1979) B.E.E., Villanova University; M.S., Johns Hopkins University; Ph.D., Cornell University, 1978.

LARRY A. ABEL, *Associate Professor of Biomedical Engineering* (1986) B.S., M.S., Ph.D., Carnegie-Mellon University, 1976.

CARL R. McMILLIN, *Associate Professor of Biomedical Engineering; Director, Cardiovascular Lab* (1983) B.M.E., General Motors Institute of Technology; M.S., Ph.D., Case Western Reserve University, 1974.

NARENDER P. REDDY, *Associate Professor of Biomedical Engineering* (March 1981) B.E., Osmania University; M.S., University of Mississippi; Ph.D., Texas A&M University, 1974.

DANIEL B. SHEFFER, *Acting Director of the Institute for Biomedical Engineering Research, Associate Professor of Biology; Associate Professor of Biomedical Engineering; Director, Biostereometrics Laboratory* (July 1980) B.S., M.Ed., Northwestern State College; Ph.D., Texas A&M University, 1976.

Center for Polymer Engineering

JAMES L. WHITE, *Director of the Center of Polymer Engineering; Professor of Polymer Engineering* (July 1983) B.S.Ch.E., Polytechnic Institute of Brooklyn, M.S.Ch.E., Ph.D., University of Delaware, 1965.

MUKERREM CAKMAK, *Assistant Professor of Polymer Engineering* (August 1983) B.S., Technical University of Istanbul; M.S., Ph.D., University of Tennessee, 1984.

CHIH-HUNG CHEN, *Chief Engineer, Polymer Engineering Center* (1985) B.S., Tatung Institute of Technology; M.S., University of Tennessee, 1981.

AVRAM I. ISAYEV, *Associate Professor of Polymer Engineering* (1983) M.Sc., Azerbaijan Institute of Oil and Chemistry; M.Sc., Moscow Institute of Electronic Machine Building; Ph.D., USSR Academy of Sciences, 1970.

THEIN KYU, *Assistant Professor of Polymer Engineering* (1983) B.Eng., Kyoto Institute of Technology; M.Eng., D.Eng., Kyoto University, 1980.

KYONSUKU MIN, *Senior Principal Engineer, Polymer Engineering Center* (August 1983) B.Eng., M.Eng., Kyoto Institute of Technology; Ph.D., University of Tennessee, 1984.

NOBUYUKI NAKAJIMA, *Professor of Polymer Engineering* (1984) B.S., Tokyo University; M.S., Polytechnic Institute; Ph.D., Case Institute of Technology, 1958.

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College of Engineering

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R. D. LANDON, 1946-1963, C.E., M.S.
W. M. PETRY*, 1963-1964, M.S.M.E. (acting)
MICHAEL J. RZASA*, 1964-1970, Ph.D.
COLEMAN J. MAJOR, 1970-1979, Ph.D.
JOSEPH EDMINISTER, 1980-1981, J.D. (acting)
LOUIS A. HILL, JR., 1981-, Ph.D.

College of Education

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ALBERT I. SPANTON*, 1931-1933, M.A., Litt.D. (acting)
HOWARD R. EVANS*, 1933-1942, Ph.D.
HJALMER W. DISTAD*, 1942-1944, Ph.D. (acting)
HOWARD R. EVANS*, 1944-1958, Ph.D.
D. J. GUZZETTA, 1958-1959, Ed.D. LL.D., D.S.Sc., L.H.D. (acting)
CHESTER T. McNERNEY, 1959-1966, Ph.D., LL.D.
H. KENNETH BARKER, 1966-1985, Ph.D.
JOHN S. WATT, 1985-1986, Ph.D. (acting)
CONSTANCE COOPER, 1986-, Ed.D.

College of Business Administration

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RICHARD C. REIDENBACH, 1962-1967, Ph.D.
ARTHUR K. BRINTALL, 1967-1968, Ph.D. (acting)
WILBUR EARLE BENSON*, 1968-1970, Ph.D.
JAMES W. DUNLAP, 1970-, Ph.D.

School of Law

STANLEY A. SAMAD, 1959-1979, J.S.D.
ALBERT S. RAKAS, 1979-1981, J.D. (interim)
DONALD M. JENKINS, 1981-, LL.M.

Graduate School

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ERNEST H. CHERRINGTON, JR., 1955-1960, Ph.D. (Director of Graduate Studies)
ERNEST H. CHERRINGTON, JR., 1960-1967, Ph.D. (Dean of the Graduate Division)

*Deceased.

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EDWIN L. LIVELY, 1968-1974, Ph.D. (Dean of Graduate Studies and Research)
CLAIBOURNE E. GRIFFIN, 1974-1977, Ph.D. (Dean of Graduate Studies and Research)
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University College (formerly General College)

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MARION A. RUEBEL, 1978-, Ph.D.

Evening College

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LESLIE P. HARDY, 1934-1953, M.S.Ed., L.H.D. (Director)
E. D. DURYEA, 1953-1956, Ed.D. (Dean)
D. J. GUZZETTA, 1956-1959, Ed.D., LL.D., D.S.Sc., L.H.D. (Dean)
WILLIAM A. ROGERS, 1959-1967, Ed.D. (Dean)
CHARLES V. BLAIR, 1967-1970, M.A. (Dean)
JOHN G. HEDRICK, 1970-1974, M.A. (Dean)
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Community and Technical College

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ROBERT C. WEYRICK, 1974-1985, M.S.
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College of Fine and Applied Arts

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KELVIE C. COMER, 1986-, Ed.D. (Acting)

College of Nursing

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Wayne General and Technical College

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JOHN G. HEDRICK, 1974-1979, M.A. (Dean)
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