# youngstown state University

Undergraduate Bulletin 1995-96

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# YOUNGSTOWN STATE UNIVERSITY

# UNDERGRADUATE BULLETIN 1995-96

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The information contained in this catalog should be considered informational only and not binding in any way. The University reserves the right to change requirements, fees, course offerings or other specified policies at any time.

Youngstown State University is committed to a policy of nondiscrimination on the basis of race, color, religion, sex, national origin, disability, sexual orientation, or identity as a disabled veteran or veteran of the Vietnam Era, in respect to students and/or to applicants for admission, to employees and/or to applicants for employment, and to organizations providing contractual services to Youngstown State University.

Inquiries should be directed to Youngstown State University's Assistant to the President for Affirmative Action, who is responsible for coordinating the University's programs for compliance with Section 504 of the Rehabilitation Act of 1973 and Title IX of the Education Amendments of 1972. Inquiries can be initiated in writing or by calling (216) 742-3370.

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# UNDERGRADUATE CATALOG ISSUE

EFFECTIVE SEPTEMBER, 1995
YOUNGSTOWN, OHIO

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# Academic Calendar 1995-96

## FALL 1995

| Date | Day | Time | Event |
|---|---|---|---|
| Sept. 15 | Fri. | 1000 | Faculty Meeting |
| Sept. 20 | Wed. | 0800 | Classes Begin |
| Sept. 26 | Tues. | 2000 | Last Day to Add a Class |
| Sept. 29 | Fri. | 1700 | Last Day to Apply for Fall Quarter Graduation |
| Oct. 31 | Tues. | 1830 | Last Day to Withdraw with a W |
| Nov. 10 | Fri. | | Legal Holiday — University Closed (Veterans Day) |
| Nov. 22 | Wed. | 2300 | Thanksgiving Academic Break Begins |
| Nov. 23 | Thurs. | | Legal Holiday — University Closed |
| Nov. 24 | Fri. | | Legal Holiday — University Closed |
| Nov. 27 | Mon. | 0800 | Thanksgiving Academic Break Ends |
| Dec. 4 | Mon. | 0800 | Final Examinations Begin |
| Dec. 9 | Sat. | 1700 | Final Examinations End |

## WINTER 1996

| | | | |
|---|---|---|---|
| Dec. 25 | Mon. | | Legal Holiday — University Closed |
| Dec. 26 | Tues. | | Legal Holiday — University Closed |
| Jan 1 | Mon. | | Legal Holiday — University Closed |
| Jan. 2 | Tues. | 0800 | Classes Begin |
| Jan. 8 | Mon. | 2000 | Last Day to Add a Class |
| Jan. 12 | Fri. | 1700 | Last Day to Apply for Winter Quarter Graduation |
| Jan. 15 | Mon. | | Legal Holiday — University Closed (Martin Luther King Day) |
| Feb. 12 | Mon. | 1830 | Last Day to Withdraw with a W |
| Mar. 11 | Mon. | 0800 | Final Examinations Begin |
| Mar. 16 | Sat. | 1700 | Final Examinations End |
| Mar. 23 | Sat. | 1000 | Winter Commencement |

## SPRING 1996

| | | | |
|---|---|---|---|
| Mar. 25 | Mon. | 0800 | Classes Begin |
| Mar. 30 | Sat. | 1200 | Last Day to Add a Class |
| Apr. 5 | Fri. | 1700 | Last Day to Apply for Spring Quarter Graduation |
| May 4 | Sat. | 1200 | Last Day to Withdraw with a W |
| May 27 | Mon. | | Legal Holiday — University Closed (Memorial Day) |
| June 3 | Mon. | 0800 | Final Examinations Begin |
| June 8 | Sat. | 1700 | Final Examinations End |
| June 15 | Sat. | 1000 | Spring Commencement |

## SUMMER 1996

| | | | |
|---|---|---|---|
| June 17 | Mon. | 0800 | Classes Begin — Entire Summer Quarter and First Term |
| June 21 | Fri. | 1700 | Last Day to Add a Class — First Term |
| June 24 | Mon. | 1800 | Last Day to Add a Class — Entire Summer Quarter |
| June 28 | Fri. | 1800 | Last Day to Apply for Summer Quarter Graduation |
| July 4 | Thurs. | | Legal Holiday — University Closed (Independence Day) |
| July 8 | Mon. | 1800 | Last Day to Withdraw with a W — First Term Classes |
| July 20 | Sat. | 1700 | First Term Ends (Final Examinations for First Term Classes Are Given During Last Scheduled Class Period) |
| July 22 | Mon. | 0800 | Second Term Begins |
| July 26 | Fri. | 1700 | Last Day to Add a Class — Second Term |
| July 29 | Mon. | 1800 | Last Day to Withdraw with a W — Entire Summer Quarter |
| Aug. 12 | Mon. | 1800 | Last Day to Withdraw with a W — Second Term Classes |
| Aug.23 | Fri. | 2200 | Second Term and Entire Summer Quarter Ends (Final Examinations Are Given During Last Scheduled Class Period) |
| Aug. 24 | Sat. | 1000 | Summer Commencement |

# ACCREDITATION

Youngstown State University is accredited by the North Central Association of Colleges and Secondary Schools and by the Department of Education of the State of Ohio as a teacher education institution. It is on the approval list of the American Chemical Society. The dental hygiene technology program is accredited by the Commission on Accreditation of the American Dental Association. Programs in the William Rayen School of Engineering accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology include chemical engineering (jointly accredited by the American Institute of Chemical Engineers), civil engineering, electrical engineering, industrial engineering, and mechanical engineering. The associate and bachelor's programs in civil, electrical and mechanical engineering technology are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology. The Bachelor of Science in Nursing program is accredited by the National League of Nursing and is approved by the Ohio State Board of Nursing Education and Nurse Registration. The food and nutrition program and the Coordinated Undergraduate Program in Dietetics are approved by the American Dietetic Association. The emergency medical technology program is accredited by the Ohio Board of Regents. The medical laboratory technology program and the respiratory therapy technology program are accredited by the Committee on Allied Health Education and Accreditation. The school counseling and community counseling programs have been approved by the Council on Accreditation of Counseling and Related Educational Programs. The Dana School of Music of Youngstown State University is a member of the National Association of Schools of Music. The social work program is accredited by the Council on Social Work Education. The Williamson College of Business Administration is accredited by the Association of Collegiate Business Schools and Programs. The Chemistry program is accredited by the American Chemical Society Committee on Professional Training. The Art Department is accredited by the National Association of Schools of Art and Design. The Dental Hygiene Program is accredited by the Commission on Dental Accreditation.

# DEGREES GRANTED

Youngstown State University grants the degrees Doctor of Education (Ed.D.), Master of Arts (M.A.), Master of Science (M.S.), Master of Science in Education (M.S. in Ed.), Master of Science in Engineering (M.S. in Engr.), Master of Business Administration (M.B.A.), Master of Music (Mus.M.), Bachelor of Arts (A.B.), Bachelor of Engineering (B.E.), Bachelor of Fine Arts (B.F.A.), Bachelor of Music (B.M.), Bachelor of Science (B.S.), Bachelor of Science in Applied Science (B.S. in A.S.), Bachelor of Science in Business Administration (B.S. in B.A.), Bachelor of Science in Education (B.S. in Ed.), Bachelor of Science in Nursing (B.S.N.), Associate in Arts (A.A.), Associate in Applied Business (A.A.B.), Associate in Applied Science (A.A.S.), and Associate in Labor Studies (A.L.S.). All bachelor's and associate degrees may be taken as honors degrees.

# MISSION

Youngstown State University strives to create a teaching and learning environment that promotes academic excellence, fosters intellectual growth and scholarship, focuses on the needs of students and the community, and reflects an awareness of cultural and global perspectives and concerns. The University is dedicated to outstanding teaching; to quality research and scholarly activity, both in the traditional sense and as they relate to classroom instruction and needs of the service region; and to responsible public service—addressing the employment and economic needs of the region as a whole; providing knowledge, resources, and leadership to assist area schools, businesses, industries, agencies, and governments; and taking measures to enhance the quality of life for the constituencies it serves.

Youngstown State University aspires to provide an environment in which students can enrich their minds, their creativity, and their problem-solving abilities, so that they may become fully developed individuals; informed, conscientious, and productive citizens; and responsible and understanding partners with others in life, family, and work. The University strives to prepare students for the future, that they may play active roles in shaping it. To these ends, the University seeks to integrate the best elements of the long tradition to humanistic, liberal education in the arts and sciences with education in the most significant advancements in technology, health, engineering, education, business, and the applied arts.

The University is committed to fostering an understanding of the connections between and among teaching, scholarship, and service. The University seeks faculty who combine these elements in ways that bring excitement to the classroom, studio, clinic, and laboratory, stimulating enthusiasm and eagerness for learning in students. The University endeavors to enhance the educational experience by providing out-of-class development and support as well as cocurricular opportunities and services. The primary test of the University's effectiveness is the high quality of its graduates, the kinds of lives they lead, their accomplishments and their service to society. In this sense, teaching and learning, research and scholarship, University and public service are seen not only as interrelated but also as fundamental to endeavors both within and outside the University.

As a state-assisted metropolitan university, Youngstown State University provides a wide range of opportunities in higher education primarily, but not exclusively, to the residents of northeastern Ohio and western Pennsylvania. The University espouses the principles of equal opportunity, affirmative action, and broad access to education: academic access through open admission for all Ohio high school graduates to

a wide range of programs; economic access through reasonable tuition and a comprehensive program of financial aids; and programmatic access through careful attention to the collective and individual needs of all its various constituencies; degree and nondegree students; transfer students; commuters and noncommuters; traditional and nontraditional students; associate, baccalaureate, masters, and doctoral students; as well as others encompassed by the Youngstown State University mission.

## AFFIRMATIVE ACTION PROGRAM

Youngstown State University is committed to a policy of non-discrimination in sex, race, religion, color, age, national origin, disability, sexual orientation or identification as a disabled veteran, or veteran of the Vietnam Era, in respect to applicants for admission, students, employees, applicants for employment and organizations providing contractual services to it. It operates in full compliance with the Civil Rights Act of 1964 as amended by Executive Order 11246; Title IX Regulations implementing the Education Amendment of 1972; Section 504 of the Rehabilitation Act of 1973; the Older Americans Act of 1965 as amended; and the Age Discrimination and Employment Act of 1967 as amended in 1978.

Although the ultimate responsibility for maintaining a viable and effective affirmative action program rests with the President of the University, the key role in its execution is delegated to the Director, Affirmative Action, who periodically reviews the program, discusses grievances and charges of discrimination, if any, and makes recommendations toward the program's effectiveness. An Affirmative Action Committee serves in an advisory capacity.

The University uses all normal means of communication to make known its policies of affirmative action and equal opportunity employment.

The University is committed to the development and implementation of policies and programs that encourage the full participation of women, minorities, disabled, and Vietnam era veterans in all operations of the University.

## HISTORICAL SKETCH

Youngstown State University had its beginning in 1908 with the establishment of the School of Law of the Youngstown Association School, an evening school sponsored by the Young Men's Christian Association. In 1920, the State of Ohio empowered the school to grant the Bachelor of Laws degree; in the same year, the school initiated a four-year course in business administration. In 1921, the school changed its name to the Youngstown Institute of Technology, and liberal arts courses were offered, in the evening, for the first time. In 1927, the College of Arts and Sciences was established and offered the first daytime classes. In 1928, the institute changed its name to Youngstown College, and in 1930, the college conferred the Bachelor of Arts degree for the first time.

In 1944, the trustees of the Young Men's Christian Association transferred control of the institution to the members of the Corporation of Youngstown College, and in 1955 the corporation was re-chartered as The Youngstown University. The University joined the Ohio system of higher education in September 1967 as Youngstown State University.

Dana's Musical Institute, founded in nearby Warren in 1869, became the Dana School of Music of Youngstown College in 1941. In 1946, the Engineering Department, organized several years before, became the William Rayen School of Engineering; two years later, the Business Administration Department became the School of Business Administration; and in 1981 the school name was changed to the Warren P. Williamson Jr. School of Business Administration. In 1960, the Education Department became the School of Education. The Graduate School and the College of Applied Science and Technology were created in the spring of 1968, and in 1974 the College of Fine and Performing Arts was established, comprising the Dana School of Music and the departments of Art and of Speech Communication and Theatre.

In 1972, Youngstown State University, with the University of Akron and Kent State University, formed a consortium to sponsor the Northeastern Ohio Universities College of Medicine, which enrolled its first students in 1975.

Today, Youngstown State University consists of five colleges and a School of Graduate Studies — The College of Arts and Sciences, Williamson College of Business Administration, College of Education, College of Fine and Performing Arts, College of Health and Human Services and the William Rayen College of Engineering and Technology. Degrees offered range from the Associate, Baccalaureate, Masters, to the Doctorate.

## THE GENERAL PROGRAM OF THE UNIVERSITY

In 1993, the Youngstown State University underwent academic reorganization and constituted itself into the following units:

The College of Arts and Sciences

The College of Education

The College of Engineering and Technology

The College of Fine and Performing Arts

The College of Health and Human Services

The Warren P. Williamson, Jr. College of Business Administration

The School of Graduate Studies

The Northeastern Ohio Universities College of Medicine

Virtually all departments offer courses during daytime and evening hours, and a wide variety of majors may be obtained by students who are only able to attend during the evening. To accommodate working students, classes are offered on a flexible schedule-from classes that meet five days a week to classes that meet only one day a week. To better serve the community, many general education courses are offered at Boardman High School. The main academic year is from late September into June, in three 11-week quarters. During the summer quarter, courses are offered both for a full 10-week session and for half-sessions of five weeks each.

## THE COLLEGE OF ARTS AND SCIENCES

The College of Arts and Sciences provides the majority of the liberal arts component for all degrees offered by the University. Thus, a primary mission of the College is to enhance the preparation of all students to enter the 21st century as liberally educated citizens. Majors within the college are aimed at expanding on this foundation to provide the skills and perspectives necessary to enter the job market at a post-secondary education level, to succeed in graduate or professional study, or to pursue further technical study. In cooperation with the College of Education it also prepares teachers for secondary schools.

At the undergraduate level, the College of Arts and Sciences offers programs of study leading to the following degrees: Bachelor of Arts, Bachelor of Science, Bachelor of Science in Applied Science, Associate in Applied Science, and Associate in Arts. At the baccalaureate level students may major in the disciplines of anthropology, biology, chemistry, computer information systems, computer science, economics, English, French, geography, geology, German, history, Italian, Latin, mathematics, philosophy, physics, political science, psychology, Russian, religious studies, sociology, Spanish, or may obtain a combined major in American studies, astronomy and physics, black studies, combined science, earth science, labor relations, professional writing and editing, or social studies. Minors are available in each of the areas noted above, plus women's studies, environmental science and peace and conflict studies. Courses are also offered in ancient Greek, journalism, linguistics, and social science. Students who desire to teach in secondary schools may choose the Bachelor of Arts or Bachelor of Science degrees. While majoring in Arts and Sciences subjects they will also complete certification requirements through coursework in the College of Education.

## THE WARREN P. WILLIAMSON, JR. COLLEGE OF BUSINESS ADMINISTRATION

The Warren P. Williamson, Jr. College of Business Administration offers courses leading to the Associate in Labor Studies, the Associate in Arts in Business Administration, and the Bachelor of Science in Business Administration degree, with a major in accounting, advertising art in conjunction with the Art Department, advertising and public relations, fashion retailing in conjunction with the Human Ecology Department, finance, general administration, industrial management, industrial marketing, management (behavioral or information systems tracks), marketing management, public administration, retail marketing or shopping center management.

## THE COLLEGE OF EDUCATION

The College of Education offers courses leading to the degree of Bachelor of Science in Education. It also cooperates with the College of Arts and Sciences in providing the professional education courses for teacher certification while the student is earning the degrees of Bachelor of Arts and Bachelor of Science with the major in a teaching field; with the Dana School of Music for the Bachelor of Music degree with a major in music education; with the College of Fine and Performing Arts in the preparation of teachers of art, speech, drama/theater; and with the College of Health and Human Services.

## THE COLLEGE OF ENGINEERING AND TECHNOLOGY

The College of Engineering and Technology offers the Bachelor of Engineering degree in Chemical, Civil & Environmental, Electrical, Industrial & Systems, Materials and Mechanical Engineering; the Associate of Science in Applied Science degree in Civil, Electrical and Mechanical Engineering Technology and in Drafting and Design. The Bachelor of Science in Applied Science degree is offered in Civil, Electrical and Mechanical Engineering Technology.

## THE COLLEGE OF FINE AND PERFORMING ARTS

The College of Fine and Performing Arts offers programs leading to the degrees of Bachelor of Arts, Bachelor of Music, Bachelor of Fine Arts, and Bachelor of Science in Education (in conjunction with the College of Education). The major may be in applied music (performance), art history, music history and literature, speech communication, studio art, telecommunication studies, theater or music theory and composition; or (in conjunction with the College of Education) in art education, music education, speech education or drama/theater education.

## THE COLLEGE OF HEALTH AND HUMAN SERVICES

The College of Health and Human Services offers the BSAS degree in allied health, criminal justice, food and nutrition, home economics services, medical

technology, merchandising, fashion and interiors. The Bachelor of Arts degree in health sciences and physical education are offered. The Department of Nursing offers the Bachelor of Science in Nursing degree. The Bachelor of Science in Education is offered for majors in Health & Physical Education and Vocational Home Economics Education in cooperation with the College of Education. The Bachelor of Science in Education leads to certification for secondary school teaching or K-12. The Department of Social Work offers the Bachelor of Arts in Social Work.

## THE SCHOOL OF GRADUATE STUDIES

The School of Graduate Studies offers programs in economics, English and history leading to the Master of Arts degree; programs in biology, chemistry, criminal justice and mathematics leading to the Master of Science degree; concentration in general business, finance, management and marketing of the Master of Business Administration degree; programs in music education, performance, music theory and composition, and music history and literature leading to the Master of Music degree; programs in civil, electrical, and mechanical engineering and materials science leading to the Master of Science in Engineering degree; and master teacher (elementary or secondary), educational administration, counseling and special education programs leading to the Master of Science in Education degree. The program in educational leadership offered by the Department of Educational Administration leads to the Doctor of Education degree.

## THE NORTHEASTERN OHIO UNIVERSITIES COLLEGE OF MEDICINE

The Northeastern Ohio Universities College of Medicine (NEOUCOM), was established under the sponsorship of a consortium formed in 1972 by Youngstown State University, Kent State University and the University of Akron. Students admitted into the NEOUCOM BS/MD program are able to complete both their BS and MD degrees in a few as six years. Students spend two to three years of full-time study at one of the three consortium universities, complete basic medical science coursework at the NEOUCOM Rootstown campus and beginning clinical coursework at consortium teaching hospitals, and then complete two years of clinical clerkships at the consortium teaching hospitals. From the first class admitted in 1975, came the first BS/MD graduates in 1981.

The BS phase of the BS/MD program of study integrates a liberal arts education with an accelerated and enhanced science curriculum. The program is designed to foster the development of intellectual curiosity, appreciation of diverse cultures, an historical framework for interpreting the present and creating the future, written and oral communication skills, the desire for lifelong learning, and other perspectives and skills characteristic of a liberal education. Secondly, it is designed to prepare students for success within a premier medical school curriculum, and to enhance the foundation necessary for an effective career as a physician in the 21st century.

Prospective YSU students interested in the NEOUCOM Program will find further information in this catalog under Admissions in the General Requirements and Regulations section and under Combined B.S./M.D. Program in the College of Arts and Sciences section. A detailed description of the curriculum is available from the office of the Dean of the College of Arts and Sciences or from the YSU Admissions Office.

## SPECIAL PROGRAMS

### UNIVERSITY SCHOLARS

University Scholars are those students who have achieved an ACT score of 28 or higher and have been selected to receive a full tuition, room and board scholarship for one year. They may retain that level of support for the next year by achieving a GPA of 3.5 for the current year. All University Scholars are honors students and will follow the requirements of the Honors Degree Program (see page 48). In addition, Scholars are required to donate sixty hours of community service per academic year and to participate in the co-curricular aspects of the program. For further information, contact N.P. Ritchey 742-3303.

### UNIVERSITY HONORS

Two types of honors programs are available:

(1) The honors degree program permits any baccalaureate program to be taken, with additional requirements, for an honors degree. (See section covering COURSE REQUIREMENTS.)

The program is designed to create a distinct and continuing community of intellectual excellence by bringing together superior students from diverse disciplines, challenging these students with extraordinary courses, and recognizing their unique academic achievements with a special honors degree. This is intended to attract and retain superior students, to stimulate faculty interaction and growth, and to serve as a tangible emblem of the University's academic excellence.

(2) Departmental honors programs are available in selected departments.

### INDIVIDUALIZED CURRICULUM PROGRAM

This program, intended to provide opportunities for non-traditional curricula, is further explained in the section covering COURSE REQUIREMENTS.

## BLACK STUDIES

The black studies program was established in the fall of 1970, and a program for an interdisciplinary major in black studies was approved by the University Senate in the winter of 1972. The purpose of this major is to facilitate the academic investigation and analysis of the historical, literary, social and aesthetic impact of people of African descent on American society and the world. It also provides for the systematic study of problems confronting the modern multi-racial world. The black studies major can serve as a valuable complement to teacher education, humanistic study, and preparation for various fields of employment such as business, law or social work. A black studies minor complements majors in related areas, especially in economics, education, English, history, philosophy, political science, religious studies and sociology. Both the major and minor programs can provide diverse opportunities for employment and for graduate and postgraduate experiences.

# OFFICE OF UNIVERSITY OUTREACH

The Office of University Outreach develops and administers courses and programs outside the traditional degree programs through Continuing Education, Education Outreach, Edutravel, and the Center for Creative Retirement Programs. Through both credit and noncredit course offerings at a variety of convenient times and locations, it makes academic programs, along with administrative and support services, available to nontraditional students.

Through the Office of University Outreach, YSU attempts to make the lifelong process of education possible for the adult with family and work obligations.

The Office in accordance with the Board of Trustees and Senate policy, awards the Continuing Education (CEU) in programs that meet the policy requirements. The CEU is a standard unit of measure (10 hours of participation in a Continuing Education course or seminar) that has been increasingly used by employers and professional certifying agencies to evidence educational attainment in noncredit post-secondary courses.

Youngstown State University offers degree and nondegree programs — courses, workshops, and seminars, all specifically designed and planned to meet the varied needs of adults. The University has the flexibility to build a schedule that is both comfortable and convenient for adults.

### CONTINUING EDUCATION

The Continuing Education noncredit programs offer area residents a wide variety of adult study or lifelong-learning courses and seminars to meet the needs of a changing society for updating and upgrading professional skills, for mid-career adjustments and for lifestyle changes.

Area residents participate annually in more than 200 noncredit programs, many of which are in the academic disciplines and professional areas, varying from half-day seminars to multi-week courses conducted in local business and government settings and other off-campus locations.

The Continuing Education function is manifested in several series of noncredit offerings described below.

COMMUNITY EDUCATION PROGRAMS
–provide noncredit courses, seminars, and conferences to meet the personal development and leisure, general interest and recreation needs of the greater Youngstown area.

HEALTH AND HUMAN SERVICES PROGRAMS
–provide noncredit courses, seminars, and conferences developed to meet the needs of local, county, state and federal government, public and community agencies, allied health, criminal justice, home economics, nursing home administration, day care centers, social work, education, mental health, food service and related areas.

BUSINESS AND MANAGEMENT PROGRAMS
–have the responsibility to serve this sector of the community, including courses, seminars and conferences in management, supervision, accounting, purchasing, marketing, advertising, public relations, small business, construction, production and inventory control, real estate, secretarial and office management, banking and finance, insurance, labor relations, traffic and transportation and related areas.

ENGINEERING, TECHNICAL AND COMPUTER PROGRAMS
–serve this sector of the community with courses, seminars, and conferences in engineering, engineering technology, computer and data processing and related areas.

TELECONFERENCES
–link the educational resources of the world through satellite-delivered educational teleconferences in a variety of professional and academic fields to personnel at YSU and in the Mahoning and Shenango valleys.

YSU's Office of University Outreach is also responsible for the administration of:

### CENTER FOR CREATIVE RETIREMENT PROGRAMS THE COLLEGE FOR THE OVER SIXTY

–a state-mandated program providing for the enrollment of Ohioans 60 years of age or older who have been residents of the State for the preceding 12 months in undergraduate credit classes on a space available basis.

### THE YSU-ILR

–an affiliate of the Elderhostel Institute Network, providing seminars with the opportunity to develop and conduct educational and social opportunities for the members of YSU-ILR.

### THE YSU ELDERHOSTEL

–is an approved program site through Ohio Elderhostel and Elderhostel Weeklong residential educational and social experiences are provided for registered participants.

**EDUTRAVEL**

–provides adults with the opportunity to explore cultural learning by visiting foreign countries to experience another land and culture. Travel-study programs in this series provide on-site lectures, seminars and field experiences and also provide visits to sites and facilities often not available to the average tourist.

**EDUCATION OUTREACH**

–coordinates the off-campus delivery of credit classes throughout the service area at instructional settings including business, agency or community locations. Evening off-campus credit programs are designed for people who find the traditional daytime courses on campus inaccessible. They permit students, with or without prior credit, to undertake courses for an undergraduate degree during evenings or weekends or both.

Further information may be obtained from the Office of University Outreach, Room B089, Cushwa Hall: (216) 742-3221, or for noncredit programs, (216) 742-3358.

# TELECOMMUNICATION SERVICES

## Radio Programs

The University owns and operates WYSU-FM, a 50,000 watt stereo radio station with a range of approximately 55 miles. The station operates at 88.5 MHz from Youngstown and at 90.1 MHz from Ashtabula, providing more than 4,000,000 people in northeastern Ohio, western Pennsylvania, and northern West Virginia with fine arts programs from its studios in Cushwa Hall. The primary purpose of the station is to serve the cultural and educational needs of the area by providing an alternative listening service, emphasizing serious music and intellectually stimulating public affairs programs not provided by commercial stations in the area.

YSU'S broadcast services attempt to bring to all audiences the University's and community's best energies, resources and talents; and thus to enhance the quality of the area's cultural environment.

The core of the radio operation is a full-time professional staff, but students are also employed if their qualifications meet professional broadcasting standards.

## FM-SCA Programs

The University transmits special educational programs for the handicapped on a multiplex basis using a sub-carrier frequency of 67 kilohertz.

## TV Programs

The University is a member of NETO (Northeastern Educational Television of Ohio), a public television consortium of the state universities at Akron, Kent and Youngstown, which operates UHF Channels 45 and 49.

Common transmitters, at Salem and Akron, broadcast programs acquired from the Public Broadcasting Service and the Ohio Educational Television Network as well as local programs produced at Kent, Akron, and by contract at Youngstown.

# PUBLIC SERVICE INSTITUTE

The Public Service Institute was created by the University Board of Trustees in 1985 to coordinate, promote and stimulate public service programs and activities offered by the University to the community.

At present, the Institute consists of the Center for Urban Studies, Cushwa Center for Industrial Development, Center for Human Services Development, and Center for Engineering Services.

The Institute works with community organizations, as well as with University public service programs or departments to facilitate the extension of University resources into the community where they might be needed. In order to accomplish this, the Institute's coordinator is responsible for identifying public service needs in the community not now being met by University programs; assisting in developing public service programs to meet community needs; helping coordinate public services delivered to the community when two or more University departments are involved; and promoting the Institute as a clearinghouse for disseminating information about University public service programs.

The Microbiology Testing Laboratory provides public health testing to more than 60 state and local public agencies, hosts meetings and seminars on community health and services as a focal point for the dissemination of public health information.

## Center for Urban Studies

The Center for Urban Studies is a research and community service department. The center was established by the University Board of Trustees in recognition of the University's obligations to the development and progress of the region. The center's primary objective is to apply YSU's resources to the problems and processes related to urbanization, through the development of an ongoing program of making basic and applied research, technical assistance, and training available to local government, business and public service organizations.

**Service Areas**

The following are representative of services available to the community through the Center for Urban Studies: (1) Systematic assessments of the impact of public programs and designs for improved service. (2) Rapid sampling of public opinion by telephone, mail questionnaire or personal interviews. (3) Data processing and analysis. (4) Assistance to decision-makers in selecting the best alternative program or policy, based on formal assessments of needs, projected environmental and economic impacts, and benefits-cost or cost-effectiveness analysis. (5) Access to census tapes, technical reports and other publications related to urban public management. (6) Training processes,

workshops, seminars and symposia to bring information on urban problems to the attention of public administrators, citizens and faculty. (7) Urban planning, including urban design, economic base analysis, general and specific land use studies, zoning, and economic revitalization strategy development. (8) Participation in community improvement efforts through information sharing.

### Charles B. Cushwa, Jr. Center for Industrial Development

The Charles B. Cushwa, Jr. Center for Industrial Development was created in June 1978 with matching endowments from Mrs. Charles B. Cushwa, Jr., wife of the late president and chairman of Commercial Shearing, Inc. of Youngstown, and from the Commercial Shearing Foundation.

The center works to promote the creation of jobs by encouraging new business ventures and by assisting established firms to improve their production capabilities. It operates programs which:

Help local industry to identify, develop and market their products and services effectively.

Guide the exploration and development of new enterprises that can provide business and industry with basic goods and services.

Provide local industry with access to supportive technical and educational resources of the University.

Serving primarily industries in the five counties immediately surrounding the University, the center utilizes the faculty and facilities of the University to provide enterprise counseling, manufacturing consulting, market development and product development services to individuals and businesses. Emphasis is placed on the use of strategic business planning, effective marketing techniques and basic principles of enterprise development. Client identity and all information discussed with the Cushwa Center are treated confidentially and a close relationship is maintained with clients for a period sufficient to achieve tangible results. No fees are charged for initial discussions with clients; fees for subsequent counseling or technical assistance depend on the duration and circumstances of a project and its cost to the University.

The Cushwa Center has been designated as a Small Business Development Center by the Ohio Department of Development. Through this adjunct activity, which is supported by state and federal grants, the Cushwa Center accesses organizational, financial, marketing and technical assistance from state agencies and sponsors business workshops and seminars for small businesses in Mahoning, Trumbull and Columbiana Counties.

### Center for Human Services Development

In 1985, the University Board of Trustees established the Human Services Development Center to serve as a community resource for health and human service organizations, community leaders and the general public. Staff at the center work with a community-wide spectrum of people to identify problems, meet needs, develop solutions, and evaluate activities in the health and human services field.

The center offers a variety of services, including: 1)establishing and maintaining networks or linkages among service providers and consumers; 2) offering technical assistance for social service program planning and evaluation; 3) working with organizations to identify and obtain grants; 4) providing training for agency managers, boards and staff members; 5) sharing information and acting as a clearinghouse; and 6) helping organizations develop marketing strategies and programs.

### Center for Engineering Services

The Engineering Services Center provides convenient access to the significant technical and engineering expertise of the faculty and staff of the College of Engineering and Technology. The services offered to organizations outside the University do not duplicate those provided by engineering consultants in the area. Both development and testing services are available.

## PHYSICAL PLANT

## Campus Development

During its earlier years the institution had a number of homes. Starting in the old Central YMCA building, it occupied various sites on Wick Avenue until the completion of Jones Hall in 1931. Additional buildings have been constructed and nearby properties converted to University use, so that today the campus extends through most of an area five blocks long and four blocks wide, covering 125 acres. The University also has 16.3 acres in Liberty Township and 118.4 acres in Hartford Township.

The next 5-year period of facilities planning and construction will be guided by a Facilities Master Plan that was adopted by the Board of Trustees in June 1992.

## Jones Hall

One of the oldest buildings on the present campus is Howard W. Jones Hall, a limestone structure of conventional tudor style on the northwest corner of Wick and Lincoln avenues. Built in 1931 and long the institution's "main building," it was renamed in 1967 to honor the man whose energy and acumen, during his 36 years as president, brought an embryonic college to membership in the state university system.

The structure was enlarged in 1949 by the addition of the C.J. Strouss Memorial Auditorium, named for the then president of the Strouss-Hirshberg Company, a devoted friend and trustee of the University. In 1978 the interior was completely remodeled to accommodate administrative offices directly serving student needs: Admissions/Data Management, Bursar's, Career Services, Counseling and Testing, Financial Aids, Graduate School, Records, Registrar's, and Student Developmental Services Offices.

## Tod Hall

The University's main administrative offices are in Tod Hall, a former library building built in 1952 and thoroughly renovated in 1978. These offices include those of the President, Provost, Executive Vice President, Vice President for Student Affairs, and Executive Director of Development; the Executive Director of Administrative Services, Affirmative Action, Audits and Systems, Budget, Executive Director of Human Resources, Executive Director of Budget and Finance, Payroll, and News Service/Publications offices; Parking office; YSU Credit Union; Substance Abuse Program; and the Board of Trustees' Meeting Room.

## P.S.I. Building

A medical building purchased in 1992 at 318 Fifth Avenue has been renovated to house the Public Service Institute, YETC, and the Center for Urban Studies.

## William F. Maag, Jr. Library

The University's six-story William F. Maag, Jr., Library, completed in 1976, provides an attractive and comfortable environment for study and research. A member of the Online Computer Library Center (OCLC), Maag Library provides reference and interlibrary loan services, CD-ROM as well as online database searching, access to government documents, and other services necessary to the needs of the University community.

The library's online public access catalog (Innovative Interfaces, Inc.) with over 40 terminals throughout the building, provides remote access from other campus locations, from personal computers via phone modems, and through the computer center network.

The Maag Library is a member of OhioLINK, a statewide library and information network linking university, college and community college libraries as well as the State Library of Ohio.

OhioLINK provides straightforward, easy access to a combined online catalog of nearly 3,000,000 records. The network also provides a number of databases that can be searched for journal articles, newspaper articles and business information.

Other features of OhioLINK include patron-initiated borrowing, book and document delivery, and Internet access.

The library includes instructional and research materials in books, periodicals and microforms. These holdings number 629,590 volumes, 1,050,203 microforms, and 201,996 government documents. Microreaders are on the lower level, as are coin-operated copy machines. On the main level are user services and the library offices. The book collection is on the third through sixth floors in open stacks, with split-level design between stacks and reading levels. There are study rooms and carrels on each floor.

Maag Library and its facilities provide opportunities for group study and discussion, as well as individual development.

## Harry Meshel Hall

Meshel Hall, dedicated January 1986, houses expanded facilities for academic and administrative computer use, broadens the Youngstown State University educational programs, and provides local business and industry with highly trained personnel. The state-of-the-art center is for instruction, research and application in advanced computer technology which serves the entire University community. It particularly enhances programs in the College of Health and Human Services, William Rayen College of Engineering and Technology, College of Arts and Sciences and the Warren P. Williamson College of Business Administration.

The four-story steel, concrete, stone and glass structure contains 90,100 square feet of space and is located to the west of the Wick Avenue Parking Deck with its main access and entry by the pedestrian walkway over Wick Avenue. The building contains 6 classrooms, 16 specialized computerized laboratories, 26 faculty offices, and a large atrium for student study. The Department of Computer and Information Systems is located on the third floor. The fourth floor houses the University's main computer facilities and Computer Center staff. The Harry Meshel Hall total project cost was $15,000,000 which includes the structure, furnishings and equipment.

## The Computer Center

The Computer Center is a centralized computational facility that provides for decentralized access by faculty, staff and students throughout the University. The Center occupies the fourth floor of Meshel Hall, an 87,000 square-foot advanced technology center. Serving both academic and administrative needs, the Computer Center operates an AMDAHL 5868 Multiprocessor (equivalent to two IBM 3081 GXs) with 64 megabytes (67.1 million characters) of main memory. The AMDAHL 5868 Multiprocessor supports MVS/Extended Architecture (MVS/XA) and is complemented by an AMDAHL 5860 Uniprocessor executing VM/ESA with the System/370 architectural feature. The AMDAHL 5860 Uniprocessor supports 32 megabytes (33.6 million characters) of main memory. The two mainframe processors provide online access to over 65.6 gigabytes of conventional direct access disk storage along with access to a 192 megabyte high-performance solid-state storage device. The computer complex is complemented by approximately 700 online devices, including terminals, personal computers, printers, plotters and projection systems.

Students have access to the computer either in the batch mode or interactively using IBM 3270 color display terminals located in various academic departments throughout campus. The main facilities are located in Meshel Hall which contains classrooms and laboratories dedicated to student use. Telephone lines are provided for remote access off-campus.

An Ethernet backbone runs through the heart of campus and connects workstations, PC's, Maag Library's

computer system and the Amdahl 5860 to the Internet. This network will be expanded over the next few years to allow network connections to all dorm rooms, classrooms, labs, etc.

Personal computers are available in several buildings on campus for instruction and research. The personal computers in Meshel Hall are also connected to the campus Ethernet network. Networked personal computers allow access to local software, as well as to other facilities on-campus, such as Maag Library and Youngstown Free-Net, as well as Internet sites world-wide.

Full-time professional staff and part-time student assistants are available for consultation on course work and research projects.

## Ward Beecher Hall

This building houses the departments of Biology, Chemistry, and Physics and Astronomy. The five-story original unit was constructed in 1958, a major addition was built in 1967, and a small addition comprising chemical storerooms was completed in 1979. It was built with funds contributed by Mahoning Valley Industries and area industrialist Ward Beecher. Presently the building contains 48 laboratories including a planetarium, 7 classrooms, 52 academic offices, 10 faculty-research rooms, and a conference-seminar room. A $12,000,000 renovation and remodeling project consisting of two phases was completed in March 1987. Phase I included renovation to the Engineering Science Building to house the Geology Department. Phase II included a renovation of the entire Ward Beecher building with an infill to the breezeway area linking old and new Ward Beecher. Construction also included renovation of the heating, ventilating and air conditioning systems, electrical systems, labs and lab equipment, construct infill area, new brick and glass exterior, and general upgrading of all interior finishes. The most recent Phase III is complete with the new ground level green house the most significant addition.

## Wick Pollock Inn (Pollock House)

Pollock House, built in 1900, was given to the University in 1950 by its former owners, Mr. and Mrs. William B. Pollock II. The Inn has 15 historical and 65 traditional rooms, banquet rooms and dining area. The Inn is operated by Pollock Inn Restoration Associates.

## Historical Buildings

Renovations to the Alumni House, University Police Building and Coffelt Hall have been consistent with the recommendations in the 1985 Facilities Master Plan. Listed in the *National Register of Historic Places* in recognition of their representing important eras in Youngstown's development, these three buildings are in the "Wick Avenue Historical District." Renovation efforts were dedicated to maintaining the visual, architectural and physical character of these structures while recognizing, identifying and preserving their heritage.

**ALUMNI HOUSE** — The three-story stucco Alumni House on the corner of Wick Avenue and Spring Street, originally constructed in 1865 and renovated in 1910 and 1982, was remodeled and restored to house the Youngstown State University Alumni Association and the Youngstown State University Foundation. The Alumni House is the oldest building on campus.

**UNIVERSITY POLICE BUILDING** —This two-story stucco building was constructed in 1865 and renovated in 1985 to house the YSU Police Department.

**COFFELT HALL** —This two-story brick building, which houses the Writing Center, is located on the north side of Spring Street, was constructed in 1933, remodeled in 1978 and renovated in 1986.

## Fedor Hall

Fedor Hall, housing the College of Education, is located on the west side of Elm Street. It was constructed in 1951 and purchased from the Youngstown Board of Education in September 1965. The building contains 6 classrooms, 15 laboratories, a large curriculum resource center, and 69 offices. It also houses developmental education activities which include the reading and JTPA academic skills laboratories. A $1,100,000 renovation project included the replacement of existing windows with a new energy efficient window system, new brick veneer and various minor interior renovations was completed in 1992.

## Kilcawley Center

Kilcawley Center is the community center of the University and its facilities include dining rooms, seminar rooms, lounges, a word processing/computer access center, stamp machines, U.S. mail drop, and recreational areas including a room for billiards. Student organization offices are located in the center, as are the University Bookstore, campus information center, bank, student publications, First Year Student Center and the International Student Program Office. A gift of $300,000 had been made to the Center by the William H. and Mattie M. Kilcawley Foundation to which gifts from industry and from alumni and student funds were added. The Center was built in 1966. Expansion and remodeling were completed in 1974, 1976 and 1981. The most recent expansion included a 300-seat dining room, a study lounge, an enlarged lobby and gallery, an expanded pub, a room for quiet games,four seminar rooms and an information center. Information about Kilcawley Center and University Events can be found at the information center or by calling (216) 742-3516.

## Engineering Science Building

The Engineering Science Building, a five-level structure completed in 1967, houses the William Rayen College of Engineering and Technology and the Geology Department. In addition to 57 laboratories, 26 classrooms, 8 research and development rooms, 6 conference rooms, and 59 offices, it contains the 268-seat Schwebel Auditorium. A current $6,873,000 renovation project is scheduled to begin Spring 1995 and completed in Fall 1996.

## Williamson Hall

Williamson Hall houses the four departments of the College of Business Administration. Williamson Hall, built in 1970, has 25 classrooms and 64 faculty and staff offices. Williamson Hall was completely remodeled during the 1982-83 academic year for a total project cost of $1,800,000 and was returned to full use and occupancy in the fall of 1983.

## Bliss Hall

Housing the College of Fine and Performing Arts, Bliss Hall, completed in 1976, was named in memory of William E. Bliss, a prominent area industrialist. Its facilities include the 409-seat theatre, Ford Theater, a theatre named for the Ford family; the 237-seat Choral Recital Hall; an experimental theatre with flexible seating for up to 250; 70 music practice rooms, equipped with studio or grand pianos; a Schlicker performance organ and two Flentrop practice organs; 27 faculty office-studios which can be used for music instruction; a band/orchestra room with a library; a photography studio with 18 enlargers; a crafts studio with 18 weaving looms; fully equipped drawing, advertising, printmaking, sculpture, and painting studios; a complete shop with heavy equipment for working in three-dimensional design; art faculty office-studios; a student lounge/art gallery; a materials center with a collection of 6000 LP's, 2000 volumes of musical scores, and 50,000 art slides; and conference and seminar rooms. During the summer of 1982, the heating and cooling system was remodeled to effect an improved environment and make the facility more energy efficient. A $2,940,000 interior renovation and addition of a ceramics/sculpture laboratory recommended in the Facilities Master Plan was completed 1989. Phase II renovation construction began spring 1992 and was completed in spring 1993.

## John J. McDonough Museum of Art

The John J. McDonough Museum of Art, located on Wick Avenue between Bliss Hall and Meshel Hall, opened for the fall quarter of 1991. The 14,000 sq. ft. multi-level building exhibits faculty and student art work, which in the past has been displayed in the Bliss Art Gallery and the Kilcawley Center Art Gallery. It also exhibits works by artists from other universities as well as local and regional artists, and serves the academic program of the Art Department with shows and competitive exhibits. Initial funding came from more than one million dollars received by the University from the sale of a painting donated by retired physician and surgeon, John J. McDonough, M.D. The balance of the funds were appropriated by state capital improvement funds. The museum has the following spaces and functions: Installation gallery, traditional galleries, art lecture hall, work/preparation area, storage (vault area), public lobby and restrooms, offices, loading dock and receiving area, and the necessary mechanical and electrical equipment spaces.

## Dana Hall

Dana Hall, a classic one-story building located at the corner of Bryson Street and Spring Street, was constructed in 1908. The building houses New Student Relations.

## Beeghly Physical Education Center

In this building, first occupied in 1972, are the Department of Health Science and Human Performance and Exercise Science and the varsity basketball athletics offices and facilities. In addition to a gymnasium with seating for over 7,000 spectators and an Olympic-size swimming pool, it contains faculty offices; 17 classrooms including laboratories for research and kinesiology; separate gymnasiums for wrestling, weight-lifting, gymnastics, and physical education for handicapped; raquetball and squash courts, dance studio, a rifle range, and a fitness center.

## All-Sports Complex

Located on an 18-acre site adjacent to Beeghly Physical Education Center, the All-Sports Complex includes Arnold D. Stambaugh Stadium and Beede Field, an artificial-turf sports field for football and soccer, with seating for more than 16,000 spectators; officials' dressing rooms; varsity athletic offices; classrooms, racquetball courts, gymnasiums, weight rooms and facilities for various other health and physical education activities.

The Complex also includes an all-weather 400-meter track with 1500 bleacher seats; facilities for all other track and field events; outdoor courts for basketball, handball and volleyball; an outdoor classroom area; and 10 hard-surfaced and lighted tennis courts.

## Other Sports Facilities

Currently, in addition to Beeghly Center and the All-Sports Complex, the physical education, athletic and intramural programs utilize the athletic fields and well-equipped sports centers in Mill Creek Park; Evans Field and Pemberton Park for baseball; Harrison Field in Smokey Hollow for softball; and for other activities, the McGuffey Bowling Lanes on North Garland Avenue and the Avalon South Golf Course.

## Cushwa Hall

Opened in 1976, this structure houses the College of Health and Human Services, as well as the Media Center, WYSU Radio Station, Office of Continuing Education, Department of Geography, and Department of Mathematics. One of the largest buildings on campus, it contains 27 classrooms, 38 laboratories, 146 offices, 23 conference-seminar rooms, and two lecture halls with seating capacities of 180 and 198. Many of the classrooms were renovated as part of a campus-wide classroom renovation project.

## DeBartolo Hall

First occupied in 1978, De Bartolo Hall houses the departments of Economics, English, Foreign Languages, History, Philosophy and Religious Studies, Political Science and Social Science, Psychology, Sociology and Anthropology, and Social Work and the Black Studies Program Office. Also housed in DeBartolo Hall is the Women's Studies Center, the Ethics Center and the Center for Peace and Conflict studies. In this six-story structure are over 167 offices for faculty and staff, 5 student lounge and study areas, 16 classrooms, 13 laboratories, a computer terminal room, a 200-seat lecture hall with stage, and special varied laboratories for the Department of Psychology.

## Laboratories

Biology, chemistry, and physics laboratories are housed in Ward Beecher Hall; language, psychology and anthropology/archaeology laboratories are in De Bartolo Hall and are described below. The geology laboratory is in the Engineering Science Building. The engineering laboratories are described in the College of Engineering and Technology section. The laboratories in Cushwa Hall are also described below. The Writing Center is in Coffelt Hall.

The Foreign Language Laboratory is designed for both classroom use and individual study. The classroom section has 31 student stations equipped with individual cassette recorders coordinated with a multi-channel console through which audio programs are transmitted to the students, as well as a film projector with auxiliary feed into the console to provide individual listening to the movie soundtrack. The individual-study section has 44 carrels, in which all types of audio-visual equipment can be used. Special oversized carrels house video equipment. Audio-visual programs are available for audio/oral practice and for study of foreign cultures.

In the psychology laboratories, located in the basement of DeBartolo Hall, students can learn basic techniques of experimental psychology, child psychology, social psychology and survey research. Equipment includes an electromagnetically isolated room for recording neural activity, a surgery room for investigating brain-behavior interactions, animal housing areas, a child observation room with mirropane glass, equipment for the control of animal behavior, and a complete audio-visual system to record the different behaviors possible in the laboratory setting.

The physical anthropology and archaeology laboratory has a wide range of special equipment including research microscopes, analytical balances, and spectrophotometers.

In Cushwa Hall, laboratories are provided for radio, dental technology, allied health, microbiology, nursing, criminal justice, geography, business education, home economics, paramedical science, mathematics, and engineering technology. Each laboratory is equipped for individual instruction of a full complement of students.

## The Bookstore

The Youngstown State University Bookstore is located at the west end of the Kilcawley Center complex. The bookstore is a full service operation that carries required textbooks and supplies as well as a wide array of emblematic apparel, gifts, stationery, specialty items, and an extensive trade and general book area. The in-house computer store sells computer hardware and software.

## Service Buildings

The buildings at various locations on campus that house specific services include:

SALATA FACILITIES COMPLEX, located on Rayen and Wood Streets, houses university planning and construction, maintenance personnel, administration staff, central receiving, key control, motor pool, central stores and various repair shops.

CENTRAL UTILITY PLANT, is located at the corner of Spring and Elm Streets. The plant has the capability of producing steam and chilled water for University needs and is distributed through a system of underground tunnels and direct burial utility lines.

GROUNDS BUILDING, located on Rayen Avenue, contains Grounds Department staff, personnel and equipment.

CENTRAL SERVICES BUILDING is located on Spring Street north of Tod Hall and houses University printing services, office supplies and campus mail services.

MATERIAL MANAGEMENT BUILDING, located on the corner of Fifth and Rayen, houses the University Purchasing and Material Inventory activities.

PHELPS BUILDING, located on the corner of Phelps and Lincoln, is in the process of being renovated during 1995/96. It will house the departments of International Studies, University Outreach and Urban Studies.

127 LINCOLN, this two story building houses the Technical Development Corp.

## University Police Department

A well-trained and well-equipped campus police force is maintained by Youngstown State University. The department is located in the YSU Police Department Building on Spring Street, just west of Wick Avenue.

The staff consists of 23 sworn police officers, 5 support employees, and an intermittent staff of 100 sworn officers. The department is a personal-service, technology-efficient law enforcement unit. The staff is supported by a sophisticated communication system, closed circuit television, well-equipped cruiser/patrol vehicles, and computer-based record keeping.

The training of departmental personnel is ongoing and crime prevention is a departmental priority. Some officers are members of the Mahoning County Violent Crimes Task Force and the Metro Mounted Patrol Unit. This participation results in the availability of additional police resources for the University community.

The University Police Department is open 24 hours a day. The general business telephone number is 742-3527. For emergency service call Extension 3333. Campus emergency telephones are located throughout campus to provide help and assistance.

YSU ESCORT SERVICE (YES)

YES is a free service provided by specially trained YSU student employees who will accompany students, faculty, and staff safely anywhere on campus or the near northside. Escorts are available Monday through Thursday from 7:30 a.m. to 11:00 p.m. and on Fridays from 7:30 a.m. to 7:00 p.m., every day school is in session. The exception is summer quarter, when escorts are available on a limited basis. During breaks, emergency/limited escorts are available with advance notification. Special arrangements can be made for physically challenged individuals. For more information, Call 742-1515.

## Parking Areas

### Parking areas are designated as follows:

S — Student Parking
F — Faculty/Staff Parking
M — Mixed Parking (Faculty, Staff, and Students)

Parking facilities for students include two parking decks and specified surface lots. After 4:30 p.m. daily, all parking areas (except spaces posted as No Parking, Handicap, etc.) are available for use by students, faculty and staff with a current permit.

The current "Parking Regulations" brochure contains additional information about University controlled parking. For information on registration of vehicles and applicable fees, see the Fees and Expenses section of this catalog.

# TUTORIAL SERVICES

## The Writing Center

The Writing Center is operated by the Department of English to provide individualized and group instruction in writing skills for all students in the University. The Writing Center staff includes members of the English faculty, undergraduate and graduate tutors, and a full-time Coordinator. Services include diagnosis of writing problems, tutoring, writing workshops for specific course needs, and consultation for writing projects in disciplines other than English. The Writing Center also maintains a lab component for English 520.

Writing Center services are free of charge to all registered YSU students. Located in Coffelt Hall, the center is open from 9 A.M. to 3 P.M. weekdays, and from 4:30 to 7:30 on Monday and Thursday evenings. For further information contact the Writing Center, Telephone: (216) 742-3055.

## Mathematics Assistance Center

The Mathematics Assistance Center, which is integrated with the Department of Mathematics, is an academic support service whose primary mission is to assist YSU students in the strengthening of the fundamental mathematics skills which they will need for success in the study of mathematics. The Center, located in Cushwa Hall, Room 3090, operates on a walk-in basis. Services provided by the Mathematics Assistance Center are free of charge to students of the University. Tutorial assistance is provided to any student currently enrolled in one or more of the following courses: Math 506, 508, 509, 510, 511, 512, 513, 515, 516, 520, 525, 550, 570, 571, 572, 580H, 581H, 642. [Tutorial assistance is limited to these courses.]

Among the other services offered by the Mathematics Assistance Center to any student of the University are workshops on selected topics and computer-assisted learning.

The staff of the Mathematics Assistance Center consists of a Coordinator, program assistant, graduate assistants, undergraduate tutors and student receptionists. The Center maintains business hours for the fall, winter, and spring quarters as follows: Monday through Thursday 9:00 A.M. to 3:00 P.M. and 5:00 P.M. to 8:00 P.M., and Friday, 9:00 A.M. to 1:00 P.M. (Call for hours for summer quarter.) For additional information, contact the Mathematics Assistance Center at (216) 742-3274.

## Reading and Study Skills Laboratory

The Reading and Study Skills Laboratory is operated by the Department of Secondary Education in the College of Education to provide individualized and group instruction in reading and study skills for all students attending the University. The Reading and Study Skills Lab staff includes members of the Reading and Study Skills faculty, undergraduate and graduate tutors, a full-time Laboratory Coordinator, and a Director of Developmental Instruction. Services include diagnostic testing, individualized instruction, tutoring, reading and study skills workshops and help with independent study. The Reading and Study Skills Laboratory also maintains a laboratory component for Education 510A and 510B.

The Reading and Study Skills Laboratory services are free of charge to all registered YSU students. The Reading and Study Skills Laboratory is located in Fedor

Hall, Room 2014, and is open from 8:00 a.m. to 8:30 p.m., Monday through Thursday and 8:00 a.m. to 5:00 p.m., Friday. For further information contact the Reading and Study Skills Laboratory, Telephone (216) 742-3099.

## Student Tutorial Services

Student Tutorial Services has as its primary goal the provision of supplementary academic help through tutoring in the 500- and 600-level courses. This tutoring assistance for lower division courses, exclusive of those served by the other tutoring laboratories and the Foreign Language Laboratory, is available to students referred by faculty or academic advisors, or to students applying as self-referrals. These services are free to all students currently enrolled at YSU.

The students meet regularly for one-on-one sessions with peer tutors who are selected for their academic proficiency. The tutors are especially trained in study skills techniques. The staff provides educational information and refers students to other services on campus when appropriate.

Students may obtain tutoring by applying at Student Tutorial Services on the upper level of Central Services Building. For further information call (216) 742-7253.

# STUDENT AFFAIRS

A wide variety of services, programs and activities are available to students through the various departments that make up Student Affairs. The Vice President for Student Affairs is the chief administrative officer of Student Affairs and has the overall responsibility for supervision, leadership and professional development of the Student Affairs staff.

## Counseling and Testing Services

Counseling Services staff includes several counseling psychologists and a testing coordinator. All are experienced professionals who specialize in working with college students concerned about adapting to college life, academic progress, career choice, drugs, family, marriage, problem pregnancies or other personal concerns.

No information is released to officers of the administration, to faculty members, to parents or to outside agencies without the student's explicit authorization, unless there is a clear and immediate threat to the life or welfare of the student or another individual. Information obtained in the course of counseling remains confidential and is not part of the student's academic record.

Counseling Services administers the American College Test, the Graduate Record Examination, the Miller Analogies Test, the Law School Admission Test, the Medical College Admission Test, National Teacher Examination and the Graduate Management Admission Test. Information about other national examinations is available.

The Counseling Services Office is located in Jones Hall, 3046.

## Health Enhancement Services

The University subscribes to a holistic view of health and development. It provides programs and services which support this belief. Substance Abuse Services and Disabled Student Services come under this advocacy.

***Substance Abuse Services:*** Youngstown State is committed to a campus free of unlawful drug and alcohol abuse.

On September 14, 1990, the YSU Board of Trustees adopted a policy in accordance with the requirements of Title V of the Federal Anti-Drug Abuse Act of 1988 and the Drug-Free Schools And Communities Act Amendments of 1989. The University provides counseling and referral services at no cost to all students, faculty and staff who are seeking help with a drug or alcohol problem or are concerned about the drug or alcohol problem of a friend, colleague or family member.

This service offers prevention/education programs as well as counseling and intervention/referral services for students, faculty and staff. It's coordinated by a certified alcohol/drug counselor, who also serves as the associate director of Health Enhancement Services.

Its programs include educational presentations on various aspects of alcohol and other drugs and prevention activities among students, faculty and staff. The prevention focus offers the campus community alternatives to the abuse of alcohol and the use of drugs as a means of coping.

Health Enhancement Services offers an open resource library containing books, reference materials, research papers, and articles from periodicals and magazines on various substance abuse topics to fulfill research needs. The intervention/referral service directs students, faculty, and staff to appropriate treatment or support services in the community or on campus. Health Enhancement Services is located in B101 Tod Hall.

***Disabled Student Services:*** Located within Health Enhancement Services is the office that delivers basic accommondations to students with disabilities. Any YSU student with a documented permanent or temporary disability may register with this office. Services for eligible students include proctored exams, interpreters, use of a lounge for students with disabilities, advocacy, and referrals. Disabled Student Services also helps a student make contact with other services on campus (e.g., handicapped parking, escorts, tutors) and use of the Arkenstone Reading Machine. For more information or to register with this office call (216) 742-3322.

## Student Health Services

Student Health Services is located in Beeghly Center, Room 200. The Health Service, staffed by licensed physicians and registered nurses, provides first aid and both sick and well-care. Sick care includes diagnosis

and treatment of illness or injury. Well-care encompasses prevention medical care such as health maintenance screenings which include physical exams for sports or programs such as nursing or respiratory therapy; gynecological exams; consultations; and referrals to appropriate outside services or physicians. Required immunizations are administered here. Information is available about student health insurance.

Physicians are available three hours daily when classes are in session and three hours weekly during break periods and the summer. Students are seen on an appointment basis and can make arrangements by phoning 742-3489. Nurses are available daily, year-round.

All services provided for students are strictly confidential.

## Career Services

The University maintains a comprehensive Career Center to provide professional assistance to students and alumni in career exploration/planning and employment placement. Students are encouraged to make use of the office early in their college life for aid in career planning and decision making. Individual career counseling is available, as well as three computerized interactive career planning and job search guidance systems. They are called (1) Discover, (2) Navigator and (3) FOCIS (Federal Occupational and Career Information System).

The office is a member of the National College Placement Council, and both national and local employers come to the campus to interview students and alumni seeking employment. Credentials service is provided to certified teachers applying for positions with schools, colleges or universities. Resumes of registered students and alumni are also provided to employers. Students are assisted in finding employment on campus or off while enrolled in the University. The location of the University makes it possible for many students to earn all or part of their expenses by working in nearby stores and industrial plants during the school year.

The Career Information Center in the office has career and organization information from over 1,600 employers, plus many other career-related resources. Mock interview sessions as well as over 360 video taped presentations on career and employer information are available. Job Fairs and Career days are presented throughout the year as are seminars on job search techniques, resume writing and interviewing techniques.

## Adult Learner Center

The Adult Learner Center is an educational support office that focuses on the needs of students age 25 and older. It provides direct assistance to students while supplementing and complementing the work of other units and departments within the University.

The Adult Learner Center provides programming, individual assistance, and information for adult students in order to promote and improve student success and integration in the campus community.

The Center sponsors the quarterly recruitment and retention program, Adults Back to College (ABC), where adults receive introductions and guidance in getting started in college.

Coordinating workshops in Reading and Study Skills, Writing, Math, Careers and Counseling are other functions that support adult learners as they move through the University. The Center also functions as a referral to and from other support and service offices on campus.

In addition to these examples, the Center has formed an Adult Learner's Advisory Council. This is a group of ten adult students that regularly meet to advise and assist the Adult Learner Center and University in the implementation of services and programs, such as Faculty Forums, newsletters, educating the campus community about issues affecting adult students. The Center also assists individuals and campus departments in relating more effectively with this population.

## First-Year Student Center

The First-Year Student Center (FYSC) represents the combined effort of Youngstown State University administrators, faculty and students helping new freshman students adjust to college.

FYSC goals are to aid students in their transition to college, help students build self-confidence, identify opportunities, develop a sense of direction, and achieve their educational goals.

Emphasis is placed on newly admitted students who have not previously attended a college or university. Students may be referred to FYSC from a variety of sources including high school guidance counselors, University faculty, staff and students. A student also may be self-referred.

Students participating in FYSC prepare a personalized "development plan" to guide them through their first year of college study. This involves setting realistic academic, career and personal goals based on the student's interests and abilities. Participants are assisted in this activity by FYSC staff who meet with them individually on a regular basis to offer guidance and support.

Peer Assistants, specially trained upperclass student employees, serve as helpers and friends of new students during the first year of college study. They provide information and referral assistance as well as other types of supportive services.

*MENTORING SERVICES:* The mentoring service is available to any freshman through senior student who wants consultation from a volunteer faculty or staff member on educational matters, career issues and advice on requirements and procedures.

Mentoring provides supplemental guidance to students in the achievement of educational goals and assists in relating the educational process to goal achievement. Also, it enhances interaction between students and faculty/staff while promoting the development of supportive relationships.

Prospective mentees meet with the coordinator to determine their willingness to participate in the program and their preference for mentor assignment. Mentors are assigned on the basis of the same academic department, a supportive administrative department or some other area related to the students' interests and concerns.

The FYSC is located in Kilcawley Center West below the YSU Bookstore. For more information call (216) 742-3746 or (216) 742-1599.

## Multicultural Student Services

The Multicultural Student Services Office (MSSO) has general responsibility for assessing the needs of multicultural students and recommending appropriate programs and services. Emphasis is placed on serving the following student populations: American Indian or Alaskan Native, Asian or Pacific Islander, AfricanAmerican and Hispanic Americans.

The office provides a variety of services including personal counseling and advisement, information, referral and assistance in resolving educationally related difficulties.

In cooperation with other administrative offices, MSSO offers workshops in study skills, leadership development, college survival skills, race relations, and community information. In addition, annual events, i.e., Summer Bridge Program, Native American Expo, and Hispanic Awareness Week are sponsored by this office.

Students seeking further information and/or assistance are encouraged to visit the Multicultural Student Services Office, located in Kilcawley Center West or telephone (216) 742-7175.

## Housing Services

### UNIVERSITY HOUSING

YSU owns and operates five housing facilities for students: Kilcawley House, located on Spring Street; the newly built Lyden House and Residential Honors Facility on Madison Avenue; and the Wick and Weller Houses on Wick Avenue. On-campus options for students range from traditional residence hall-type facilities to apartment-style housing.

On-campus living provides students many advantages and opportunities. University housing facilities are structured environments. Each is a small community, and as such, has procedures and regulations addressing such things as noise, safety, guests and security. University Houses have full-time professional and part-time student staff that oversee the operation of the Houses and assist students with the problems of daily college life. Each facility has state-of-the-art building security systems. On-campus living is a good place to get to know many students in a short period of time. Sharing bathrooms, lounge space, and corridors with a group means you can't help but make friends quickly. Being on campus also means that classes, the library, the student center and the computer center are never very far away.

### KILCAWLEY HOUSE

Kilcawley House was constructed in 1965. All areas of this facility have been refurbished recently. Public areas, bathrooms and student rooms are attractive and modern. This traditional type, seven-story housing facility can accommodate 242 students. Kilcawley residents live in double occupancy rooms, complete with bunk beds, wall to wall carpeting, built-in desks, telephones and plenty of closet and drawer space. Lounges are available on each floor, with two formal study lounges located on the ground level. The basement contains a game room equipped with big screen TV, ping-pong, pool and foosball tables. Its residents have the advantage of being located in the heart of the YSU campus, and can use all of Kilcawley Center's facilities, including Dollar Bank, computer center, and copying service, without going outdoors.

### LYDEN HOUSE

When Lyden House opened in the fall of 1990, a new era began for on-campus housing at Youngstown State. The impressive five-story structure reflects a traditional collegiate gothic style with clean, contemporary lines.

Lyden House located just north of campus along Madison Avenue houses 300 students. A typical student room is approximately 12'x 17', and houses two students. In addition to a bunk bed, which can be stacked or separated, each student has a desk and chair, a dresser, a shelving unit and an armoire wardrobe unit. The furniture is uniquely designed to interchange to suit the individual student's tastes in personal decor.

Rooms also feature individually room controlled heating as well as air conditioning units, decorator vertical window blinds, overhead lighting and tiled floors. All rooms in Lyden are designed to be handicapped accessible.

Each wing of this beautifully designed residence hall includes convenient shower and restrooms, quiet study rooms, and comfortable conversation lounges. Students have full access to a kitchenette/vending area, fitness room and laundry facilities in the lower level of Lyden. A convenient parking area is also available adjacent to Lyden House.

### NEW RESIDENTIAL HONORS FACILITY

Our residential honors facility is coed, housing 274 students. The facility is designed to house the University Scholars Program participants.

Enclosed suites rather than traditional rooms will accommodate 6-18 residents, with individual rooms branching off each suite area that house 2-3 residents.

In addition to providing a variety of lounge and recreational spaces similar to Kilcawley and Lyden, this facility also has academic spaces such as a seminar room, computer lab, and music practice rooms.

### WELLER HOUSE
### WICK HOUSE

Both Wick and Weller Houses are located along Wick Avenue and have a unique historical setting

located next to the Arms Museum and near the Butler Institute of American Art. Both of these houses were purchased by the University, and were then completely renovated. Weller House accommodates 38 upperclass, junior, senior and graduate tenants. Wick House accommodates 36 women. Complete renovations of these houses included all new energy-efficient windows, heating and air conditioning units, carpeting, and lighting. Furnishings provided for each student are similar to those previously listed for Lyden House residents.

Weller House opened in Fall 1991 offering apartment-style on-campus living facilities with each unit having a full bathroom with tub and/or shower. A kitchen furnished with modern cabinets, telephone, an electric range, refrigerator/freezer,garbage disposal and a dining table. Apartments vary in size and are designed to accommodate two to five students.

Weller also offers students a comfortable, group lounge with convenient laundry facilities in the lower level.

Wick House, constructed in 1906, offers the traditional architecture style of the turn of the century. This former mansion is four floors and features an impressive, historically preserved dual staircase. It offers women students a wide variety of housing options, ranging from single-occupant rooms to rooms accomodating four students. Rooms vary in size and share showers and restroom facilities.

Wick House residents enjoy security monitoring, a conversation lounge, and laundry facilities.

### CHRISTMAN DINING COMMONS

The Christman Dining Commons opened for Fall Quarter 1991, and serves any student with an on-campus resident meal card or on per-meal cash basis. The Commons is located adjacent to Lyden House and is easily accessible from Elm Street, Madison Avenue and Custer Street.

This gracious single-floor dining facility architecturally compliments Lyden House, seats 300 and will serve over 600 per meal.

The Commons offers a wide variety of menu options to campus residents, from self-serve cold foods, beverages and snack selections to staff-served grille specialties and hot entrees.

Various meal plans are also available to those current students not living in University-owned facilities.

### Application for Housing

Applications are available from the Housing Services Office. You can request an application by mail, by phone or in person. If you indicate an interest in housing on your application for admission, an application will be sent to you.

In order to be accepted for University housing a student must first be admitted to the University. Space is allocated on a first-come first-served basis. If you have not yet applied to the University, contact our New Student Relations Office at (216) 742-2000.

### PRIVATE HOUSING

Buechner Hall, a privately owned and operated women's residence hall, is located near the center of campus. Although this facility is not operated by the Housing Services, cooperation and regular communication ensures that the women residents are integrated into campus life.

Buechner Hall, designed and built expressly for women, is operated by the Buechner Foundation, a private, not-for-profit corporation and is maintained by funds from the original bequest. The Foundation partially underwrites every resident's cost. Located on the YSU campus, Buechner Hall houses 75 women in single and double rooms. The air-conditioned rooms are completely furnished, including linens and telephones, and are cleaned weekly by the housekeeping staff. The dining room provides 15 home-cooked meals a week, and weekend cooking facilities are also available. The building has an elevator and sprinkler system, and laundry facilities on each floor. Staff and security guards provide maximum 24-hour security service. A beautiful and immaculately maintained building, Buechner Hall is conducive to a quiet study environment. 620 Bryson Street, Youngstown, OH 44502 (216) 744-5361.

### INDEPENDENT LIVING

Off-campus housing is an attractive option for many students. In the greater Youngstown area, there is a wide variety of apartments, houses, and rooms for rent at surprisingly reasonable rates. Much of this housing is within walking distance to campus, so students without their own transportation are able to take advantage of it. Many students with transportation opt to live further from campus.

Whatever kind of housing you are interested in, please contact the Housing Services Office at (216) 742-3547 for more information.

## Lockers

A full-time student may rent a locker on campus for a small fee. All items stored must be removed at the end of each academic year. The University assumes no responsibility for property stored in a locker. Information about these lockers is available in the Kilcawley Center Bytes and Pieces.

# STUDENT ACTIVITIES

Youngstown State University offers numerous opportunities to interested individuals who want to become involved in student activities. Areas of involvement include Student Government, Program and Activities Council and Residential Life, sports and recreational activities, service organizations, religious groups, academic, political and professional organizations, and social fraternities and sororities. There are more than 130 student organizations and groups in which to be involved. In addition, a varied social and cultural program, including concerts and musical groups, performers, lecturers, and dramatic groups, is provided to students.

The University believes that involvement and participation in extracurricular activities can make a significant difference in the quality of a student's college experience. Involvement offers students the opportunity to explore and pursue a wide range of interests outside the formal classroom setting. Other benefits of involvement include the development of leadership skills, self-confidence and social poise, and expanded friendships.

In order to facilitate involvement in student activities, the University has provided an office — the Student Activities Office — with a full-time staff to assist students in finding areas of involvement to meet their interests and needs. The Student Activities Office, located on the second floor of Kilcawley Center, is responsible for the development and coordination of student organization programs and other student-oriented cultural and recreational events to ensure a well-balanced and responsive activities program.

## Kilcawley Center

Kilcawley Center is the community center of the University, for all the members of the University family — students, faculty, staff and alumni. It is not just a building; it is also an organization and a program. Together they represent a well-considered plan for the community life of the University.

As the "living room" or the "hearthstone" of the University, the Center provides the services, conveniences, and amenities the members of the University family need in their daily life on campus and for getting to know and understand one another through informal association outside the classroom.

Kilcawley Center is part of the educational program of the University. As the center of University community life, it serves as a laboratory of citizenship, training students in social responsibility and for leadership in a democratic society.

Through its various boards, committees, and staff, it provides a cultural, social, and recreational program aimed at making free-time activity an integral part of a YSU education.

In all its processes it encourages self-directed activity, giving maximum opportunity for self-realization and for growth in individual social competency and group effectiveness. Its goal is the development of persons as well as intellects.

Kilcawley Center attempts to meet the diversified needs of the University community in its food service program. The snack bar, contracted by Arby's, offers a variety of fast foods designed to meet the needs of today's students. A breakfast is offered beginning at 7:00 a.m., and the evening student arriving after work may choose from a varied menu. A full cafeteria-style menu is offered in the first-floor Terrace Room during the day.

For those who wish to dine in a more relaxed atmosphere, the Wicker Basket offers a choice of table service items or a moderately priced buffet-style meal including a salad bar. In addition to the Wicker Basket, the second floor houses dining facilities for students living in the Kilcawley Residence Hall. Students who are not residents may purchase a quarterly meal ticket or individual meals in the Brass Rail Cafe.

Groups who wish to avail themselves of Kilcawley Center Catering Services may choose from a selection of buffet and table service menus, served in a variety of attractive conference rooms, with service available for groups of up to 450 persons.

## Student Government

The student body of Youngstown State University is represented by Student Government, which operates under constitutional powers granted by the University. The legislative branch of Student Government is composed of representatives from the six undergraduate units, the College of Arts and Sciences, the College of Business Administration, the College of Education, the College of Engineering and Technology, the College of Fine and Performing Arts, the College of Health and Human Services, and the School of Graduate Studies, in proportion to the enrollment of each. All meetings of student government representatives are open to the student body.

Student Government exercises the power to conduct student elections, to recommend students to serve as members of joint faculty-student committees, and to supervise programs financed from its operating budget.

Student Government selects nominees for the two student positions of the University Board of Trustees.

## Student Publications

The University supports several student publications which provide an avenue for students to express their literary and artistic talents. Policies and procedures concerning student publications are recommended to the Vice President for Student Affairs by the Student Publications Committee.

The *Jambar*, a newspaper published twice a week; and *The Penguin Review*, a literary magazine, are recognized student publications on campus.

## Debate And Other Forensic Activities

The forensic program at the University is divided into two areas — individual events and audience-oriented debating.

The individual events team participates in many tournaments including those at Marshall University, Ohio University and the University of Toledo, competing in such catagories as oratory, extemporaneous speaking and oral interpretation.

The University Debate Team engages in audience-centered debate with teams from other area colleges and universities. The team also presents topical debates to clubs and other organizations, offering a view of forensics in action as well as information on topics of current national interest.

Participation in the University forensics program is open to all students. Membership in the University Chapter of Pi Kappa Delta, the national honorary forensics fraternity, is open to YSU students who qualify.

## Theater

All students in the University are invited to participate in the production of plays. The University Theater presents five major productions during each academic year as part of cultural offerings from the Communication and Theater Department of the College of Fine and Performing Arts. A dinner theater production program is also offered in cooperation with Kilcawley Center each summer.

The co-curricular production program is designed to reflect contemporary patterns in educational theater extending from revivals of historical masterpieces to representative plays and musicals from modern Broadway. Major productions are so selected that during a four-year span at YSU a student may have the opportunity to become exposed to masterpieces representing each major period in western theater history. This approach to play selection results in a happy blend of modern and classical plays and musicals offering YSU students a varied theatrical fare. Recent productions have included *West Side Story, Fiddler on the Roof, The Tempest, Death and the Maiden,* and *Dancing at Lughnasa.*

Major University Theater productions are presented in Bliss Hall, the performing arts complex which contains Ford Theater, a 410-seat standard proscenium theater, and the Spotlight Arena Theater, which affords a variety of production formats including arena and thrust staging. Besides accommodating some of the major productions, the Spotlight Theater serves as a laboratory for student-directed plays, acting and oral interpretation recitals, and various workshop activities.

With an emphasis on "learning by doing," YSU theater students apply classroom-learned theories and techniques in numerous campus productions. In recent years YSU students have also been able to meet with theater professionals such as makeup artist Irene Corey, Edward Albee, Robert E. Lee (who attended the opening performance of his *Inherit the Wind*), Fred Voelpel (who taught an advanced seminar in design and designed costumes, scenery, and lighting for YSU'S production of *Tartuffe*), stage combat master David Boushey, Richard Raether, Earl Hyman (who played the title role in YSU'S production of *Othello*), playwright Barry Stavis, and Christopher Martin (who directed Stavis' *Harpers Ferry*). Marni Nixon, (who did a workshop on vocal crossover techniques from opera to musical comedy), Barb Anderson (taught workshop on costume design) well-known lighting designer, David Segal, (conducted workshops and design for production of *Ring Round the Moon*), dialect coach, David Stern, and Neil Vipond who played Prospero in *The Tempest.*

Another feature of the theater program is its sponsorship each year of student-directed one-act plays. University theater, with funding from the YSU Foundation, sponsors guest artist workshops and special theater programs for area high schools and other area theater agencies.

Membership in the Eta Phi cast of Alpha Psi Omega, the country's largest and most active honorary dramatics fraternity, is open to YSU students who distinguish themselves in theater and scholarship.

## Musical Organizations

Many campus musical organizations are open to all students of the University. For these, see the Dana School of Music.

## Art Exhibits

Student and faculty exhibits are periodically held in the John J. McDonough Museum of Art including two annual senior exhibits for graduating studio majors. The McDonough Museum also exhibits works of nationally and regionally known artists. The Butler Institute of American Art sponsors three annual competitive exhibits such as the area annual and the national mid-year which are available to the students.

The Student Art Association has for many years sponsored an annual exhibition of the work of Youngstown State University students. The work is displayed at the McDonough Museum of Art during the month of May, with awards given from various donors.

## Intercollegiate Athletics

Intercollegiate athletics are conducted at Youngstown State University to enlist the interest of the entire student body as spectators or participants in healthful amateur sports. Participation is open to any student who qualifies under the Youngstown State University, NCAA and conference eligibility regulations. Men's teams compete in intercollegiate baseball, basketball, cross country, football, golf, tennis and track and field. Women's inter-collegiate teams compete in basketball, cross country, softball, tennis, track and field and volleyball.

The University's intercollegiate athletic programs are governed by the National Collegiate Athletic Association (NCAA).

Students are encouraged to participate as athletes, cheerleaders, trainers, managers or scorekeepers in any of the varsity sports. Students desiring to try out should contact the Athletic Offices in the Stambaugh All Sports Complex.

## Intramural/Recreation Department

The YSU Intramural/Recreation Department provides students, faculty and staff with an opportunity to spend leisure time participating in organized sports and recreational activities. More than 70 different activities help meet the physical, social and recreational needs of the University's population.

Students, who are enrolled full-time and in good academic standing, may be employed as sports officials and site supervisors in the Intramural/Recreation Department.

The Intramural Department also offers co-educational club sport programs. Distinctly different from on-campus intramural activities, the focus of the club sport program is to compete with similarly established interest groups from other colleges and universities. The presently organized club sports are cricket, soccer, cycling, volleyball and racquetball.

The YSU Intramural/Recreation Department, is located in Room 103 of the Beeghly Physical Education Center.

## Honorary Organizations

Established to recognize outstanding academic achievement by University students, Youngstown State University provides several honorary organizations related to academic fields and departments. Many of these honorary organizations are local chapters of national honor societies, which provide national recognition and local scholarships.

For more information on honorary organizations in your area of academic concentration, contact the faculty department chairperson of that area, or the Student Activities Office, second floor, Kilcawley Center.

Alpha Epsilon Delta — Honorary Premedical Society

Alpha Epsilon Rho — Broadcasting Society

Alpha Phi Sigma — Law Enforcement Honor Society

Alpha Psi Omega — Honorary Dramatic Fraternity

Alpha Tau Gamma — Honorary Accounting Fraternity

Centurians — Freshman Honorary

Chi Sigma Iota — Counseling Honorary

Delta Phi Alpha — National German Honor Society

Golden Key — National Honor Society for achievement in all undergraduate fields of study

Gould Society — Liberal Arts Honor Society

Kappa Delta Pi — Education Honor Society

Lambda Tau — Medical Technicians Honor Society

Omega Chi Epsilon — Chemical Engineering Honor Society

Omega Eta — Criminal Justice Honor Society

Omicron Delta Epsilon — Economics Honor Society

Omicron Lambda — Honorary Biology Fraternity

Phi Alpha Theta — History Honorary

Phi Kappa Phi — National Honor Society for Achievement in All Fields

Pi Kappa Delta — National Honorary Forensics Fraternity

Pi Mu Epsilon — Mathematics Honorary

Psi Chi — Honorary Psychology

Sigma Delta Pi — Spanish Honor Society

Sigma Tau Delta — International English Honor Society

Sigma Xi — Scientific Honor Society

Tau Beta Pi — Engineering Honor Society

## YSU Annual Awards

The University has established a series of awards to recognize excellence and to encourage participation in campus life. The awards are presented annually at the Student Activities Awards Banquet in May. Staff, faculty and students are encouraged to nominate worthy recipients.

### The YSU Pin
### Outstanding Graduating Seniors

Instituted more than 40 years ago, the YSU Pin rewards students for their academic achievement, leadership, innovation and creativity in University and community activities. This award is open to all students who are graduating this year.

### Arby's Leadership Scholarship
### Outstanding Undergraduate Leaders

Scholarship(s) will be presented to recognize outstanding participation in student activities, particularly during the last year. Candidates must have been full-time undergraduate students during the current year, and must be planning to attend school next year. Candidates will be judged on basis such as involvement, leadership and scholarship. Recipients will receive a voucher to be used toward tuition and fees. Nominated students will be mailed an application for the scholarship. Each year students, faculty and staff are invited to nominate outstanding individuals for the Arby's Leadership Scholarship.

### The Orion Award
### Outstanding Student Organizations

Organizations which have had exemplary success in one or more of the following areas are eligible for the Orion Award:

— Service to the University and Community.

— Programs/Events.

— Leadership Development.

— Member Recruitment and Orientation.

— Members' Scholarship.

Nominated organizations will be asked to apply for the award.

### The Libra Award
### Outstanding Advisor

Groups will nominate a faculty or staff member who has had extraordinary impact on the organization they advise and on its members. An application will be given to the organization after nomination of the advisor.

### The Constellation Award
### Outstanding University-Wide Programs

Each year, organizations sponsor programs or events that use creative approaches to publicity and promotion, and generate excitement within the University community and beyond. Award(s) will be given to organizations that sponsor such events. These programs must be University-wide, student-generated and -run, and responsive to student needs and desires.

Nominated organizations will be asked to apply for the award.

### The Nova Award
### Most Promising New Organization

Any newly registered (since last April) organization that has made significant progress during its first year is eligible for the Nova Award.

Bases for selection will be success in one or more of the following areas:

— Service to University and Community.
— Leadership Development.
— Membership Recruitment and Orientation.
— Programs/Events.
— Members Scholarships.
— Fellowship/Social Activities.

Applications wll be given upon nomination.

Each year, students, faculty and staff are invited to nominate outstanding individuals and organizations for these prestigious awards. Selections will be made by a committee composed of students, faculty and staff.

### Student Services Award
### Gillespie — Painter Award

Awards to recognize outstanding achievement in serving, motivating and supporting the students of YSU. All faculty, staff and members of the YSU community are eligible for the awards. Nominations will be reviewed, and recipients will be selected by the Student Services Awards Task Force.

### Edna K. McDonald
### Cultural Awareness Award

Award to recognize an outstanding individual who has made a lasting contribution to encourage and increase awareness of cultural diversity at Youngstown State University. All faculty, staff, students, and members of the extended YSU community are eligible for the award.

## AWARDS AND PRIZES

*The Youngstown Vindicator Awards.* Four cash awards are made annually as follows:

To the best all-around student, on the basis of academic achievement and extracurricular activity through four years of college: $200.

To the student ranking first in the humanities, on the basis of four years of study: $100.

To the student ranking first in English, on the basis of four years of study: $100.

To the student ranking first in the social science sequence courses: $100.

*The Interfraternity Council Awards for Scholarship* are given annually to the fraternity chapter with the highest aggregate point index and to the member of a fraternity with the highest individual point index, based on the academic work of the previous three quarters. The awards are presented during the spring quarter at the Greek Sing.

*The Panhellenic Council Awards for Scholarship* are given annually to the sorority chapter with the highest aggregate point index and to the member of a sorority with the highest individual point index, based on the academic work of the previous three quarters. The awards are presented during the spring quarter at the Greek Sing.

*Who's Who Among Students in American Universities and Colleges* lists upperclass students and graduate students achieving outstanding academic and co-curricular records.

The following awards and prizes are listed according to the relevant school or college.

### College of Health and Human Services

*The American Legion (Post 15) Awards,* to two cadets who rank in the top 25% of their academic class and have demonstrated outstanding leadership traits.

*The Association of the United States Army Medal* is awarded to the cadet completing the first year of advanced course who is the most outstanding in all academic subjects and who has completed one full year of the R.O.T.C. Program at YSU.

*The Daughters of the American Revolution Award* is a gold medal presented annually to the graduating cadet in the top 25% of the R.O.T.C. and the academic class.

*The Department of the Army Superior Cadet Ribbon Award,* to the outstanding student in military science.

*The Distinguished Military Graduate Honor Award* is presented by the president of Youngstown State University to designated distinguished military graduates.

*The Gilda DeCapita Award* is given annually by the nursing chapter of the YSU Alumni Association to an honors student in the nursing program. The student must be in good standing and in need of financial assistance. The amount of the award given is determined annually by the chapter's board.

*The Dean Gillespie Award* is presented to the R.O.T.C. senior who has most demonstrated all facets of leadership.

*The Mahoning Chapter, Reserve Officers Association, R.O.T.C. Honor Awards* are medals presented to the cadet completing the basic course who is selected

for and enrolls in the advanced course, and to the cadet completing the advanced course who is commissioned in the Officers Reserve Corps of the Army of the United States and who best exhibited the qualities of leadership.

*The Nathan Hale Chapter, Sons of the American Revolution Awards* are presented to the R.O.T.C. cadet who completes the basic course with the most outstanding excellence in all academic subjects and to the cadet who completes the advanced courses with the most outstanding excellence.

*The Ohio Nurses Association, District III, Award* is given annually to the member of the graduating class in the nursing program who has the best scholastic record in clinical nursing.

*Outstanding Home Economics Student Award* is given to a graduating student chosen by the faculty for superior academic achievement and service

*The Corydon Palmer Dental Society Award.* This award is presented to two outstanding dental hygiene students in year one of the program and one to a graduating student on a yearly basis.

*The President-Professor of Military Science Award* is presented to the senior cadet judged by the Military Science Cadre to be the most outstanding student in the class.

*The Association of the United States Army Medal* is awarded to the cadet completing the first year of advanced course who is the most outstanding in all academic subjects and who has completed one full year of the R.O.T.C. Program at YSU.

*The Wilma A. Brown Home Economics Award.* This award was established by Dr. Wilma A. Brown, the first chair of the Department of Home Economics. Majors of junior or senior standing in the department may apply. Full-time students of good academic standing who have been enrolled for the three preceding quarters will be considered by the full-time faculty in the department, who make the final decision.

*The Woman's Board of Youngstown Hospital Association Award* for Excellence in Nursing. This award is given annually to the member of the graduating class in the nursing program who has the highest grade point average.

*YSU Nutrition Society Scholarship* award to a YSU dietetics student who has been an active Society member and has displayed outstanding academic achievement.

## College of Arts and Sciences

*The American Chemical Society Award* is a cash award given by the Penn-Ohio Border Section to an outstanding junior chemistry major.

*The American Chemical Society Student Affiliates Award,* to the graduating senior in chemistry with the highest cumulative point average.

*The B'Nai B'Rith Undergraduate History Award of $50* given to the outstanding undergraduate history student.

*The CRC Press Freshman Chemistry Achievement Award,* given for superior achievement in freshman chemistry, consists of the current edition of the *Handbook of Chemistry and Physics,* with a commemorative scroll.

*Delta Phi Alpha National German Honorary Society* annually extends membership to a German major who has excelled in the study of German.

*The Charles Dobson Memorial Award* is given each year in memory of Dr. Dobson as recognition for achievement in research by an undergraduate psychology student.

*The Candace Gay Memorial Awards* were established by Professor Thomas Gay and the late Dr. Carol Gay of the Department of English in memory of their thirteen-year-old daughter, Candace McIntyre Gay, who died in 1977. This fund provides $750 or three $250 prizes for junior and senior high school students who exhibit distinctive writing ability in the Candace Gay Memorial Essay Contest. A grand total of $1875 in prizes are presented at the annual YSU English Festival.

*The Geology Department Scholarship* is awarded to a geology major to help defray tuition at YSU or at an appropriate field camp, and is based on academic achievement.

*The Sister Jean Gillespie Memorial Award in Religion* was established in 1984 by Marie Weyrick and Mildred Gedeon in memory of their sister, Dominican Sister Jean Gillespie, O.P., who died in 1982 and who was deeply committed to the ecumenical work of the Jewish/Christian Dialogue Group of Youngstown. It provides income from an endowment of $2500 to a distinguished senior in religious studies whose academic program best exhibits an interest in comparative religion.

*The Gary L. Green Award* was established in 1990 in memory of Dr. Gary L. Green, who served with distinction as a faculty member in the department of English. The Gary L. Green memorial fund provides $300 annually to an English major with 48-107 hours who has done outstanding work in Introduction to Literary Studies and otherwise shown strong academic promise. The income from an endowment makes this annual award possible.

*The Robert R. Hare Award for Distinction in Journalistic Writing* was established in 1979 by Dr. Mary Virginia Hare in memory of her husband, Dr. Robert R. Hare, a distinguished member of the English faculty of Youngstown State University. The award provides $250 each year to a full-time YSU student who has demonstrated distinction in journalistic writing. The recipient is chosen by the English faculty and outside experts designated by them.

*The Robert R. Hare Award for Distinction in Creative and Critical Writing* was established in 1974 by Dr. Mary Virginia Hare in memory of her husband, Dr. Robert R. Hare, a distinguished member of the English

faculty of Youngstown State University. The award provides $250 each year to a full-time YSU student who has demonstrated distinction in journalistic writing. The recipient is chosen by the English faculty and outside experts designated by them.

*The Robert R. Hare Award for Distinction in Creative and Critical Writing* was established in 1974 by Dr. Mary Virginia Hare in memory of her husband, Dr. Robert R. Hare, a distinguished member of the English faculty of Youngstown State University. The award provides $250 each year to a YSU English major who has demonstrated distinction in creative or critical writing or both. The recipient is chosen by the English faculty and outside experts designated by them.

*The Department of History Chairperson's Award* is a monetary award given for the best undergraduate research paper in any field of history.

*The Clingan Jackson Prize in Political Science* to be awarded for scholarship invigorated by the traditions of a free and inquiring press and by active participation in the work of a government agency or political party.

*The Evangelos Meshel Memorial Award in Greek* is given to the best student in elementary or intermediate Ancient Greek.

*The Lewis B. Miller/Retta Barge Miller Outstanding Geography Paper Award* of $150 is awarded annually for the best undergraduate research paper in any field of Geography.

*The Ohio Chapter of the American Institute of Chemists Award,* given to an outstanding chemistry senior, consists of a one-year Student Associate membership in the Institute and a subscription to *The Chemist,* a monthly publication.

*The Omicron Lambda Honorary Biology Fraternity Award for Scholarship ($25)* to an outstanding graduating biology student.

*The Outstanding Undergraduate in Mathematics* a book award is given annually to a student selected by the Department of Mathematics.

*The Rawson-Moritz Memorial Award* for the outstanding freshman in biological sciences.

*The Dr. Eugene D. Scudder Organic Chemistry Award* is a cash award given to a chemistry undergraduate student for outstanding performance in organic chemistry.

*The Dr. Eugene D. Scudder Physical Chemistry Award* is a cash award given to a chemistry undergraduate student for outstanding performance in physical chemistry.

*The Vere Stalker Shaklee/Nina Pierce Shaklee Outstanding Geography Major Award* of $150 is awarded annually to the outstanding undergraduate Geography major.

*Society for Analytical Chemists of Pittsburgh Award* is a cash award given to a chemistry junior or senior with a 3.0 GPA or better. It recognizes student participation in chemistry-related projects, special honors and awards received, and overall accomplishments in the field of chemistry.

*The Undergraduate Award in Analytical Chemistry* is sponsored by the Division of Analytical Chemistry of the American Chemical Society to encourage student interest in Analytical Chemistry and to recognize students who display an aptitude for a career in this field. The award consists of a subscription to the journal *Analytical Chemistry* and an honorary membership in the Division of Analytical Chemistry.

*The Peter I. Wenzen Award* is an annual cash grant given by the Youngstown State University Geological Society and friends to a junior or senior majoring in geology who is in need of financial assistance.

*The Wolves Club Awards in Advanced Latin* are presented for meritorious work in Latin on the upper division level.

*The Wolves Club Awards in Intermediate Latin* are presented for meritorious work in Latin on the intermediate level.

## Warren P. Williamson, Jr. College of Business Administration

*The Alpha Delta Sigma National Professional Advertising Society* offers an award annually to an outstanding senior who is a member of the advertising fraternity.

*The Alpha Tau Gamma Fraternity Student of the Year Award* is given annually to the member of the Fraternity who has contributed the most to the University through a combination of academic proficiency and extracurricular activities.

*The Becker CPA Review Awards* are presented annually to two accounting seniors outstanding in scholastic achievement and interested in careers in public accounting.

*The Mahoning Valley Chapter of the Ohio Society of Certified Public Accountants Award* is presented to the student selected as the outstanding participant in the Accounting Internship Program.

*The Institute of Management Accountants Award* is presented to the graduating senior with the highest grade point average in Accounting.

*The Raymond J. Shuster Award for Excellence in Human Resources Management* is given annually to undergraduate and graduate students.

*The Wall Street Journal Student Achievement Award* is presented to a senior in the Williamson College of Business Administration for academic excellence and outstanding performance.

## College of Education

*The Frieda F. Chapman Award.* The College of Education annually presents an award to an elementary education major who shows evidence of becoming an outstanding elementary school teacher.

*The George M. Wilcox Award.* The College of Education annually presents an award to a secondary education major who shows evidence of becoming an outstanding secondary school teacher.

*The Department of Special Education Award* is given annually to a special education major who, as a senior, exhibits exemplary scholarship and potential for work with exceptional individuals.

*The Kappa Delta Pi Award* is given annually by the society to a member who, as a senior, exhibits outstand ing scholarship, leadership, character and service to the organization.

### College of Engineering and Technology

*The American Chemical Society Student Affiliates Award* is a copy of Van Nostrand's Chemists' Dictionary or other suitable book presented annually to the graduating senior with the highest cumulative point average in chemistry and chemical engineering courses as a full-time student.

*The Institute of Electrical and Electronics Engineers, Sharon Section Award in Electrical Engineering* is given annually to the outstanding graduate in electrical engineering.

*The Institute of Industrial Engineers Award in Industrial Engineering* is given to the outstanding graduating industrial and systems engineering student.

*The American Society of Civil Engineers, Youngstown Branch, Award in Civil Engineering* is granted annually to the outstanding graduate in civil engineering.

*The Louis A. Deesz Memorial Award* is given by theMahoning Valley Chapter of the Ohio Society of Professional and Registered Engineers, Tri-County Section, to the graduating engineering student outstanding in overall achievement.

*The Professor Paul Luginbill Chemical Engineering Award* goes to the best all-around senior student in chemical engineering.

*The MS Consultants Award in Civil Engineering Technology* recognizes the students who work full-time while completing the program on a part-time basis. Outstanding students are recommended by the faculty for the certificate and monetary award.

### College of Fine and Performing Arts

*Three Fine and Performing Arts Dean's Awards* are given each year to outstanding seniors.

*The SAI Honor Certificate* is a music award given to the graduating Sigma Alpha Iota women's fraternity member with the highest point average.

*The Doris I. Dalrymple Award* is given to an outstanding ensemble participant.

*The Friends of Music Award* is given annually to two outstanding students in the field of music.

*The Youngstown Music Teachers Association Award* is given annually to a music student for outstanding contribution in the field of music.

*The R. Donald Elser Award* is given to an outstanding junior or senior in the Department of Communication and Theater for scholarship and achievement.

*The Charles A. Borawski Memorial Art Award* is a cash award for artistic accomplishment given in memory of art student Charles A. Borawski (1951-1978). It is presented annually at the Youngstown State University Student Art Exhibition at the McDonough Museum of Art.

*The Alpha Psi Omega Award* is given annually to a freshman student who has demonstrated distinguished accomplishment in dramatic arts through participation in University Theater productions.

*Richard A. Martin and Aurora Ragini-Martin Piano Award* is given to the outstanding graduating senior who has demonstrated excellence in the field of piano with intent to continue in the musical field. Selection to be made by the Scholarship Committee of the Dana School of Music of Youngstown State University with the approval of the Dean of the College of Fine and Performing Arts and the YSU Foundation.

*Florence Simon Beecher Art and Theater Awards* are renewable grants-in-aid given to incoming art or theater students who demonstrate outstanding talent.

*University Theater Grant-in-Aid* is a renewable award given to incoming theater students who excel in scholarship and talent in theater. Special consideration is given to minority students.

## SCHOLARSHIPS/FINANCIAL AID

The University has a comprehensive program of financial assistance which includes scholarships, loans, grants-in-aid and college work study employment. All these programs are administered by the Director of Financial Aid and Scholarships in Jones Hall.

All students seeking financial assistance, including entering freshmen, should apply not later than March 1 preceding the academic year for which aid is desired. Students must complete the following forms:

(1) Youngstown State University Institutional Aid Application and (2) Free Application for Federal Student Aid (FAFSA) or renewal FAFSA.

In addition to the above-mentioned forms all Ohio residents seeking financial assistance must apply for a Pell Grant and an Ohio Instructional Grant, and all Pennsylvania residents seeking financial assistance must apply for a Pell Grant and a PHEAA Grant. This is done through the Free Application for Federal Student Aid.

Most student aid awards are made in June. Separate requests are required for summer quarter assistance.

### Scholarships

Scholarships are monetary awards to students with outstanding records of academic achievement. Amounts may vary depending on academic ability, financial need and/or the current state of the fund or

endowment supporting the scholarship. Scholarship funds have been established at YSU by corporations, clubs, religious and fraternal organizations. The Youngstown State University Foundation administers endowments which include substantial funding for scholarships for Youngstown State University students.

Scholarship awards to Youngstown State University students are based upon the student's University academic record, character and financial need. Scholarships for entering freshmen are awarded on the basis of high school academic record, recommendation by high school administrators, and score on a standard college entrance examination and class rank. All scholarship applicants are considered for all scholarships appropriate to their aims and interests.

Sponsored scholarships and the qualifications required for them are listed below.

*Adlaka and Associates Scholarships.* This award, established in 1986, provides five partial scholarships of $200 each, three to senior civil or structural engineering and two in computer information systems. Recipient shall be a son or daughter coming from a family where the head of the household is presently unemployed.

**American Association of University Women, Youngstown Branch, Scholarship.* This scholarship was established in 1950. A grant of $500 is awarded each year to an upperclass woman student, on the basis of high scholarship and financial need.

*American Business Women's Association Scholarship.* This scholarship, instituted in 1957, is provided by the Youngstown Chapter of the American Business Women's Association for a woman student in business administration.

*American Society for Women Scholarship.* This scholarship, established in 1963, is for a woman majoring in accounting or secretarial accounting.

*Arby's 25th Anniversary Youngstown State University Scholarship Program.* Established in the fall of 1989, this scholarship is awarded annually for 25 years from that date. The scholarship will be offered to an upper-division (junior or senior) student from Mahoning, Trumbull or Columbiana Counties in Ohio, or Mercer County in Pennsylvania, who is majoring in business management. To qualify, the student must be attending Youngstown State University on at least a half-time basis. Students shall be recommended by the faculty and selected by the dean of the Williamson College of Business Administration on the basis of scholastic achievement and their contribution to the College of Business.

*Briar Hill Scholarship.* This scholarship was established in 1992 by residents and former residents of Briar Hill. This endowment provides a scholarship to descendants of Briar Hill residents and former residents. Applicants must have an overall GPA of 2.8 or above. Preference will be given to non-traditional students with the rank of junior or above. Financial need will be considered where more than one student qualifies.

*Buechner Foundation Scholarships.* The Lucy R. Buechner Foundation, which operates a 75 bed residence hall for women on the YSU campus, provides two $6,000 scholarships each year to freshman women who will reside in Buechner Hall. These scholarships are for full-time (12 hours per quarter) WOMEN STUDENTS and are payable at the rate of $500 per academic quarter for a total of 12 quarters. Eligible women will have a 2.5 or higher cumulative grade point average from high school and must maintain a 2.5 or higher cumulative GPA at YSU for renewal. Financial need is a factor in these scholarships. Contact the Scholarships and Financial Aid Office at YSU for application forms. Women need not be residents of Buechner Hall to apply but must reside there to receive the award.

*Builders Association of Eastern Ohio and Western Pennsylvania Scholarship.* This tuition scholarship is awarded each year to an entering freshman in civil engineering technology. The recipient, who must be a full-time student, receives tuition for two years until graduation with an associate degree, as long as academic standards are met and full-time status is maintained.

*Business and Professional Women's Club Scholarship.* A scholarship is given annually to an upperclass woman by the Business and Professional Women's Club of Youngstown.

*Betty J. Connors Memorial Scholarship.* This scholarship is intended to provide aid to a mother over 35 who wishes to begin or resume a college education but requires financial assistance to do so. Applicants are reviewed by a committee established by the University, and the recipient is chosen on the basis of her life experience, financial need and academic potential.

*J. Ford Crandall Memorial Foundation Scholarships.* These grants provide tuition for full-time undergraduate students from Mahoning County and are renewable for a maximum of 11 additional academic quarters. Recipients are selected on the basis of scholastic record from among students nominated by the Buckeye Elks Lodge of Youngstown. Application process through the Buckeye Elks Youth Development Center.

*Bill Dailey Scholarship Fund.* Established with an endowment, this award is available to a former member of the YSU intercollegiate basketball team to continue and/or complete his or her undergraduate studies.

*Diamond Shamrock Corporation Scholarships.* Diamond Shamrock Corporation funds scholarships for outstanding chemical engineering students recommended by the chemical engineering faculty.

*Charles W. Dobson Memorial Scholarship.* This award is given annually to a Psychology major demonstrating excellence in research.

**Kenmore B. Drake Memorial Award.* This award was established by students and faculty of the Business Education and Technology Department in memory of Kenmore B. Drake. Applicants must be juniors preparing for certification for teaching one of the following areas: Business Education Comprehensive, Vocational Business Education Comprehensive, Bookkeeping and Basic Business, or Stenography. Selection criteria by a committee of the Business Education and Technology Department will include a minimum of 2.5 GPA, leadership, and a demonstrated commitment and enthusiasm for teaching Business Education.

*Dusi Memorial Scholarship Fund.* This scholarship was established in 1993 with an endowment from Joseph Dusi, Sr. The scholarship provides an award for students in the Dana School of Music who demonstrate musical talent in any area in the study of music.

*John W. and Lucille G. Fedor Scholarships.* Funds for these scholarships are awarded annually to elementary and special education students in the College of Education. The number of scholarships and amount of each depend on available funds and on each applicant's financial need and academic record. Scholarships are available for both part-time and full-time students. Renewal is possible.

*Delores Fitzer Scholarship.* Established in 1979 to honor a former member of the Dana School of Music piano faculty. This annual award is presented to a freshmen piano student.

*Fleming Education Scholarship.* This $250 scholarship is awarded annually by the Youngstown-Mahoning County Retired Teachers Association to a Mahoning County resident who is a senior with at least a "B" grade point average and who will be eligible for a Provisional (standard) Teaching Certificate upon graduation.

*General Extrusion, Inc., Scholarship.* This $500 scholarship was established to help deserving and able employees of General Extrusion, Inc., or their dependents to secure an education at YSU. It is awarded annually to an entering freshman who is a three-year employee with the company, or a dependent of a three-year employee, retiree or former employee who died while still associated with the firm. It is renewable for up to four academic years provided the student maintains the scholarship level and fulfills the requirements governing the scholarship.

*Harry K. Graebing Athletic Scholarships.* These scholarships were established in 1969 by Mildred N. Graebing in memory of her husband, Harry K. Graebing. The income from an endowment of $15,000 makes possible annual grants to deserving Ohio or Pennsylvania students participating in YSU Athletics.

*Mildred N. Graebing Scholarships.* These scholarships were established in 1973 by Mildred N. Graebing. The income from an endowment of $10,000 makes available annual grants to deserving Ohio or Pennsylvania students enrolled full-time in degree programs in Business Education or Secretarial Studies.

*Eugene Green Memorial Scholarship Fund.* Established in 1984 in memory of Attorney Eugene Green, this scholarship will provide aid to students selected by the Labor Studies Coordinator and the Director of Financial Aid and Scholarships of Youngstown State University. Two recipients will be selected annually. Recipients must be members of local trade unions and must be full-time students with high academic promise.

*Gary L. Green Award.* This award was established in 1990 in memory of Dr. Gary L. Green, an English Department faculty member. An annual award will be presented to an English major with 48-107 hours who has done outstanding work in Introduction to Literary Studies and otherwise shown strong academic promise.

*Dorothy Zola Greenberger Memorial Scholarship.* This $300 scholarship was established in 1971 by Sidney Greenberger in memory of his wife, Dorothy Zola Greenberger, a former member of the YSU Faculty. The income from an endowment makes possible an annual scholarship for a student in the College of Arts and Sciences. This scholarship is designed to aid a student who has demonstrated commitment to peace and/or social justice issues.

*Lori Grenich Student Nurse Award.* This award issued by District #3 of the Ohio Nurses Association to a student demonstrating excellence in clinical nursing as judged by the faculty.

*Grocery Manufacturers Representatives of Youngstown.* This award is given to students enrolled in the College of Business. Preference will be given to students whose parents work in the Youngstown area grocery business.

*Albert A. Guerrieri, Jr. Memorial Scholarship.* This scholarship is presented to a student majoring in science education or pre-med. Applicant must be a graduating senior of Wilson High School, have a 3.0 GPA and an ACT of 22 or an SAT of at least 900.

*Harris Scholarship.* This is an annual award to help defray the tuition costs of a student majoring in either geology or earth science. The recipient — a sophomore, junior, or senior who has demonstrated an above-average potential in the geological sciences and needs financial assistance — is chosen by the students in the YSU Geological Society.

*Robert E. Heltzel, Sr. Memorial Scholarship.* This scholarship will be awarded on the basis of academic achievement and financial need to an undergraduate engineering student who has completed 45 quarter hours towards degree. Applicants are to be selected from the area which YSU draws the majority of students.

*David Scott Ives Memorial.* This memorial is an annual prize presented to an upper division student to recognize achievement in classical languages.

*Clingan Jackson Scholarship in Political Science.* This scholarship is awarded annually at the Honors Convocation for scholarship invigorated by the traditions of a free and inquiring press and by active participation in the work of a government agency or a political party.

*Martin T. Kennedy Scholarship Fund.* Established by the will of Martin T. Kennedy, this scholarship is used to assist needy students.

*Junior Civic League Scholarships.* These scholarships, established in 1961, are provided for worthy students by the Junior Civic League of Youngstown.

*Koppers Foundation Company Scholarships.* These scholarships are awarded to outstanding students in chemical, mechanical, or electrical engineering. The recipients are chosen on the basis of merit by a faculty committee of the William Rayen College of Engineering and Technology. The amount of each scholarship is related to financial need, with a minimum of $750 and a maximum of $2,000 per student per academic year.

*Harvey Neal Kretzer Memorial Scholarship Fund.* Funded by an endowment, this scholarship is for a College of Education Master's candidate in school counseling and/or related pupil personnel services. If no recipient is available, it may be awarded to undergraduate students pursuing a career in teaching disadvantaged students, based upon scholarship and need.

*Albert W. and Adele Krotzer Scholarship Fund.* This scholarship, established in 1987, will annually provide two scholarships for students, one for a student enrolled in the College of Arts and Sciences and one for a student enrolled in the Williamson College of Business Administration. The business recipient must have a cumulative grade point average of at least 3.0 with at least 96 q.h. completed and a declared business major. At least 3.0 must be maintained to retain the scholarship. No other major sources of tuition funding are permissible.

*The Bernadine Marinelli Memorial Scholarship* is awarded in memory of Bernadine Marinelli, the first female high school principal in the Youngstown City Schools. The scholarship is given to an outstanding upper division education major who is a graduate of the Youngstown City Schools.

**Dean Robert L. Miller Scholarship.* This annual scholarship was established in 1966 by Alpha Tau Gamma Honorary Accounting Fraternity of Youngstown State University in honor of Robert L. Miller, professor of Accounting and at that time dean of the College of Business Administration. The recipient, selected by the dean of the College of Business Administration, must be an upperclass accounting student with acceptable scholastic standing and need of financial assistance.

*New Center Associates Scholarship.* This $1,000 award is given to a full-time junior or senior with a GPA of 2.0. Must be a student who, without the scholarship, would not be able to pursue his or her education.

*Nellie P. Nick Music Scholarship.* This scholarship was established in 1971 by Mildred N. Graebing in memory of her mother, Nellie P. Nick, in recognition of her 100th birthday anniversary. The income from an endowment of $5,000 makes possible annual awards to deserving women students in the Dana School of Music.

*Ohio Masonic Lodge Scholarship.* This scholarship of $1,000 was established in 1963 by Grand Lodge of Masons of Ohio and is given to a worthy student.

*Peter George Parthemos Scholarship.* This scholarship was established in 1985 by Irene Parthemos in memory of her husband, Peter George Parthemos. The income from an endowment makes possible an award to students in the College of Business who are of Greek descent or from Greece.

**Neil D. Humphrey Scholarship.* Established in 1984 by Mary and Neil Humphrey, this scholarship will be awarded each fall quarter: $250 to the woman and $250 to the man selected as the most outstanding juniors by grade point average and activities.

*Rudy M. Prince Memorial Scholarship.* Established in 1991 by the Boardman Rotary Club and the Prince Family, this endowment will be awarded annually to a student from the Mahoning County Vocational School who will attend Youngstown State University.

*Lenora and Jack Reel and Joe, Steve and Pete Fabek Memorial Scholarship.* This scholarship was established in 1991 and is given to a student with the rank of sophomore or higher, with a financial need and in good standing in electrical engineering.

*Remacor Scholarship.* This $1,000 scholarship is awarded to an outstanding junior materials engineering student. The recipient is chosen by the current chair of the Penn-Ohio Chapter of the American Institute of Mining and Metallurgical Engineers, together with the Director of the Division of Materials Engineering.

*The Nicola and Rocchina Richley Memorial Award.* This annual award of $100, given to a sophomore student of Engineering or Engineering Technology, was established by family and friends in memory of Nicola and Rocchina Richley. Applicants must have completed at least one term of the sophomore year of their program, have a GPA of 3.0, and demonstrate a commitment to complete the program. The recipient will be selected by a committe of Engineering and Engineering Technology faculty.

**Mary P. Rigo Memorial Scholarship.* Established in 1986, this endowment will be awarded to students in the Dana School of Music who have completed 95 hours. Students must be music majors with emphasis

in keyboard instruments. Selection, made on the basis of talent, will be determined by the Dana School of Music faculty. Students must be residents of Mahoning County. The scholarship is renewable.

**Michael A. Rigo Memorial Scholarship.* An endowment established in 1986, this scholarship is awarded to Mechanical Engineering students who have completed 95 hours. Awards will be based on academic achievement determined by the faculty of the department of Mechanical Engineering and financial need determined by the Office of Financial Aid and Scholarhips. Students must be residents of Mahoning County. The scholarship is renewable.

*Army R.O.T.C. Scholarships.* The Army ROTC scholarship program awards four-year scholarships, on a competitive basis, to students entering college as freshmen. Three-year and two-year scholarships are awarded to students already enrolled in college. In addition, students who attend the Basic Camp of the two-year program may compete for two-year scholarships. Army ROTC scholarships pay the full cost of tuition at YSU, all laboratory fees, a flat rate for textbooks, and some other educational expenses for the duration of the award. A $1,000 subsistence allowance of $100 per month for each academic year of the scholarship is also provided.

*The Edmund J. Salata Scholarship.* This award will provide assistance to a civil engineering student with a GPA of at least 3.00.

*Dora Schwebel Scholarship.* This scholarship was established in 1968 by the family of Mrs. Dora Schwebel as a memorial to her. Students in the College of Education who desire to teach in the Mahoning County School for the Retarded may apply. The scholarship is given to a student needing financial assistance and is renewable for a total of four years subject to good academic progress, continuing financial need and availability of funds.

*Georgene M. Smith Scholarship.* This scholarship was established in 1972 for students in botany, geology, or forestry, with funds bequeathed by Georgene M. Smith, an ardent conservationist and a past president of the Trumbull Arboretum and Conservation Association.

*Louis and Julia Spitzer Memorial Scholarships.* These scholarships were established in 1961 for students of the Jewish faith who need financial assistance.

*The Gerhardt M. Stein Electrical Engineering Scholarship.* This fund provides an award each year to an electrical engineering student. It was established in memory of Dr. Stein, a former professor of electrical engineering at YSU, by a daughter, Dr. Waltraut J.H. Stein of Atlanta and his son, Dr. Ronald P. Stein of Seattle.

*The Helen Edward Stoll Scholarship Fund.* Established in 1993 with an endowment from David Edward, this scholarship provides an award for an education major with an interest in learning disabled. Recipient must have an overall GPA of 2.5 and be a resident of Mahoning County.

*Strouss Scholarship.* This scholarship, established in 1984, will provide aid to two students nominated by the Buckeye Elks Lodge of Youngstown, Ohio.

*Louis D. Tauro Scholarship Fund.* This endowment was established in 1986. Awards are available to entering freshmen based on financial need and high school academic achievement. The scholarship is renewable for four years provided the students maintain a 3.0 cumulative grade point average. Recipients may be nominated by the donor. The annual award will be in the amount sufficient to cover the instructional fee for a full-time student.

*Gina Tenney Memorial Scholarship.* Applicants must have a GPA of 3.4 or higher, sophomore standing, a fine arts or humanities major, and be involved in extracurricular activities.

*Paul and Marguerite K. Thomas Scholarships in Accounting and Finance.* Three scholarships are awarded for students majoring in accounting and finance. Students will be nominated by faculty from the department. Students shall be from the upper-divisions (juniors and seniors) and determined from overall academic achievement and performance. Students nominated shall be selected by the dean of the Williamson College of Business Administration.

*Paul and Marguerite K. Thomas Scholarships in Economics.* Three scholarships are awarded to students majoring in economics. Students will be nominated by faculty from the department. Students shall be from the upper division (juniors and seniors) and determined from overall academic achievement and performance. Students nominated shall be selected by the dean of the College of Arts and Sciences.

*Alice W. Tod Scholarship.* This scholarship is awarded by the Women's Board of the Youngstown Hospital Association to an upperclass student seeking a Bachelor of Science in Nursing degree. It is awarded on the basis of academic excellence and is renewable for a second year provided the recipient maintains full-time status and meets the established academic standards governing the award. Selection of the recipient is based on the recommendation of the Director of the Nursing Program and the Women's Board of the Youngstown Hospital Association, in cooperation with the University's Director of Financial Aid and Scholarships.

*UAW Local 1112-BOC Lordstown Assembly Joint Scholarship.* Established in 1990 to assist spouses and other legal dependents of UAW Local 1112 and full-time, salaried employees of BOC Lordstown Assembly Plant with one year or more affiliation. Full-time students with the rank of sophomore or higher, with at least a 2.5 GPA, and receiving no other financial aid other than a student loan are eligible. Application process is through the union locals.

*Miriam S. Ullman Scholarship.* These scholarships are provided annually by the Monday Musical Club of Youngstown. It is intended primarily for students

who attend the Dana School of Music. The scholarship provides two awards every four years of $1,000 each that are renewable.

*Western Reserve Public Relations Society Scholarship.* This scholarship is awarded to a Williamson College of Business Administration student majoring in advertising and public relations. The student must be a junior, have a GPA of 3.0, show financial need, and complete a 500 word essay. Recipient will be selected by the Board of the Western Reserve Public Relations Society.

*Myron C. Wick, Jr. Scholarships.* These scholarships were established in 1985 by a $93,000 endowment by Alice Tod Wick Hall in memory of her father, Myron C. Wick, Jr. The endowment makes possible three academic scholarships, two in the physical sciences and one in engineering. In-state tuition and general fee are remitted for recipients for one year. Award is based on a combination of academic achievement, professional activity and need.

*Women's Board of the Youngstown Hospital Association.* This award is given to the graduating student ranking first in nursing based on academic achievement.

*Yo-Mah-O Chapter, Professional Secretaries International, Scholarship.* This scholarship, which pays in-state fees, is provided by the Youngstown Chapter of the National Secretaries Association (International). It is awarded to a woman interested in completing the two-year secretarial course and qualifying for the Associate in Applied Business degree.

*Youngstown Music Teachers Association Scholarship.* This scholarship is an award of $200 annually to an upperclass music major chosen through a competitive audition each spring.

## YOUNGSTOWN STATE UNIVERSITY FOUNDATION SCHOLARSHIPS

These scholarships vary in size according to established need and academic ability. The maximum amount normally does not exceed tuition and fees for the academic year. Applications are made to the Financial Aid and Scholarships Office. Selection of recipient is made by representatives of the University and the Foundation.

In addition to the awards made in its own name, the Youngstown State University Foundation controls funds for the following scholarships:

*Abdoo Memorial Scholarship.* The Dr. John Abdoo Memorial Scholarship was established by the family and friends of the former South High School principal to benefit students at Youngstown State University who are recent graduates of South High School.

*Army R.O.T.C. Scholarship.* Four year scholarship that pays full tuition, mandatory and miscellaneous fees, $250 for books and $1,000 stipend annually at YSU. Must be a citizen, have at least a minimum SAT score of 850 or ACT of 19, and at least a 2.4 cumulative GPA.

*Army R.O.T.C. Scholarship.* Two or three year scholarships that pay full tuition, mandatory and miscellaneous fees, $250 for books, and a $1,000 stipend annually at YSU. Must be a U.S. citizen and have a cumulative GPA of 2.5.

*Army R.O.T.C. Scholarship (category II).* Two year scholarship that pays $2,000 annually. Must have a cumulative GPA of 2.5, completed all R.O.T.C. basic course requirements, and have two years remaining to graduate.

*William W. Battin Scholarship Fund.* Established in 1973 as a memorial to Mr. William W. Battin by his wife, Mrs. Margaret P. Battin, and by Judge and Mrs. Reed Battin, this fund provides annual scholarships for worthy YSU students in need of financial assistance.

**Eugene C. Beach Memorial Scholarship.* This scholarship was established in 1976 by the members and friends of First Christian Church of Youngstown, Ohio, as a memorial to Dr. Eugene C. Beach, minister and national president of Tau Kappa Epsilon Fraternity. The income from the endowment provides an annual scholarship for a worthy and needy member of Epsilon Iota, the local chapter of Tau Kappa Epsilon. The board of control of Epsilon Iota recommends a recipient.

*Beecher Talent Scholarship.* Four annual scholarships are given to students in the Art Department based on portfolio review, high school GPA of 2.5 or better, recommendation and a personal statement.

*Florence Simon Beecher Award.* This award is available to full time students in the Department of Communication and Theater. Students need a minimum GPA of 2.5, three letters of reference and demonstrated ability and promise of continued success in theater arts.

*Larue R. Boals Scholarship.* This scholarship, established in 1961, provides $250 for a student in the Dana School of Music.

*Colonel Lloyd Booth Scholarship.* This scholarship was established in 1965 by the Mahoning Chapter of the Reserve Officers' Association as a memorial to Colonel Lloyd Booth. It pays $250 for the Military Science tuition during the recipient's junior year in the advanced course. Selection is based on the student's academic and military records and on need.

**Doris Burdman Scholarship.* This scholarship was created in 1983 by the grandchildren and great grandchildren to honor the memory of Doris Burdman. Doris Burdman worked tirelessly for the benefit of mentally, physically and emotionally handicapped persons. The scholarship will be awarded on the basis of financial need and scholastic achievement to a graduate or upper level undergraduate student of Youngstown State University majoring in the field of social work.

*Eugene Capone Memorial Scholarship.* This scholarship was established in memory of Eugene A. Capone, a YSU graduate who spent his life in elementary and secondary education. Children of elementary and secondary school teachers in Trumbull, Mahoning and Columbiana County schools are eligible. A brief essay is required. Contact the College of Education.

*Thomas J. Carney Scholarship.* This scholarship is awarded to a Political Science major, preferably a Mahoning County resident. Selection is made by the Political Science Department. Apply at the Political Science Department.

*Credit Reporting Services Scholarship.* Credit reporting Services, Inc., has established an endowment, which will provide a full one-year scholarship for a junior or senior student with a major in Business Administration, who has achieved a grade point average of at least 3.0 in his or her academic major. Recipients will be students who have no other significant sources of financial assistance.

*B. Carrol Cubbison Music Scholarship.* These scholarships are funded by a gift from Attorney Theodore R. Cubbison in honor of his wife, B. Carrol Cubbison. Recipients will be selected on a basis of talent and need from YSU's Dana School of Music's Department of Voice.

*Gene D'Antonio Memorial Golf Scholarship.* This scholarship, established in 1980 in memory of the late Gene D'Antonio, who took great joy in teaching golf to young people, provides $250 annually for a member of the YSU golf team who lives in Mahoning or Trumbull county. The recipient is selected by the Athletic Director and the Head Golf Coach at Youngstown State University.

**James W. Degarmo Criminal Justice Scholarship.* This $500 scholarship was established in 1976 by the Law Enforcement Honor Society of the Department of Criminal Justice of YSU. Its purpose is to give recognition to the contributions of James W. Degarmo to the profession of law enforcement and criminal justice education. Upperclass students evidencing outstanding scholastic performance in criminal justice studies are eligible for this award.

*Lester F. Donnell Memorial Athletic Scholarship Fund.* Lester F. Donnell's interest in athletics and higher education prompted the creation of this scholarship fund. This scholarship addresses the belief in development of the total person. It seeks to encourage the student athlete to strive for excellence, both in his academic and athletic pursuits. Sophomore, junior and senior students who have a cumulative grade point average of at least 3.00 and are members of a YSU inter-collegiate athletic team are eligible to apply.

*Bartley and Sara Doyle Scholarship.* This scholarship is awarded to a student who is a resident of Mahoning, Trumbull, Columbiana County and who is enrolled in the College of Education. Apply at the College of Education.

**Karl W. Dykema Scholarship.* This scholarship was established in 1972 as a memorial to Karl Washburn Dykema, a nationally known authority on English grammar and a former Dean of this University's College of Arts and Sciences. It is awarded annually to a full-time College of Arts and Sciences student with a distinguished academic record.

*Electrical Engineering Scholarship Grant.* This grant was made possible by a gift from a retired faculty member of the Department of Electrical Engineering. It provides $200 annually to a needy sophomore, junior, or senior electrical engineering student with an adequate scholastic record who has exhausted all his or her other sources of financial aid.

*The R. Donald Elser Scholarship.* This scholarship is to reward the accomplishments of a graduate of South Range High School majoring in communications, speech or theater. Apply to Speech Communication & Theater Department.

*Cora E. Emerson Memorial Scholarship.* This scholarship was founded in 1972 by a bequest of Cora E. Emerson to provide assistance annually to a deserving and needy full-time student.

*The Dr. Earl Eugene Eminhizer Scholarship.* This scholarship is awarded to a YSU student with a major or minor in religious studies. Apply to Philosophy & Religious Studies Department.

*Dolores Fitzer Scholarship Fund.* This fund, established in 1979 by friends and family of the late Dolores Fitzer, provides a $500 annual scholarship to a freshman piano student in the Dana School of Music.

*The Anjulie Fitzsimons Keegan Scholarship.* This scholarship honors a Rayen School Teacher. It is awarded to a student majoring in Education. Apply to the College of Education.

*Thomas G. and Ellen H. Fitzsimmons Scholarship.* This scholarship is awarded to a student from Columbiana County and who is enrolled in the College of Education. Apply at the College of Education.

**The Ilajean Feldmiller Scholarship.* This annual award was established in 1985 to honor Ilajean Feldmiller, a long-time faculty member and former chairperson of the Home Economics Department now called the Human Ecology Department. Its purpose is to assist in the development of concerned professionals. The recipient is selected by a committee of the faculty and students and must be currently enrolled in one of the Human Ecology programs.

*George A. Gabler Music Scholarship.* This fund provides scholarships to those students who are attending the Dana School of Music and are majoring in piano. In the event that the Music School no longer offers a major in piano, then this scholarship should be for other students in the Dana School of Music within the discretion of the YSU Foundation.

*Hilda George Hanna Scholarship.* This scholarship, established in 1964, is given annually to a woman who is a full-time student in the secretarial field.

*Health-O-Rama Scholarship.* This one year, $2,000 scholarship is awarded to a student of sophomore rank or higher majoring in pre-med or other health-related field. Student must have a 3.2 GPA, demonstrate financial need and be graduated from high school in Mahoning, Trumbull or Columbiana county in Ohio or Mercer or Lawrence county in Pennsylvania. Selection is made by a committee of CHHS faculty through review and evaluation of applications.

**Ronald J. Hepp Memorial Fund.* This fund, established in 1985 in memory of the late Ronald J. Hepp, provides an award each year to an electrical engineering student who is first in his or her graduating class. The award shall consist of a $500 savings bond and a commemorative plaque.

*Hynes Industries, Inc., Scholarships.* This scholarship program, established in 1973, provides two annual $500 grants. Priority is given to children of Hynes employees who are incoming freshmen. If there are not two qualified priority candidates, preference will be given to other undergraduates who are dependents of Hynes employees.

*Arthur L. Jones Accounting Scholarship.* The Arthur L. Jones fund will provide two $1,500 scholarships per year to worthy students majoring in Accounting.

*Howard W. Jones Scholarship.* This scholarship was created in 1980 to honor Dr. Howard Jones, the University's first President, who served for more than 35 years and was subsequently President of the Youngstown State University Foundation for an additional 11 years. The recipient is selected by a committee of the Youngstown State University Foundation.

*Michael B. Kaufman Memorial Scholarships.*These scholarships are funded by an endowment created by Col. Jack D. Kaufman and Beatrice Kaufman in memory of their son Michael B. Kaufman. Michael B. Kaufman Memorial Scholarships are available to members, spouses or the children of members of United Steel Workers of America. Officers, directors, staff persons, employees of this Union or their offspring are not eligible for these scholarships. No individual will be eligible for more than one scholarship. Recipients will be selected by YSU Financial Aid and Scholarships Office on the basis of need, from the first 20 applications received.

*Lions Club of Downtown Youngstown Special Scholarship.* This scholarship established in 1987 by the Lions Club of Downtown Youngstown, provides a one year award to a sophomore, junior or senior student majoring in special education. Recipients are selected by a committee within the College of Education.

*William F. Maag, Jr., Scholarship.* This scholarship was established in 1947 in honor of William F. Maag, Jr., by his friends. Revenue from invested capital pays $330 for one year to an upperclassman.

*William F. Maag, Jr. — Vindicator Scholarships.* These scholarships were established in 1971 by the Youngstown *Vindicator* as a memorial to William F. Maag, Jr., whose leadership was instrumental in the development of communication media, higher education, and civic affairs in the Youngstown area. Revenue from invested capital makes possible annual awards to worthy students based upon financial need and academic excellence, especially those majoring in the humanities.

*John V. Maglery Scholarship.* This scholarship honors a 1961 University Graduate and is intended for an accounting major.

*Martin Family Scholarships.* These scholarships, estabished by Fred and Paul Martin in 1986, are available to YSU junior and senior students. Recipients must be residents of Mahoning, Trumbull or Columbiana counties in Ohio or Lawrence or Mercer counties in Pennsylvania.

*Richard A. Martin and Aurora Ragaini-Martin Piano Award.* This award is given by a YSU graduate who, with her husband's support, dedicated her life to teaching and playing the piano professionally. The recipient will be the outstanding graduate who has demonstrated excellence in the field of piano and intends to continue in this field.

*Mayberry Scholarship Fund.* This fund, established in memory of Richard M. Mayberry and Jean E. Mayberry, is used to assist students who demonstrate merit and/or need.

*Robert Mayberry Sr. Scholarship.* This scholarship is awarded to a marketing major with a concentration in Entrepreneurship.

*Harry and Helene Meyer Freshman Scholarship.* This scholarship of $400, established in 1955, is for a freshman planning to major in business administration or economics. It is awarded on the basis of superior scholarship and financial need.

*Carl Nunziato Scholarship.* Four scholarships are awarded annually to high school seniors that have received the Army Four Year ROTC Scholarship. This scholarship pays for room and board at a YSU dormitory.

*The Don Oliver Memorial Fine Arts Scholarship.* This award is for an art student at Youngstown State University with a 2.5 or higher GPA. African American preferred. Apply to Art Department Chair.

**Nicholas Paraska Scholarship.* This $300 scholarship was created in 1982 by friends and colleagues to honor Nicholas Paraska for his service as Dean of the College of Health and Human Services. It is awarded annually on the basis of academic achievement and need to a student majoring in one of the College of Health and Human Services programs who has completed or is in the process of completing 12 hours in the major by spring quarter.

*Tom Pemberton Memorial Scholarships.* Two four-year scholarships of $400 a year are provided for graduates of the Mahoning county high schools — one man and one woman — from an endowment established as a memorial to Tom Pemberton. The recipients must be in the upper two-thirds of their high school classes.

**Margaret I. Pfau Scholarships.* This scholarship fund was founded in 1973 by a bequest of Margaret I. Pfau, who served with distinction as Chairperson of the Department of English. Income from the fund provides two annual $500 awards to students majoring in English who have demonstrated academic excellence while attending YSU.

*J. Ronald Pittman Memorial Scholarship.* This scholarship was created by the Citizens League of Greater Youngstown as a memorial to the life of J. Ronald Pittman, who was a charter member and officer. It provides a $500 award to a student majoring in business who displays the leadership and community commitment exemplified by Mr. Pittman. Recipients will be chosen by a selection committee of the Greater Youngstown Citizens League.

*Joseph Potochny Scholarship.* This scholarship, made possible by a bequest of Joseph Potochny in 1963, is granted to a needy and deserving student of Ukrainian descent.

*The Rudy and Wealthie Prince Scholarship.* This is a renewable scholarship to assist a worthy and needy student studying music at the Dana School of Music at Youngstown State University. The selection is to be made by the scholarship committee of the Dana School of Music.

*Haig Ramage Scholarships.* Income from an endowment provides scholarships of $300 each for the freshman year. Selection of recipients is based on scholastic and leadership qualities and need for assistance.

*Herman C. Ritter Scholarship for the Violin.* An endowment from the estate of Miss Juliet L. Ritter was made available in 1957, the annual income from which provides a scholarship for a needy student who intends to make a career of music and shows particular promise on the violin.

*ROTC Military Science (Gold Bar) Scholarships.* Twenty (20) one year scholarships were established by the Youngstown State University Foundation in the amount of $333 per quarter. Available to entering freshmen and current YSU sophomores.

**John R. Rowland English Scholarship.* This scholarship, established in 1957, is available to an outstanding student majoring in English.

*The Lieutenant Colonel Joseph Louis Sacchini R.O.T.C. Scholarship.* This award is for a full time military science cadet. Apply to the Military Science Department.

*The Irving Schwebel Memorial Scholarship.* This $1,500 Scholarship was created in 1985 by the Schwebel Baking Company in memory of the late Irving Schwebel who was its president and chairman of the board. The Irving Schwebel Memorial Scholarship is available for the children of full-time Schwebel Baking Company employees who have at least two years of continuous service. First priority will be given to incoming freshman students.

**Joseph E. Smith Scholarship.* This scholarship, which provides funds for a worthy and needy student, was established in 1971 by friends as a memorial to Dr. Joseph Earle Smith, a former Dean of the College of Arts and Sciences and the first Dean of the University.

**Mary B. Smith Scholarship Fund.* This fund, established in 1980 to honor Mary B. Smith on her completion of 41 years of exemplary service at YSU, provides scholarship aid to a deserving adult student who cannot otherwise qualify for specific financial assistance.

*Lawrence M. Stolle Athletic Scholarships.* These scholarships were established in 1973 by the Greater Youngstown Old Timers Association and other sports enthusiasts to honor Lawrence M. Stolle as sports editor of the Youngstown *Vindicator.* The income from an endowment makes possible annual scholarships for deserving students who participate in the University's athletic program.

*C.J. Strouss Memorial Scholarship.* This scholarship of $150 is awarded annually to an upperclass student in memory of the late Clarence J. Strouss, a longtime trustee and devoted friend of the University.

*Grace M. and Blanche F. Vail Scholarship.* This scholarship is available to a student of excellent character and scholarship who needs financial assistance.

*John C. Vitullo Political Science Scholarship.* This scholarship is given in honor of John C. Vitullo, former Mahoning County Democratic Party Chairman, to a junior or senior Political Science major. Preference will be given to Mahoning County residents.

*The Lia N. Vouros Memorial Scholarship.* This scholarship, created by Attorney Joseph E. Vouros and friends in memory of Attorney Vouros's wife, the late Lia N. Vouros, is available for YSU students whose parents are members of St. John's Greek Orthodox Church of Boardman, Ohio. Scholarship recipients are selected on the basis of academic performance from a list of candidates provided by an advisory committee of St. John's Greek Orthodox Church.

*Sally Watson Scholarship.* This scholarship, established in 1969 by friends of the late Sally Watson, provides assistance to a worthy student.

*Women's Board of the Youngstown Hospital Association.* This award is given to the graduating student ranking first in nursing based on academic achievement.

*Bessie Wilson Music Scholarships.* The income from an endowment from the estate of Miss Bessie Wilson is used for scholarships for music students. Applications may be sent to the director of the Dana School of Music, who makes the recommendations to the Scholarship Committee.

*Ralph E. Yingst Scholarship in Chemistry.* This award is for a junior or senior who has completed various inorganic chemistry courses. Apply to Chemistry Department.

*Youngstown Traffic Club.* This award is for a full time sophomore majoring in business.

*YSU Retired Women's Club Scholarship.* This scholarship is awarded to a full time female junior or senior in good academic standing.

*Isadore Zobel Scholarship Fund.* This fund, established in 1966 under the will of Isadore Zobel, provides assistance to needy students of the Jewish faith.

***These awards are primarily made by the specific schools and colleges of the University during the annual Honors Convocation held each spring quarter.**

## Loans

Loans are repayable awards, in amounts determined by financial need. Loans are based on a consideration of financial need, ability to make a creditable academic record and character.

The University participates in the Federal Perkins-National Direct Student Loan program. Repayment begins 9 months after leaving college. The YSU Instructional Fee Loan Fund makes funds available for not more than 60 days, if justified by emergency conditions.

A student desiring a long-term educational loan may apply at a local bank or other lending institutions under the Federal Stafford Loan Program, whereby the federal government subsidizes the interest while the student is enrolled and until repayment begins (6 months after leaving college). Non-need based Federal Stafford Loans are also available but the government does not subsidize the interest.

Additional limited student loan funds, provided by the Youngstown State University Foundation are as follows:

*Clara Hincy Fund.* The will of Clara Pearl Hincy in 1962 provided $20,000 to be used for loans to deserving talented students in the Dana School of Music for the purpose of paying fees.

*Paul E. Shields Scholarship Loan Fund.* This fund, established in 1961, makes loans available to mathematics and engineering students of junior or senior rank who have maintained a 3.25 average in these disciplines.

*K.B. MacDonald-MacKenzie Muffler Memorial Fund.* This fund, established in 1968, is available for short-term loans to needy students.

*Lysle M. and Ina W. Shields Student Services Loan Fund.* Established in 1983, this fund is to help young people attend college who might not be able to do so otherwise.

Applications for loans from these funds should be made to the YSU Financial Aid and Scholarships Office.

## Grants-In-Aid

Grants-in-aid are monetary gifts to students, frequently in combination with another type of financial aid. The amount of grant aid is determined by the recipient's financial need, ability to make a creditable, though not necessarily outstanding, academic record and character.

Those seeking financial assistance based on need must apply for a Pell Grant. These are U.S. Government grants intended to help those who need financial assistance to attend post-secondary educational institutions. The maximum grant permissible under this program is $2,300. Grants may be less than that, however, since they are based on two additional factors: the amount of funds available to finance the program country-wide, and the cost of education at the institution attended. Application materials and information about these grants are available from high school guidance counselors and from the YSU Financial Aid and Scholarships Office.

Youngstown State University participates in the Supplemental Educational Opportunity Grant Program. These grants range up to $1,000 depending on family income.

Ohio residents desiring financial assistance based on need must also apply for Ohio Instructional Grants. These are State of Ohio Awards made to full-time students of demonstrated financial need who are Ohio residents and in good standing academically. The amount awarded varies depending upon the family's adjusted effective income and the number of dependent children in the family. Part-time awards may also be available to those who qualify. The application process is included in the FAFSA.

*Martin Luther King Inner-City Achievement Award Program Grant-In-Aid.* Awards may be made to graduates of Calvary Christian Academy, Cardinal Mooney, Chaney, East, Rayen, South, Ursuline, Wilson, Youngstown Christian School, Warren Western Reserve, Warren Harding and John F. Kennedy who sho academic promise, are making satisfactory progress at YSU (if already attending, this shall mean a 2.50 cumulative grade point average and registered for at least 12 hours), and who have financial need which cannot be met satisfactorily from some other scholarship, grant or loan program. Awards may be made on a pro-rata basis for part-time students who otherwise qualify.

*Forensics Grant-in-Aid.* This $1,800 award is given to a student in the Department of Communication and Theater. A student must be full time and participate on the speech team. An interview/audition is required.

*Theater Grant-in-Aid.* Four grants of $1,800 each are available to full-time students who agree to major in theater with a minimum of a 3.0 GPA and have demonstrated ability. Participation in the theater production program required.

## Employment

To help pay for educational and living costs, students should register at the Career Center for on-campus student employment which is available in various departments for full-time students in good standing. If a student demonstrates need, federal college work study may be available. A student aid report should be submitted to the Financial Aid Office to determine eligibility.

If interested in off-campus job opportunities, students should also register at the Career Center where part-time and full-time non-degreed and degreed openings are posted daily. Up to 20,000 resumes of registrants are mailed yearly to requesting employers with current openings.

## Career Services

The University offers a comprehensive range of services for students and alumni designed to assist in career exploration, career decision-making, job search readiness and employment assistance. Professional staff provide individual career counseling and developmentally oriented small group seminars. Interactive computerized programs give additional support for career planning and job search guidance. A Career Information Center, with literature from over 1,600 employers, career related print materials and periodicals, is also maintained. Job fairs and career days are presented throughout the year giving students and alumni an opportunity to meet and better understand the employment community.

Employment opportunities for currently enrolled students, both on campus and off, are advertised through Career Services. Ranging from positions that primarily offer financial support, to opportunities for career related experience, student employment makes it possible for students to earn all or part of their expenses.

Students approaching graduation, or alumni, will find a broad range of employment related services. A credential service is available to certified teachers applying for positions with schools, colleges or universities. Resume referral is available for students and alumni who wish to register. An oncampus recruiting program brings actively recruiting employers to campus to interview potential candidates. Many individual job opportunities are posted with Career Services on a daily basis. Using this information, a biweekly "Penguin Flyer" containing current opportunities and critical careeer related information is published.

# R.O.T.C. — MILITARY SCIENCE

Students who enroll in the advanced R.O.T.C. Program are paid a subsistence allowance of $150 a month for 10 months of each school year, and half of a second lieutenant's pay plus lodging, meals, and travel cost for six weeks of R.O.T.C. advanced camp training. Application is made through the Department of Military Science.

# GRADUATE SCHOLARSHIPS AND AWARDS

The Youngstown State University Foundation makes money available to provide scholarships and grants to graduate students. Awards covering up to six quarter hours of instructional fees are available to eligible students. Applications are available in the School of Graduate Studies.

The School of Graduate Studies of Youngstown State University awards a number of assistantships each year. Normally, assistantships are awarded for a period of three quarters beginning with the Fall Quarter. Each assistantship carries a stipend and remission of the instructional fee, the nonresident tuition surcharge, and the music performance fee.

*The Earl E. Edgar Memorial Scholarship Fund* provides an annual $500 award to a graduate student at YSU studying the humanities. Selection of the recipient is based on financial need and academic excellence. Information is available in the School of Graduate Studies Office.

*The Dr. James A. Reeder Graduate Scholarship Award* is given to a current chemistry graduate student who will be enrolled at YSU at least part-time during the next academic year.

*The Dr. Eugene D. Scudder Graduate Student Teaching Award* is a cash award given to a chemistry graduate student for outstanding performance in teaching.

*The Charles H. Whitman Student Services Graduate Scholarship* provides financial assistance for a graduate student in the Counseling graduate program who has applied for Option C: Higher Education Student Services. Preference will be given to students interested in professional career counseling and development. The scholarship is awarded for one year and is not renewable. Application forms may be obtained from the Department of Counseling and submitted to the Counseling Department Chair. Applications will be reviewed by the Counseling Department Scholarship Awards Committee.

National scholarships for which graduate students may apply include Phi Kappa Phi Fellowships and Fulbright Grants for study abroad. Information can be obtained from the School of Graduate Studies.

# ALUMNI OFFICE

The YSU Alumni Association maintains over 50,000 alumni records. It sponsors a variety of special events and publications and promotes many services and benefits to its members. The Association fosters excellence, pride and success in its graduates and serves as a lifetime connection between the University and its graduates.

The Alumni Association Office is located in the Alumni House, the oldest building on campus, on the corner of Wick Avenue and Spring Street.

# GENERAL REQUIREMENTS AND REGULATIONS

## STATE RESIDENCY STATUS

Place of residence for tuition purposes will be determined at the time of admission or readmission by the Executive Director of Enrollment Services, on the basis of the residency rules stated below and information supplied on the "Application for Admission" and "Undergraduate Application for Readmission" form.

If the student has any question about the appropriate classification, he or she should immediately bring it to the attention of the Admissions Office for review. Retroactive refunds or charges may be made to any student improperly classified.

### Residency Status Appeal

Appeal for a change in residency classification should be made in writing to the Admissions Office, who may require the student to complete an "Application for Non-Resident Tuition Surcharge Exemption" form. A decision will be sent in writing to the student, who may then appeal the classification in a personal interview.

The student may ask the Admissions Office to arrange an appearance before the Residence Classification Board. Such appearances ordinarily occur within two weeks of the request, if possible. The residence classification board's appellate decision is final.

### 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.

**(B) Definitions for Purposes of This Rule**

(1) A "resident of Ohio for all other legal purposes" shall mean any person who maintains a twelve-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 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 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 twelve 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 rule for at least twelve 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 twelve consecutive months, financial support from persons or entities who are not residents of Ohio for all other legal purposes.

(3) A dependent child of a parent or legal guardian, or the spouse of a person who, as of the first day of a term of enrollment, has accepted full-time employment and established domicile in the State of Ohio for reasons other than gaining the benefit of favorable tuition rates.

Documentation of full-time employment and domicile shall include both of the following documents: (a) A sworn statement from the employer or the employer's representative on the letterhead of the employer or the employer's representative certifying that the parent or spouse of the student is employed full-time in Ohio.

(b) A copy of the lease under which the parent or spouse is the lessee and occupant of rented residential property in the state; a copy of the closing statement on residential real property located in Ohio of which the parent or spouse is the owner and occupant; or if the parent or spouse is not the lessee or owner of the residence in which he or she has established domicile, a letter from the owner of the residence certifying that the parent or spouse resides at that residence.

**(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 motor vehicle 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 purpose of tax liability, voting, receipt of welfare benefits, or student loan benefits (if the student qualified for that loan program by being a resident of that state or nation);

(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 (see paragraph (D)(2)(a) of this rule).

**(E) Exceptions to the General Rule of Residency for Subsidy and Tuition Surcharge 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 shall be considered a resident of Ohio for these purposes.

(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 or her employer beyond the territorial limits of the 50 states of the United States and the District of Columbia while a resident of Ohio for all other legal purposes and his or her dependents shall be considered residents of Ohio for these purposes as long as Ohio remains the state of such person's domicile 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 under the provisions of section (C)(1) of this rule 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 twelve months following such removal, constitute relinquishment of Ohio residency status otherwise established under paragraph (C)(1) or (C)(2) of this rule.

(3) For students who qualify for residency status under (C)(3), residency status is lost immediately if the employed person upon whom resident student status was based accepts employment and establishes domicile outside Ohio less than twelve months after accepting employment and establishing domicile in Ohio.

(4) Any person once classified as a nonresident, upon the completion of twelve consecutive months of residency, must apply to the institution he or she attends for reclassification as a resident of Ohio for enrollment 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 twelve 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.

(5) 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.

(6) 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.

## ADMISSION INFORMATION
## GENERAL ADMISSION STATEMENT

Admission to the University does not assure admission to a particular course or program. Minimum point averages, test scores and/or grades on specific subjects are required by a number of programs. Developmental courses are available to assist in satisfying scholastic deficiencies. Those who lack high school subjects required by the various colleges within the University may be admitted with the understanding that these courses will be completed as soon as possible and not later than the end of the college sophomore year.

## ACADEMIC CREDENTIALS

Academic credentials include high school and college transcripts, test scores, transient authorization forms, GED scores, and/or any other records required for admission or granting credit. **Only properly certified and signed credentials received directly from the issuing institution will be accepted.**

## APPLICATION REQUIREMENTS

All prospective students must submit their applications for admission and all required credentials to the Admissions Office by the following dates:

| Quarter | Last Day to Apply | Last Day for Credentials |
|---|---|---|
| Fall 1995 | Aug. 15, 1995 | Sept. 1, 1995 |
| Winter 1996 | Nov. 15, 1995 | Dec. 1, 1995 |
| Spring 1996 | Feb. 15, 1996 | Mar. 1, 1996 |
| Summer 1996 | May 15, 1996 | June 1, 1996 |

**The Executive Director of Enrollment Services has discretionary authority regarding these requirements under an approved procedure.**

### Application Fee

**The application fee, when required, is not refundable under any circumstances.**

## NEW FRESHMAN APPLICANTS

### Ohio Residents

Ohio residents must have graduated from high school with a state approved diploma or successfully completed the General Education Development (GED) Test.

### Out-of-State Residents

Out-of-state residents must have graduated from high school with a state approved diploma and be ranked in the upper two-thirds of their high school class; or have an ACT composite score of 17 or higher; or have a combined SAT recentered score of 820 or higher.

### Guidance and Counseling Tests

All new freshmen are required to take the American College Test (ACT) or the Scholastic Aptitude Test (SAT) and have the results sent directly to the Admissions Office. Those who have been out of school for two or more years and who are not pursuing a restricted program are exempt from this requirement. **Failure to take a required test will result in postponing consideration for admission to a later quarter.**

The University is a testing center administering the ACT at announced dates to accommodate applicants to institutions requiring the test for entrance or advisement.

An English Placement Test provided by the University is required of all students who must take English 550 (Basic Composition).

A Mathematic Placement Test provided by the University is required for all students whose major requires either MATH 550 or MATH 571.

General and vocational-interest examinations for guidance purposes are available. Prospective freshmen and others wishing such tests may make arrangements with the University's Counseling and Testing Center.

### High School Transcripts

Applicants must arrange to have their high schools send to the Admissions Office a record of all work completed. Partial transcripts will be given consideration for early decisions. If the applicant's record clearly indicates satisfactory completion, notification of acceptance will be made before high school graduation.

Upon graduation, applicants must have a final high school transcript showing graduation date, sent to the Admissions Office.

## TRANSFER AND POSTGRADUATE APPLICANTS

An applicant who has graduated from high school and was enrolled in another college or university for at least one course, is classified as a transfer applicant. This classification includes postgraduate applicants from other institutions seeking additional undergraduate course work.

### Transcripts

All transfer applicants (unless postgraduate) must provide the Youngstown State University Admissions Office with an official copy of their high school transcript and an official copy of all undergraduate transcripts. Postgraduate applicants are required to submit their transcripts showing the highest degree earned. High school transcripts and any other undergraduate transcripts are not required unless specifically requested by the Admissions Office.

### Ohio Residents

Transfer applicants who are residents of Ohio and in good standing at the last institution attended and have an aggregate cumulative point average of 2.0 or higher (on a 4.0 system) for all courses taken at other colleges or universities are admitted in good standing. Those with an aggregate cumulative point average of less than 2.0 or on probation may be considered for probationary transfer if their overall academic achievements, including high school grades and test scores, indicate potential success. Applicants suspended or dismissed from other institutions are not eligible for consideration until at least two quarters have passed following the term in which the suspension occurred.

### Out-of-State Residents

Applicants who are non-residents of Ohio must be in good standing at the last institution attended and have an aggregate cumulative point average of 2.0 or higher (on a 4.0 system) for all courses taken at all colleges or universities to be considered for admission.

### Transfer Credit

Transcripts of credits earned are evaluated by the Admissions Office and a copy of the evaluation is issued to the applicant if he/she is accepted.

Transfer credit is given for all course work taken at a regionally accredited college or university (as recognized by the Council on Postsecondary Accreditation (COPA)), provided that the student has a cumulative point average equivalent to at least a 2.0 (on a 4.0 system) at that institution and that the work is creditable toward a degree at that institution. A "D" grade accepted in transfer of credit does not satisfy a prerequisite for which a higher grade is needed. A student who has a cumulative point average of less than 2.0 (on a 4.0 system) at a regionally accredited institution can transfer only courses in which a grade of "C" or higher has been earned.

Distribution of any accepted course work is determined by the appropriate school or college and/or department in accordance with policies governing the fulfillment of degree requirements.

Transfer students should note the residence requirement under candidacy for a degree.

### Transfer from a Regionally Accredited Two-Year Institution (As recognized by the Council on Postsecondary Accreditation)

The University recognizes the associate degree as preliminary to the baccalaureate and admits to advanced standing students possessing the associate degree from an accredited institution. Transfer credit is granted for all work successfully completed for the associate degree. (see section under Institutional Transfer for rules regarding the State of Ohio Transfer Module.)

Applicants who have not completed an associate program are considered on the same basis as other transfer applicants.

## TRANSIENT APPLICANTS

A student seeking a degree at another institution may ordinarily take one quarter of course work at YSU as a transient student. The student must apply for admission to the University and obtain a transient authorization form from the Admissions Office. This form must be partially completed by the applicant and the remainder by the registrar of the institution which the student is attending. The form is to be returned by that registrar to the Admissions Office of Youngstown State University. Only students in good academic standing and eligible to return to their institution will be permitted to enroll as transients. Students who wish to remain as a transient student for a second consecutive quarter should contact the Admissions Office. A transient student who wishes to transfer to Youngstown State University must complete an Undergraduate Application Form, provide an official high school transcript, and submit official transcripts from all other colleges attended.

## FORMER STUDENT APPLICANTS

All students who have interrupted their attendance at Youngstown State University for four or more consecutive quarters must apply for readmission.

### Suspended Students

A former student who was academically suspended must be reinstated by the dean of the college from which he or she was suspended, or in the event the student wishes to change schools, by the dean of the new college. Reinstatement procedures may vary with the college; for details consult either the Admissions Office or the appropriate dean's office.

## COMBINED BACHELOR OF SCIENCE/DOCTOR OF MEDICINE APPLICANTS (B.S./M.D.)

Prospective students seeking admission to YSU combined B.S./M.D. degree program must submit an application for admission to Northeastern Ohio Universities College of Medicine and must take either the American College Test (ACT) or the Scholastic Aptitude Test (SAT). Official results from either the ACT or SAT must be sent directly to the Northeastern Ohio Universities College of Medicine from the testing agency. Also, high school transcripts with grades through the junior year must be mailed directly from the high school to the Northeastern Ohio Universities College of Medicine.

It is the intent of the YSU/NEOUCOM Joint Admissions Committee for the BS/MD program to select a class each year that is culturally diverse and representative. Specific attempts are made to recruit medical minorities (as defined by the Association of American Medical Colleges) and individuals from rural areas. To achieve these goals, both qualitative and quantitative data are carefully reviewed by the Admissions Committee. The Committee strives to be inclusive and to promote equity in fulfilling the mission statements of YSU and NEOUCOM.

Northeastern Ohio Universities College of Medicine is a publicly-chartered and funded institution in the state of Ohio. Therefore, its charter mandates giving admissions preference to residents of the state of Ohio as defined by the Ohio Board of Regents. Only U.S. citizens and permanent residents may be considered for admission to NEOUCOM. Upon application, you must have U.S. citizenship or permanent residents status.

The application deadline and the official transcripts and test results deadline is December 31 preceding the summer in which the program begins.

## STUDY ABROAD

A number of academic departments offer study abroad opportunities for credit. Students interested in international study should consult with their major departments and the Study Abroad Advisor. Information and procedures for the study abroad are coordinated by the Department of Foreign Languages in conjunction with the University Global Awareness Committee.

## INTERNATIONAL STUDENT APPLICANTS

### General Admission Statement

The admission information contained in the sections applicable to International Students reflects minimum requirements. Meeting these requirements does not guarantee admission to the University or to specific programs.

### International Freshmen and Overseas Transfer Students

Applicants from overseas must submit the following information well in advance of the desired date of admission. The only available quarters for overseas students are fall and spring. Deadline for the fall term is May 15 and for the spring term, November 15.

1. A completed application form, a $25 nonrefundable application fee and credential evaluation fee (to be drawn upon a U.S. bank) and list of all educational experiences, including any studies undertaken in the U.S.
2. Official credentials and transcripts from all secondary schools, colleges, and universities which the student has attended, including subjects studied, grades, and key to the grading system. (If credentials are not in English, official translations must be provided.)
3. Certification of a minimum score of 500 on the test of English as a Foreign Language (TOEFL), administered by the Educational Testing Services, Princeton, New Jersey, or of an equivalent score on the Michigan Test of English Language Proficiency (MTELP), officially administered by the English Language Institute, Ann Arbor, Michigan.
4. A complete medical examination record on the form provided.
5. Certification of financial resources available for education and living expenses while attending the University. Advance payment may be required.
6. Applicants may be required to submit additional materials.

### Provisional Admission

Students meeting all the above requirements except the specified level of English proficiency may be admitted provisionally for up to one academic year, to study English until the required level of proficiency is reached. Such applicants must have a TOEFL score of 450 or higher (or the MTELP equivalent) and will be expected to enroll in a 50% credit load of academic work in addition to a 50% credit load of English language courses if the English placement testing on campus at YSU indicates such a program.

Non-speakers of English may submit proof of their admission to an intensive English Institute with their YSU application and request an advance recommendation, contingent upon attainment of satisfactory English proficiency according to the above conditions.

### International Transfer Student (within U.S.A.)

To be considered as a transfer student, applicants must have first completed a minimum of one academic year at a United States (or other English-speaking) college or university. Applications must be received not later than July 15—Fall Quarter; November 15—Winter Quarter; January 15—Spring Quarter.

Transfer applicants must submit the following to be considered for admission:

1. A completed application form, a $25 non-refundable application fee and credential evaluation fee (to be drawn upon a U.S. bank) and a list of all educational experiences including studies undertaken in the U.S.
2. Official credentials and transcripts from all secondary schools, colleges and universities which the student has attended, including subjects studied, grades, and a key to the grading system. (If credentials are not in English, official translations must be provided.)
3. Official credentials and transcripts showing one academic year of full-time study at a U.S college or university, including evidence of academic and disciplinary good standing at the last prior institution with a minimum grade point average of 2.00 (on a 4.00 scale). (Some YSU programs may have higher requirements.)
4. A TOEFL score of at least 525 (or its MTELP equivalent) if the applicant has English composition credit from a prior institution, or at least 500 (or its MTELP equivalent) if no English composition credit was earned from a prior institution.
5. A complete medical examination on the form provided.
6. Certification of financial resources available for education and living expenses while attending the University.
7. Recommendation from the foreign student advisor of the previous college or university.
8. Applicants may be required to submit additional materials.

All advanced credit is evaluated by the Admissions Office to determine eligibility. Credits from institutions in other countries will be evaluated upon presentation of course syllabi. Students holding undergraduate degrees equivalent to the bachelor's degree may be admitted to the University for post-graduate study only upon recommendation of the Foreign Admissions Committee and the dean of the proposed college.

### Requirements for Enrolled International Students

All entering international and exchange students are expected to attend an orientation program during the two weeks prior to their initial enrollment, in which assistance is given in placement and course registration, and housing and community information is provided.

During orientation, entering students are required to take English Placement Tests and may be required to include certain English courses in their programs during their initial terms, to bring their English proficiency up to the necessary standard.

International students must register, attend and receive credit in a full-time course of study throughout the academic program year. Grades of incomplete, audit, or failure do not count toward the required credit.

All University requirements apply to international students as well as other students. In particular, the following rules should be noted:

- Tuition and other fees must be paid in full each quarter. For your convenience, the University allows payment by VISA, MasterCard or Discover and also provides a tuition payment plan.
- Students must carry acceptable medical insurance for hospital and surgical care. Such insurance is available at registration for any who do not already have it.

### Financial Resources

The University offers only scholarship assistance for undergraduate international students. This fact and employment restrictions mentioned below make it necessary for non-immigrant international students to be able to supply their own financial needs during their entire educational stay in the U.S.

### Employment

Non-immigrant international students are not permitted to be gainfully employed off-campus during their first year at the University. Any part-time, on-campus employment must be approved by the Coordinator of International Student Services. If the work is off-campus, it must be approved by the U.S. Immigration and Naturalization Service.

## CREDIT BY EXAMINATION

Credit by Examination is available to students who satisfactorily complete the appropriate subject examination. Departmental tests and the following standardized tests are currently available:

Advanced Placement Program (APP)

College Level Examination Program (CLEP)

Proficiency Examination Program (PEP)

For further information, contact the Admissions Office.

## GRADUATE SCHOOL APPLICANTS

Application for admission to the University for graduate study is made directly to the Dean of Graduate Studies. (For details consult the Graduate School Catalog or the School of Graduate Studies.)

## CONTINUING EDUCATION

Individuals interested in a continuing education program or off campus instruction should consult the director of that program. This program is described in the "General Information" Section of this bulletin.

## VETERANS

Efforts are made to give all necessary guidance and assistance to military veterans and others eligible for VA educational benefits.

Courses taken through the United States Armed Forces Institute (USAFI) or the Defense Activity for Non-Traditional Education Support (DANTES) as well as certain formal service school courses may be considered for transfer toward the student's degree program. USAFI or DANTES courses must be evidenced by an official transcript, and service school courses by certification of in-service training on DD Form 214 (Armed Forces of the United States Report of Transfer or Discharge).

"An individual who has served or is serving in the United States Armed Forces and has completed Basic Military Training will receive up to three quarter hours of credit for the University's Health and three quarter hours for the Physical Education requirement. Credit may also be granted for Advanced Individual Training (A.I.T.) obtained while a member of U.S. Armed Forces. A copy of the applicant's DD 214 or DD 229, Application for the Evaluation of Learning Experiences During Military Service, must be supplied to the Admissions office in order to validate such credit." (AARTS (Army)-CCAF (Air Force) transcripts should be provided if possible). Granting of credit for A.I.T. will be based on American Council of Education's (A.C.E.) recommendation. Credits granted may not be applicable to specific degree requirements.

## CORRESPONDENCE COURSES

The University does not offer correspondence courses. The University will accept correspondence work taken in connection with an accredited college or university under the same circumstances as provided in the section titled *Transfer Credit*.

## GENERAL REQUIREMENTS FOR GRADUATION

Each student entering Youngstown State University is entitled to a copy of the University Catalog. This catalog or any one subsequent catalog will be the guide to graduation requirements, provided the student is in continuous attendance and does not change majors. When a student changes majors, the guide to graduation requirements will be the catalog in effect at the time of change or any one subsequent catalog. Readmitted students will use the catalog in effect at their last readmission or any one subsequent catalog as the guide to graduation requirements. Any exceptions to requirements must be approved by the student's department chair and/or college dean. The University reserves the right to change course offerings and academic requirements. Certain general requirements apply to all degrees earned at Youngstown State University, while other requirements apply only to particular degrees. The following is a condensed table of courses required for graduation, including high school or other preparatory units.

## COURSES REQUIRED FOR GRADUATION

Pre-College: Students graduating from high school after September 1985* and desiring to pursue a baccalaureate degree must have completed a minimum of 16 units of high school credit in the courses listed below. Students admitted with deficiencies in these areas will be required to make them up by completing certain prescribed courses without baccalaureate credit. They will be required to enroll in at least one course each quarter aimed at removing their deficiency and must have the deficiency completely removed before the beginning of the junior year (90 q.h.). The pre-college courses required are:

| | |
|---|---|
| English | 4 |
| Algebra 1, 2 | 2 |
| Geometry | 1 |
| Biology, Chemistry, Earth Science, or Physics | 1 |
| Other Science | 1 |
| US History | 1 |
| US Government | 1/2 |
| Other Social Sciences | 1/2 |
| Additional Science or Social Science | 1 |
| Foreign Language** | 2 |
| Fine or Performing Arts | 1 |
| Other Subjects | 1 |
| Total Units | 16 |

In addition, the Bachelor of Engineering (B.E.) degree program suggests a unit of mechanical drawing, a half-unit of trigonometry, and in the sciences one unit of chemistry and one unit of physics specifically. For the B.M. degree program, the applicants are expected to have completed a certain proficiency in one or more branches of applied music. See the Dana School of Music section.

Students desiring to pursue an associate degree must have completed a minimum of 16 units of high school credit in the courses listed below:

| | |
|---|---|
| English | 4 |
| Algebra I | 1 |
| Algebra II or Geometry | 1 |
| Biology, Chemistry, Earth Science or Physics*** | 1 |
| Other Science | 1 |
| U.S. History | 1 |
| U.S. Government | ½ |
| Other Social Science | ½ |
| Other Subjects | 7-8 |
| Total Units | 16 |

*Students who have graduated from high school before September 1985 should consult the dean of the college in which they are registered for the list of pre-college courses.

**Two units in one language.

***Not required of students pursuing ALS degree.

A unit of mechanical drawing and a half-unit of trigonometry are advisable for engineering technology students. The preferred sciences for dental hygiene, medical assisting and nursing students are biology and chemistry.

## Institutional Transfer

The Ohio Board of Regents, following the directive of the Ohio General Assembly, has developed a new statewide policy to facilitate movement of students and transfer credits from one Ohio public college or university to another. The purpose of the State Policy is to avoid duplication of course requirements and to enhance student mobility throughout Ohio's higher education system. Since independent colleges and universities in Ohio may or may not be participating in the transfer policy, students interested in transferring to an independent institution are encouraged to check with the college or university of their choice regarding transfer agreements.

### Transfer Module

The Ohio Board of Regents' Transfer and Articulation Policy established the Transfer Module, which is a specific subset of the entire set of a college or university's general education requirements. The Transfer Module contains 54-60 quarter hours or 36-40 semester hours of specified course credits in English composition, mathematics, fine arts, humanities, social science, behavioral science, natural science, physical science, and interdisciplinary coursework.

A transfer module completed at one college or university will automatically meet the requirements of the transfer module at the receiving institution, once the student is accepted. Students may be required, however, to meet additional general education requirements that are not included in the Transfer Module.

### Conditions for Transfer Admission

Students meeting the requirements of the Transfer Module are subject to the following conditions:

1. The policy encourages receiving institutions to give *preferential consideration* for admission to students who complete the Transfer Module and either the Associate of Arts or the Associate of Science degrees. These students will be able to transfer all courses in which they received a passing grade of D or better. Students must have an overall grade point average of 2.0 to be given credit for the Transfer Module.

2. Other transfer students who have completed the transfer module with grades of C or better in each course (as certified by the sending institution) will be considered to have met the "Transfer Module" requirement of the receiveing institution. The application of transfer work to general education requirements which go beyond those contained in the "Transfer Module" will be done on a course-by-course basis.

3. The policy also encourages receiving institutions to give *preferential consideration* for admission to students who complete the Transfer Module with a grade of C or better in each course and 90 quarter hours or 60 semester hours. Students must have an overall grade point average of 2.0 to be given credit for the Transfer Module and only courses in which a C or better has been earned will transfer.

4. The policy encourages receiving institutions to admit on a *non-preferential consideration* basis students who complete the Transfer Module with a grade of C or better in each course and less than 90 quarter hours or 60 semester hours. These students will be able to transfer all courses in which they receive a grade of C or better.

5. The policy promotes the acceptance and award of transfer credit for the following types of educational experience when said experience was accorded credit by the institution previously attended: credit by examination, experiential learning, military training, advanced placement credit, CLEP and subject exams.

Admission to a given institution, however, does not guarantee that a transfer student will be automatically admitted to all majors, minors, or fields of concentration at that institution. Once admitted, transfer students shall be subject to the same regulations governing applicability of catalog requirements as all other students. Furthermore, transfer students shall be accorded the same class standing and other privileges as native students on the basis of the number of credits earned. All residency requirements must be successfully completed at the receiving institution prior to the granting of a degree.

### Responsibilities of Students

In order to facilitate transfer with maximum applicability of transfer credit, prospective transfer students should plan a course of study that will meet the requirements of a degree program at the receiving institution. Specifically, students should identify early in their collegiate studies an institution and major to which they desire to transfer. Furthermore, students should determine if there are language requirements or any special course requirements that can be met during the freshman or sophomore year. This will enable students to plan and pursue a course of study that will articulate with the receiving institution's major. Students are encouraged to seek further information regarding transfer from both their advisor and the college or university to which they plan to transfer.

### Appeals Process

A multi-level, broad-based appeal process is required to be in place at each institution. A student disagreeing with the application of transfer credit by the receiving institution shall be informed of the right to appeal the decision and the process for filing the appeal. Each institution shall make available to students the appeal process for that specific college or university.

If a transfer student's appeal is denied by the institution after all appeal levels within the institution have been exhausted, the institution shall advise the student in writing of the availability and process of appeal to the state level Articulation and Transfer Appeals Review Committee.

The Appeals Review Committee shall review and recommend to institutions the resolution of individual cases of appeal from transfer students who have exhausted all local appeal mechanisms concerning applicability of transfer credits at receiving institutions.

| IN THE UNIVERSITY | A.B. | B.S. | B.S. in Educ. | B.S. in A.S. B.S.N. | B.S. in B.A. | B.E. | B.F.A. | B.M. | A.A. A.A.S. A.L.S. | TM[1] |
|---|---|---|---|---|---|---|---|---|---|---|
| BASIC COURSES | (These Figures Mean Quarter Hours of Credit) | | | | | | | | | |
| English Comp. | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 4-8 | 8 |
| Health/Phys.Ed. | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 3[5] | |
| Speech | — | — | 4 | — | 4 | — | — | — | — | |
| AREA COURSES: | | | | | | | | | | |
| Humanities | 16 | 16 | 8-18[7] | 8-18 | 8 | 8 | 8-18 | 8-18 | —[6] | 12-16[2] |
| Social Studies | 20 | 20 | 16-22[8] | 16-22 | 30 | 16 | 16-22 | 16-22 | 5[6] | 12-16[2] |
| Science | 16 | 12 | 12-22[10] | 12-22 | 18 | 46 | 12-22 | 12-22 | 5[6] | 12-16[3] |
| Mathematics | | | | | | | | | | 4[4] |
| FOR THE DEGREE[9] | | | | | | | | | | |
| Foreign Lang. | 8-20[11] | 4-16[11] | — | — | — | — | — | —[12] | —[6] | |
| Other Courses[13] | 110-112 | 126-138 | 122 | 126-138 | 112 | 113 | 136 | 132-159 | —[6] | |
| TOTAL CREDIT HOURS[14] | 186 | 186 | 186 | 186-198 | 186 | 197 | 186-212 | 189-209 | 96[15] | 54 |

## NOTES

[1]Students planning on transferring to another Ohio state assisted institution should complete the Transfer Module (TM). This module is recognized state-wide as being the core for general education requirements at all state assisted institutions of higher education. With proper planning, this module can be a subset of the General Requirements (GR) at YSU (i.e., with the exception of an extra humanities credit for some degrees, students can fulfill the TM with the same courses they use to fulfill the GR). Please contact your Dean's office for a detailed list of requirements. Total quarter hours for TM must equal or exceed 54. Contact the Records Office for validation of completion of the Transfer Module.

[2]At least two disciplines must be included within both the humanities area and the social studies area.

[3]Must include at least one lab science course.

[4]A course in mathematics, statistics, computer science or logic for which three years of high school college preparatory mathematics is a prerequisite.

[5]Health 590 is waived for dental hygiene, emergency medical technology, and nursing students.

[6]Refer to Associate degree curricula in the appropriate college.

[7]At least one course in each of two of the following three areas—fine arts, philosophy, theological studies—is required by the Ohio Department of Education for students seeking a high school teaching certificate.

[9]Requirements peculiar to a particular degree are explained more fully in the section of this catalog primarily concerned with that degree.

[9]Candidates for the B.S. in Ed. degree in elementary education must take 12 hours of science (physical and biological) plus 14 hours of mathematics. This is the minimum set by the Ohio Department of Education. Students seeking a high school teaching certificate must have at least one course in mathematics to meet the minimum set by the Ohio Department of Education.

[10]The eight-hour requirement for the A.B. degree and the four-hour for the B.S. degree assume the continued study of the same language in which two units of high school credit were earned. If a different language is studied, or if the student has more than two units of high school credit, the requirement is different. See Proficiency in a Foreign Language for details.

[11]For voice majors 24 hours are required. Part of this requirement may be met by two units of high school study in one of the following languages: French, Italian, or German. In this case 16 hours are required (eight hours in each of the two languages not previously studied).

[12]These include all courses necessary for the major, minor(s), teaching certification (if needed), and any other special purposes. For many fields, all the courses required or suggested are listed in the curricula in the pertinent sections of this catalog.

[13]The B.S.N. requires 194 hours. For the B.M., the total is 203 hours. For the B.S. in Ed., minimum is 186 quarter hours if the student is exempted from taking Education 502.

[14]The exact number of hours varies for the various two-year programs, as shown in the specific curricula.

## CANDIDACY FOR A DEGREE

To be eligible for candidacy for any degree, the following three requirements must be fulfilled:

**Application.** A formal application for graduation must be filed at the Bursar's Office by the published deadline. The application form is available at the office of the dean of the appropriate college or the Records Office. If the student does not graduate at the commencement exercise for which the application has been filed, the application must be reactivated with the appropriate dean. The student should file the "Notice of Intention to Apply for Graduation" form with the dean of the college after the completion of 60 quarter hours for an associate degree and 150 quarter hours for a baccalaureate degree. (See Fees and Expenses further on in this Section.) It is the student's responsibility to make certain all degree requirements are complete. The student must fulfill the: 1) University-wide, 2) college, and 3) departmental requirements as well as the minimum credit hours.

**Residence.** The last 30 quarter hours leading to an associate degree and the last 45 quarter hours leading to a baccalaureate degree must be completed at Youngstown State University. (In the pre-forestry, pre-law, and pre-medical curriculums, however, which allow the student to earn final credit hours *in absentia*, the last 45 quarter hours prior to the period of absence must be spent at Youngstown State University.) Any modification of this requirement must be approved by the Office of the Provost.

**Grades.** The point average must be at least 2.00 (See *The Point Average and Scholastic Standing*, further on in this section) at the time candidacy is approved and at the time the degree is granted.

For additional requirements peculiar to the associate or baccalaureate degree, further details follow.

## BACCALAUREATE DEGREE

In addition to requirements stated under *Candidacy for a Degree*, the following requirements must also be fulfilled for a baccalaureate degree:

Pre-College Requirements. It is the student's responsibility to fulfill any high school unit deficiency(ies) for the desired degree. The preparatory units are not the same for all degrees; they are listed in the *Courses Required for Graduation Section* and should be read carefully, together with the explanatory notes accompanying them. This is especially important if the student changes the degree for which he or she is studying, as his or her high school preparation, even though satisfactory for the original objective, may not be satisfactory for the new one. *A student admitted to the University to study for one degree does not mean that he or she is equally qualified to become a candidate for all other degrees offered by the University.*

Course Levels. At least 90 quarter hours must be completed in courses numbered 600 or higher; at least 60 of these 90 hours must be in courses numbered 700 or higher.

Majors and Minors. Each student must complete a major. Each must also complete a minor, unless a combined major is elected or enrollment occurs in a college offering approved professional or technical curricula which do not require a delineated minor.

A department major consists of at least 45 quarter hours in one department with grades of 'C' or better. A combined major, in which courses are given by more than one department, consists of at least 70 quarter hours with grades of 'C' or better. A minor consists of at least 21 quarter hours with grades of 'C' or better in a department other than that of the major, unless the department includes more than one discipline. If the department includes more than one discipline, the minor may be in the same department in a discipline other than that of the major. Certain approved interdisciplinary programs are exceptions to the above definitions.

*Each department determines the course requirements for its own major or majors. A department may also establish a pattern of courses to be recommended for students seeking a minor in that department. However, responsibility for certifying that a student has completed a major and minor rests with the chairperson of the major department in which the student completes the major. The student may be required to do more than the minimum stated in the preceding paragraph.

As soon as a student has decided on a major, he or she should consult with the department chair of the major department. While no student is compelled to declare a major before completing an *Intention to Graduate* form, early consultation with the department chair is strongly recommended, since in some departments the student must begin course work related to the major during the freshman year or risk a delay in graduation.

### Credit From Professional Schools

Students at YSU wishing to enter professional schools with the option of completing their baccalaureate degree in absentia may do so with the completion of at least 141 quarter hours of coursework, which must include the following:

1. All general University requirements
2. Completion of major
3. Completion of minor (if required)
4. 60 q.h.'s of upper division coursework (700-800-Level)

The University will accept the completion of not more than 45 quarter hours from any professional school granting any of the degrees listed below and approved by the accrediting agency of that profession,

*For this purpose, the College of Education and the Dana School of Music are departments, and each foreign language is a department.

provided that the student has been accepted for further study at the professional school. The student may thus secure the baccalaureate degree after three to three-and-a-half years in the University followed by approximately a year in the professional school. The relevant professional degrees are: Doctor of Dental Surgery or equivalent; Doctor of Medicine, Doctor of Osteopathy, Doctor of Podiatry, Doctor of Veterinary Medicine, Doctor of Jurisprudence or equivalent; Doctor of Ministry or equivalent; Bachelor of Divinity or equivalent.

The policy above does not apply to students admitted in the BS/MD Integrated Program of Youngstown State University and the Northeastern Ohio Universities College of Medicine (NEOUCOM). However, credit of up to 20 Q.H. may be granted toward the completion of the B.S. degree to those students who have participated in the 6th year *Human Values in Medicine* Programs of NEOUCOM.

## COURSE REQUIREMENTS — GENERAL BASIC

**English.** The candidate must show satisfactory proficiency in the use of written English. This requirement is normally met by taking English 550, 551, totaling eight quarter hours. Students must be tested by the English Department to assess their skills in written composition before registration into English Composition courses. Placement into precourses (English 520 and/or English 540), into English 550, or English 550H (Honors Composition) is made on the basis of the English Placement Test results. Students who demonstrate superior proficiency may be exempted from English 550. Information on the policy and procedure for testing and exemption is available from the English Department. A student who has had part or all of some other "Freshman English" sequence, either at this institution or elsewhere, should consult the Chair of the Department of English or the Coordinator of Basic Composition before registering for Basic Composition courses at Youngstown State University.

### Health Education and Physical Education

Each candidate must normally have six quarter hours of credit in Health Education and Physical Education. Usually this consists of three hours of Health Education, (Health 590) and three one-quarter-hour physical activity courses. The candidate who completed the two year course in military science needs only three quarter hours of Health 590 (See Modifications for R.O.T.C. students, further on in this section). Other substitutions of academic courses or of training received in active Military Service to meet any part of this requirement must have the approval of the Chair of the Department of Human Performance and Exercise Science and Health Sciences, in conformity with guidelines established by the faculty and normally administered by the Executive Director of Enrollment Services.

## COURSE REQUIREMENTS — GENERAL AREA

The candidate must complete at least 46 quarter hours in the areas of humanities, social studies, and science/mathematics. The following are the general requirements in these areas of study:

**Humanities.** The candidate must have completed at least eight quarter hours, and may apply no more than 18 quarter hours in satisfaction of this requirement. Applicable courses include the following: literature courses in the English or Foreign Language Departments (600-level or above); courses in philosophy and/or religious studies; history and/or appreciation courses in the Department of Art, the Department of Communication and Theater or the Dana School of Music; Black Studies 601 (Introduction to Black Studies II) or HPES 698 (Survey of Dance). Candidates for Ohio High School Teaching Certificates must have at least one course in any two of the following areas: fine arts, philosophy, religion, black studies and literature.

**Social Studies.** The candidate must have completed at least 16 quarter hours, and may apply no more than 22 quarter hours in satisfaction of this requirement. Courses must be selected from at least two of the following disciplines: black studies (only Black Studies 600–Introduction to Black Studies I may be used), economics, geography, history, political science, psychology, social science, and sociology.

**Science/Mathematics.** The candidate must have completed at least 12 quarter hours, and may apply no more than 22 quarter hours in satisfaction of this requirement. At least eight quarter hours of science must be taken from among the following disciplines: astronomy, biology, chemistry, physical geography, geology, and physics. No more than 10 quarter hours of mathematics may be applied toward this requirement.

Candidates for the B.S. in Ed. degree must meet the following Ohio Department of Education requirements:

In elementary education, 12 quarter hours of science plus 14 quarter hours of mathematics (Mathematics 515, Mathematics 516 and Mathematics 617).

Students seeking a high school teaching certificate must have at least one mathematics course. (Mathematics above 511).

## ADDITIONAL COURSE REQUIREMENTS FOR EACH DEGREE

A degree requirement is one which applies to all (or, in a few cases, to most) of the students seeking a particular degree, but is not necessarily a requirement for other degrees. Degree requirements will be found as follows:

Those for the degree of Bachelor of Arts (A.B.) are stated in the College of Arts and Sciences section, and

in the College of Fine and Performing Arts section, and in the College of Health and Human Services section.

Those for the degree of Bachelor of Science (B.S.) are stated in the College of Arts and Sciences section and in the College of Health and Human Services section.

Those for the degree of Bachelor of Science in Applied Science (B.S. in A.S.) are stated in the College of Arts and Sciences section, the College of Engineering and Technology section, and the College of Health and Human Services section.

Those for the degree Bachelor of Science in Nursing, Bachelor of Science in Physical Therapy, and Bachelor of Science in Respiratory Care, are stated in the College of Health and Human Services section.

Those for the Bachelor of Science in Education (B.S. in Ed.) degree are stated in the College of Education section.

Those for the degree of Bachelor of Science in Business Administration (B.S. in B.A.) are in the Warren P. Williamson, Jr. College of Business Administration section.

Those for the degree of Bachelor of Engineering (B.E.) are in the College of Engineering and Technology section.

Those for the degrees of Bachelor of Fine Arts (B.F.A.) and Bachelor of Music (B.M.) are listed in the College of Fine and Performing Arts Section.

## ASSOCIATE DEGREE REQUIREMENTS

Degree requirements for the degree Associate in Labor Studies (ALS) are stated in the Warren P. Williamson, Jr. College of Business Administration section.

Those for the degree Associate in Applied Science (AAS) are stated in the College of Arts and Sciences section, the College of Engineering and Technology section, and the College of Health and Human Services section.

Those for the degree Associate in Arts are stated in the College of Arts and Sciences section in the Health and Human Services section, and the Warren P. Williamson College of Business Administration section.

## MODIFICATIONS FOR STUDENTS ENROLLED IN MILITARY SCIENCE

Students enrolled in R.O.T.C. may make the following substitutions with approval of their academic major advisor:

A. Military Science Courses 520, 530, 610, 615 each allow the student to omit one quarter hour of the physical education activity requirement.

B. The following courses are possible substitutions for social studies area requirements contingent upon approval by the academic major advisor:

| Courses | Cr. Hrs. |
|---|---|
| MS 502 Basic Leadership and Management | 1 |
| MS 601 American Military Leadership | 4 |
| MS 701 Organizational Leadership | 3 |

C. The following courses may be taken as general electives with the major advisor's approval:

| Courses | Cr. Hrs. |
|---|---|
| MS 501 Introduction to Military Science | 1 |
| MS 502 Basic Leadership and Management | 1 |
| MS 503 First Aid and Emergency Care | 3 |
| MS 520 Introduction to Living Out-of-Doors | 1 |
| MS 530 Survival and Mountaineering Techniques | 1 |
| MS 602 Individual Military Skills | 2 |
| MS 603 Comparative Analysis of U.S./Other Land Forces | 2 |
| MS 610 Individual Weapons and Marksmanship | 1 |
| MS 615 Orienteering | 1 |
| MS 604 Basic ROTC Summer Camp (2-Year ROTC Students Only) | *4 |
| MS 702 Advanced Leadership and Management 1 | 3 |
| MS 703 Advanced Leadership and Management 2 | 3 |
| MS 704 Advanced ROTC Summer Camp | 6 |
| MS 725 Individual Study | 4 |
| MS 801 The Military Team | 3 |
| MS 802 Seminar in Leadership and Management 1 | 3 |
| MS 803 Seminar in Leadership and Management 2 | 3 |

D. Academic major advisors may allow substitution credit as indicated:

1. COLLEGE OF ARTS AND SCIENCES
   - 3 Activity Hours for Health Education and Physical Education
   - 7 Q.H. Social Studies
   - 17 Q.H. General Electives

   A minor is available in consultation with the academic advisor.

2. COLLEGE OF BUSINESS ADMINISTRATION
   - 3 Activity Hours for Health Education and Physical Education
   - 7 Q.H. Social Studies
   - 10 Q.H. General Electives

3. COLLEGE OF EDUCATION
   - 3 Activity Hours for Health Education and Physical Education
   - 7 Q.H. Social Studies

   Additional hours are available in consultation with academic major advisor.

4. COLLEGE OF ENGINEERING AND TECHNOLOGY
   - 3 Activity Hours for Health Education and Physical Education
   - 4 Q.H. for MS 601 History

   Additional hours are available in consultation with academic major advisor.

*Credit for two-year program students not completing MS 500 and MS 600 level courses only.

5. COLLEGE OF FINE AND PERFORMING ARTS
   3 Activity Hours for Health Education and Physical Education

Additional hours are available in consultation with academic major advisor.

6. COLLEGE OF HEALTH AND HUMAN SERVICES (4-Yr. Curricula)
   3 Activity Hours for Health and Education Physical Education
   7 Q.H. Social Studies
   14 Q.H. General Electives

A minor is available in consultation with the academic major advisor.

## REQUIREMENTS FOR A SECOND DEGREE

Any student who has a degree from YSU and desires a second degree (Baccalaureate or Associate level) must earn 27 quarter hours of credit in addition and subsequent to the total compiled when the requirements for the first degree were completed and awarded, meet all requirements for the second degree and complete the requirements for another major. In no case may a student be awarded the same degree (Baccalaureate or Associate level) twice or simultaneously (except in Graduate School); however the student may earn a second major in a given degree subsequent to the time the degree was originally awarded. The second major will be posted on the academic record upon the receipt of a senior sheet from the dean certifying that a second major has been completed.

Any student who has received a degree from another institution and desires a second degree from YSU must complete a minimum of 30 quarter hours for an Associate degree and 45 quarter hours for a Baccalaureate degree, meet all requirements for the second degree and complete the requirements for a new major and minor.

## CURRICULA TO MEET SPECIAL REQUIREMENTS

All states have detailed programs of courses necessary for teaching certificates; medical schools have specific requirements for pre-medical study; and many law, theological, technological and graduate schools have mandatory recommendations for those seeking admission. A prospective teacher, therefore, or anyone wishing to enter a professional, technological, or graduate school of any kind should consult the dean of the appropriate undergraduate college of this University as early as possible. Such special needs can usually be met within the degree requirements of Youngstown State University, but the proper selection of courses may have to begin in the first year.

## HONORS DEGREE PROGRAM

### Mission of the Honors Program

The Honors Degree Program is designed to create a continuing community of intellectual excellence. Exceptional students brought together from diverse disciplines and challenged with extraordinary courses and learning experiences outside the classroom can find in the program opportunities to develop their full cultural and intellectual potential, their unique academic achievements being recognized with an Honors Degree. Intended to foster interdisciplinary interaction, self-expression, experimentation, leadership, and academic excellence, the Honors Degree Program serves as a tangible emblem of Youngstown State University's commitment to education, teaching innovation, and cultural enrichment.

### Course Credit Generation

Honors credit generation will

- include special sections of traditional courses,
- include seminars on special topics,
- use contract honors courses if necessary,
- include some advanced course work in areas outside the major,
- pursue a common theme when possible,
- lead to a capstone project or course in the senior year.

Honors courses counting toward the Honors Degree cannot be taken for Credit/No Credit.

### Outcomes

Enrichment: Eligible students who desire an enriched education may take honors courses and thus participate in the honors program without having formally applied to the Honors Degree Program.

The Honors Degree: Students may apply to the Honors Degree Program (as distinct from the more general honors program), pursuing excellence in a broad range of subjects. Successful completion of this guided course of study will be acknowledged with a special designation on the diploma.

### Student Recruitment and Eligibility

A. To enter the Honors Degree Program.

1. All University Scholars are enrolled in the Honors Degree Program.
2. The following students qualify for the Honors Degree Program upon application:
   - Presidential and Dean's Scholars,
   - Students in the top 15% of their graduating class **and** with an ACT scores of 26 (or combined SAT of 1140),
   - Current YSU students having completed at least 12 quarter hours of college-level study (not to include remedial courses) with a cumulative GPA of at least 3.4,
   - Students having completed at least 24 quarter hours of college-level study accepted for credit at YSU (not to include remedial courses) with a cumulative GPA of at least 3.4.
3. First-quarter students **either** in the top 15% of their graduating class **or** with an ACT score of 26 (or combined SAT of 1140), as well as other interested students, are encouraged to apply to the Honors Degree Program.

B. To take honors courses:

Students enrolled in or eligible to enter the Honors Degree Program and others approved by the

instructor and Director of Honors may take honors courses. All students are encouraged to enroll in honors courses. The presence of students in honors courses causes a radiance of excellence throughout the University.

C. To remain in good standing in the Honors Degree Program, students must maintain a GPA or at least 3.4. Students falling below this level may take no honors courses until their GPA is restored to the 3.4 level.

**Curriculum**

**First-Year Honors**

During the first year, students will typically take eighteen hours of honors work, to include three 3-4 hour honors courses, normally one per quarter. These related courses will be selected every year by the Director of Honors in consultation with the Honors and ICP Subcommittee, and dialogue among the instructors will establish appropriate linkages.

**Second- and Third-Year Honors**

Students entering the Honors Degree Program in their second or third year must complete an additional eighteen hours of honors credit (to include ten hours in fields outside the major).

During the second and third years, honors students will take twenty hours of honors credit. No more than eight of these hours can be taken in a student's major. The other twelve hours should be distributed as follows, including both courses and seminars when possible:

**For Engineering, Science, and Mathematics Majors:** 12 hours of honors credit in the humanities and social sciences

**For Social Science Majors:** 12 hours of honors credit in the humanities and sciences/mathematics

**For Humanities Majors:** 12 hours of honors credit in the social sciences and sciences/mathematics

**For Other Majors:** 12 hours of honors credit in the social sciences, sciences/mathematics, and humanities

In addition, every student must earn eight hours of credit in 700- or 800-level courses (honors or non-honors) **outside** whichever one of the four broad areas above includes the student's major.

**Fourth-Year Honors**

During the senior year, an honors student should complete a senior thesis/project in the major department. A faculty advisor selected by the student and approved by the Director of Honors will oversee this project and be assigned an appropriate workload adjustment. The thesis should be bound and archived by the Library and stored in the new honors residence. Certain projects other than theses could be presented in poster form or electromagnetically recorded and similarly archived and stored. A public defense (or exhibition or recital) is also recommended. The student should also be encouraged to make a formal presentation at a regional or national conference. Projects completed by individuals, teams, and teams of students working with community officials are appropriate.

**Documentary Recognition of Success in the Honors Degree Program:**

1. Grade records. A student's permanent record will be the sole official record of his or her Honors courses and seminars, each of which will be designated with an 'H' after the catalog number, or in some cases, with a note detailing that Honors Credit was earned for that particular course.
2. Completion of the Honors Degree Program. When a student's record satisfies the Director of the Honors Program that the student has successfully completed the requirements of the Honors Degree Program, the following notation will be entered on the student's permanent record: "Has successfully completed the Honors Degree Program," and upon graduation the student will be awarded a special honors diploma.

# UNIVERSITY HONORS

***Nathan P. Ritchey, Director***

## ORGANIZATION AND DEGREES

The program is operated under the jurisdiction of the Honors Subcommittee of the University Senate.

(For admission and degree requirements see "Honors Degree Program.")

## COURSES OF INSTRUCTION

### University Honors Studies

**The Nature of an Honors Course**

When compared to a non-honors course, an honors course should:

- cover material in greater depth
- encompass more complex concepts, stressing analysis
- place greater emphasis on communication skills
- include discussion of applicable theories in the field
- require of the students more preparation and class participation, including more ambitious papers or projects, as well as a greater share of responsibility for learning
- involve more state of the art technology whenever possible and appropriate

599. *Special Topics.* An introductory-level examination of some topic appropriate for honors study. Typically team-designed. In certain cases, students may arrange to have the course counted toward their major by negotiation with the major department. With approval of the Director of Honors, may be repeated for credit with different topics. Prereq.: Admission to the Honors Degree Program or permission of instructor and Director of Honors. 4 q.h.

601, 602, 603. *Beginning Honors Seminar.* An interdisciplinary seminar series dealing with topics appropriate to the entrance of students into the Honors Degree Program and continuation thereof. The subjects include, but are not limited to, creativity, the organization and function of the University, the total human being, etc. Prereq.: Eligibility for the Honors Degree Program. 2+2+2 q.h.

699. *Special Topics.* A close examination of some topic appropriate for lower-division honors study. Typically team-designed. In certain cases, students may arrange to have the course counted toward their major by negotiation with the major department. With approval of the Director of Honors, may be repeated for credit with different topics. Prereq.: Admission to the Honors Degree Program or permission of instructor and Director of Honors. 4 q.h.

701, 702, 703. *University Honors Seminar.* A critical investigation of selected ideas underlying civilization, embracing and integrating the particular studies of science, society and the humanities. Prerequisite: Eligibility for the Honors Degree Program. 3+3+3 q.h.

799. *Special Topics.* A close examination of some topic appropriate for upper-division honors study. Typically team-designed. In certain cases, students may arrange to have the course counted toward their major by negotiation with the major department. With approval of the Director of Honors, may be repeated for credit with different topics. Prereq.: Admission to the Honors Degree Program or permission of instructor and Director of Honors. 4 q.h.

899. *Special Topics.* An advanced examination of some topic appropriate for honors study. Typically team-designed. In certain cases, students may arrange to have the course counted toward their major by negotiation with the major department. With approval of the Director of Honors, may be repeated for credit with different topics. Prereq.: Admission to the Honors Degree Program or permission of instructor and Director of Honors. 4 q.h.

### Contract Honors Courses

Any course other than remedial or high school remedial courses may be taken for Honors credit with the concurrence of the faculty teaching the class and the approval of the Honors and ICP Subcommittee. For information, contact the Director of the Honors Program.

### Honors Courses:

Honors courses are designated by the suffix 'H'. Titles and course descriptions are listed by department under Course of Instruction and Curricula.

## INDIVIDUALIZED CURRICULUM PROGRAM

The student whose needs are not completely met by existing conventional programs may wish to investigate and apply for the Individualized Curriculum Program. This requires a student to design the curriculum suited to his or her particular background and needs, allowing alternative paths for reaching the currently offered undergraduate degrees.

A student admitted to the program will have the help of a committee of faculty advisors selected by the student. This committee will help to develop a program that will serve a valid educational goal not attainable within the regular curricular structure of the University. To receive approval, the over-all program needs to be of a scope and intensity comparable to conventional programs leading to the degree being sought.

Waiver of any existing curricular requirement may be sought, subject to approval by the student's committee and the appropriate academic dean. However, the student must present valid specific reasons for each variation from these normal requirements. Only curricular adjustments may be made within this program; it does not provide for new or modified courses or degrees, or for changes in course prerequisites. Credit by examination may be sought, subject to approval through normal channels.

Detailed information is available from the director of the program, Room 104, DeBartolo Hall.

## STUDENT RECORDS POLICY

**The Student Records Policy is published in *THE CODE* which is available at Bytes and Pieces in Kilcawley Center, New Student Orientation or the Vice President for Student Affairs, Room 203, Tod Hall.**

## ADVISEMENT

The Registrar's Office provides instructions for advisement and registration prior to registration. The policy regarding advisement and the advisor's signature is:

> All students are urged to consult with advisors in their major area. Each department or college has a procedure for either assigning an advisor to a student or for the student to select an advisor. Advisement is required for the following students:
>
> 1. Freshmen (with less than 48 hours of credit).
> 2. Students on warning or probation.
> 3. Students with high school deficiencies.
> 4. First quarter transfer students.
> 5. All former students returning to the University.
> 6. Athletes
>
> The responsibility for fulfilling all requirements rests ultimately upon the student; the advisors provide assistance in that process.

A student planning the program should use the *Schedule of Classes* in order to determine the specific classes offered in a particular quarter. The *Schedule of Classes* is published for each quarter by the Registrar's Office as an issue of the Youngstown State

University Bulletin. For information about future offerings or when a particular course will be offered again, the student should consult the appropriate department chair.

## REGISTRATION

Students register through the SOLAR (Student Online Advisement and Registration) system. Appointment times are mailed to all students by the Registrar's Office. Appointment times for current students are also published in the quarterly *Schedule of Classes*.

Registration is not completed until all tuition and fees are paid. Registration must be concluded no later than the date published for the late and final registration for the particular quarter. All significant dates are published in the catalog issue of the *Youngstown State University Bulletin* and in the *Schedule of Classes* for each specific quarter.

**Non-payment of tuition and fees by the due date results in schedule cancellation.**

## ENGLISH PLACEMENT TEST

All students admitted to the University are required to take the English Placement Test. No student is permitted to register for a second quarter of classes without having taken the test, except those students placed into English classes for non-native speakers. Students must contact the English Department for scheduling to take this test.

Students whose English placement is for English 520 or 540 or who are placed into Education 510 are to enroll in the proper course(s) until the deficiencies are remedied. The course(s) must be completed within the first 45 hours or the student will be limited to only those courses. Non-native speakers of English must continue to take ESL classes until they have reached the necessary level of proficiency. At that point, they will take a placement test and continue with the English composition sequence.

**Please Note:** If you are directed to enroll in English 520 or 540 and/or Education 510A or 510B, you must do so. You may not withdraw from the above named courses unless you are making a complete withdrawal from the University.

Any of the above named, mandatory courses may not be taken more than twice. Should you not successfully complete any of these courses or withdraw from them twice, you will be dis-enrolled from the University.

## ENGLISH REQUIREMENT

A student is required to complete the English requirement within the first 90 hours of course work. A student who does not complete the English requirement within the first 90 hours of course work will be prohibited from registering for any additional *upper division courses* until the English requirement has been met. Transfer students having completed 90 hours or more are exempt from this policy for their first 16 hours of enrollment at Youngstown State University.

## MATH PLACEMENT TEST

All students whose declared major will require either MATH 550 or MATH 571 are required to take the Mathematic Placement Test. Results of the test are used for advising and placement of students in an appropriate beginning mathematics course. No student will be permitted to register for MATH 550 or MATH 571 without having achieved a score high enough for such placement unless the student has earned credit for the corresponding prerequisite course at Youngstown State University. In unusual circumstances in which a student may not take the placement exam, ACT scores in mathematics may be used. A student will be permitted to take the exam a second time at a later date.

## PHOTO IDENTIFICATION CARDS

The Registrar's Office issues a photo identification card to every student enrolled at the University. The student must carry the card while on campus and is responsible for all transactions completed with the card. The use of this card is restricted to the student to whom it was issued and should be used for identification purposes only. The student must report the loss or theft of his or her card to the Campus Police Office. Lost or stolen cards must be replaced at the student's expense (see Student Fees and Charges for amount). To replace the card, the student must present proper identification (i.e. driver's license) to the Registrar's Office. The photo identification card is the property of the University and must be surrendered by the student upon request by University officials.

## EXTRA HOUR OF CREDIT

Credit for more than the stated number of credit hours may be obtained for extra work in a course, under the following stipulations:

1. Permission is limited to seniors.
2. Extra credit may not exceed one hour per quarter.
3. A brief description of the extra work must be given by the instructor.
4. Such extra work may be done only under the supervision of a full-time instructor.
5. An application form must include signatures showing approval by the instructor of the course, the chair of the department in which it is taught, and the dean of the college in which the course is taught.
6. The department must enter an on-line permit for the extra credit prior to registration.

## MINIMUM CREDIT HOURS

Registration is not permitted for less than the approved credit hour value of any course as listed in the catalog.

## VARIABLE CREDIT HOURS

Certain courses have variable credit hours. A student wishing to register for such a course may do so only after consulting with the department offering the course to determine the number of hours for which to register.

## CLOSED CLASSES

Departments set limits to the number of students that can be accommodated in the various classes. During the registration period or the period for adding classes, many classes become filled. These classes are called "closed," which means that no more students will be admitted to them. Only the chair of the department offering the course can admit a student to a closed class or reopen a closed class.

## CHANGE OF REGISTRATION

Registered students may change their registration through SOLAR during scheduled times for change of registration.

Students should consult their advisors prior to changing their schedules. In general, each student who needs an advisor's approval for registration must also have an advisor's approval for add/drop (change of registration). However, advisors' approval is not required for (1) withdrawing from a course after the first week of classes, (2) changing sections of a course, (3) changing physical activity courses, or (4) withdrawing from all classes before the first day of classes.

A registered student may enter an additional course through the change of registration procedure until the seventh calendar day of the quarter or until the fifth calendar day of a summer term.

Withdrawal from a course must be accomplished through the change of registration procedure. If a student withdraws from one or more classes during the first two weeks of classes, no entry will be made on the student's permanent record for the class(es) dropped.

Administrative change(s) of registration may occur if a student registers for more hours than prescribed by the student's academic dean.

## CANCELLATION OF REGISTRATION

A student's registration may be cancelled for any of the following reasons:

1. Non-payment of tuition and fees for a quarter by the payment due date for that quarter.
2. Academic suspension for the previous quarter.
3. Disciplinary action against the student.
4. Insufficient class enrollment.
5. Failure to meet Admissions requirements.

## COMPLETE WITHDRAWAL OF REGISTRATION

**Procedure:** The student who wishes to withdraw from all classes in a particular quarter must follow the same procedure as in Change of Registration. A complete withdrawal may be executed before classes or after the quarter starts. The student should consult the quarterly *Schedule of Classes* for deadlines.

**Eligibility for future registrations:**

1. A new applicant or returning former student who withdraws from all classes prior to the first day of classes will not receive notice for future registrations unless the person requests that the Admissions Office defer the entering quarter and year to a future quarter.

2. A student withdrawing on or after the first day or prior to the fourteenth day of classes will receive notice of future registrations for three subsequent quarters.

**Academic Record:** If a student withdraws from all classes during the first two weeks of the quarter, the academic record will contain the statement "Student Completely Withdrew During the First Two Weeks of the Quarter." For information regarding how withdrawal after the first two weeks of classes affects a student's academic record, see the paragraph on the W grade under the section entitled "Grading System."

## AUDITED COURSES

A student may register for and attend any course as an auditor. The student pays the full tuition, as well as any other applicable fee, for the course(s) audited. Audited courses are carried in a student's load only for fee purposes. A student receiving financial aid should confer with the Scholarship and Financial Aid Office before electing to audit a course.

A student may not change registration from audit to credit status or from credit to audit status after the last day to add a class.

## CONFERENCE COURSES

Conference work is available only in exceptional cases and if the academic advisor considers conference work essential. The student must complete a *Conference Course Form*, obtain the required signatures and have the course entered on their registration file through the department and Dean's Office involved.

If the student is adding a Conference Course to their schedule, they must process a *Change of Registration* in addition to completing the conference course form and having the course placed on their registration file. Conference courses have the following restrictions:

1. Permission is limited to seniors with a 3.00 average. **Exceptions must be approved by the dean of the college in which the student is enrolled.**

2. The course must be given by a full-time faculty member.

3. A brief description of the plan of procedure must be given by the full-time faculty member.

4. The course must have approval from the department concerned and the dean of the college in which it is offered.

## CREDIT/NO-CREDIT

A student may elect to register for a course on a CR/NC basis. (For rules governing *Credit/No Credit* see appropriate section under "Grading System".)

## CREDIT BY EXAMINATION — DEPARTMENTAL

A current student who can demonstrate ability and knowledge in a particular subject area may establish credit in certain courses without enrolling in them, by taking a special examination (through the appropriate department). An examination fee is assessed for each examination. The only grade possible is 'CR', and there is no effect on the student's grade point average. For the examination fee, see Fees and Expenses. Information on courses for which credit by examination is possible, may be obtained from the student's academic dean or the Admissions Office.

## GRADUATE COURSES FOR UNDERGRADUATES

An undergraduate student who has senior standing and a cumulative grade point average of 2.70 or above, and who does not require a full schedule to complete the baccalaureate degree requirements at Youngstown State University, may enroll in 900-level and 1000-level courses for graduate credit, provided such enrollment does not cause the total schedule for the quarter to exceed 16 quarter hours. Before registering for the course(s), the student must have the approval of the advisor, the instructor of each course in which the student wishes to enroll, and the Dean of the Graduate School. The credit earned cannot be counted toward fulfillment of the requirements for a baccalaureate degree, and may not be used for graduate credit at Youngstown State University until the student is admitted to the graduate school and the credit is accepted by the department in which the student continues graduate work. The amount of such credit that is acceptable at Youngstown State University is 15 quarter hours.

Permission will be granted for undergraduate students with proven exceptional academic ability to enroll in graduate courses for undergraduate credit. Permission will be based on a petition prepared by the student's major department. The petition must contain a statement of the criteria used to justify "exceptional" and must be approved by the department offering the course and the Dean of the Graduate School.

## REPETITION OF COURSES

A student may repeat a course once, unless otherwise stipulated in the course description or unless an additional repetition is authorized by the student's academic dean. If the course is a prerequisite to another course, the repetition must be successfully completed before the other course is taken. If the student has received credit for a more advanced course in the same subject, a repetition is treated merely as another course, along with the first, in calculating the point average, unless the student secures an approved repetition form for recalculation of point average from the dean of the college in which the student is enrolled. (See *Repetition Form.*) A course repeated, however, may be counted only once as credit toward a student's total academic hours for graduation.

## PREREQUISITES

No student may receive credit for a course that is a prerequisite for a more advanced course which the student has already successfully completed, unless an exception to this policy is recommended by the appropriate chair and approved in writing by the student's academic dean.

## REPETITION FORM (RECALCULATION OF POINT AVERAGE)

A current undergraduate student may wish to improve his or her cumulative point average by repeating a course in which a grade of 'D' or 'F' was earned. In order to recalculate the cumulative point average, the repetition must be consistent with the policy on Repetition of Courses and the student must initiate the recalculation process with the approval of his or her advisor (or the dean, if it is a second repetition). Although courses are not deleted from the permanent record, the record is adjusted to reflect the inclusion of only the last grade in the computation of the point average. The hours credited toward degree hours completed are those earned with the last grade. Once a repetition form has been processed for any course with an **F** or **NC** grade, an *F to W Petition* may not be processed for that same course. Only undergraduate students currently enrolled in the University may request this recalculation privilege. A post-baccalaureate student is not eligible to petition for a recalculation unless both the course and the repetition are completed subsequent to the conferring of the degree. A student holding the two-year associate degree may petition after receiving the associate degree only if currently pursuing a baccalaureate degree. (All YSU grades will be counted in determining honors for graduation.)

## ACADEMIC HONESTY

Academic honesty and personal integrity are the foundation upon which a quality education is built. To maintain high scholastic standards and to ensure each student the right to obtain a quality education, the University cannot tolerate academic dishonesty, e.g. cheating or plagiarism.

Though instructors are responsible for taking all reasonable precautions to prevent cheating and plagiarizing, students share a joint responsibility and should report any act of academic dishonesty to the instructor.

An instructor may give a failing grade and/or refer for disciplinary action any student who participates in acts of academic dishonesty. The failing grade may be either for the test or paper on which the cheating or plagiarism occurred, or for the entire course. The circumstances of the incident should be discussed with the student prior to giving the failing grade or referral.

The student may appeal any actions affecting the grade. The Student Academic Grievance Subcommittee will handle such appeals.

A report of any action will be filed in the office of Vice President for Student Affairs. Repeated incidents of academic dishonesty or flagrant, single offenses may warrant action beyond a failing grade in the course.

Offenses which may warrant additional disciplinary action including disciplinary probation, suspension, or expulsion, include the following:

A. Cheating, plagiarism or other forms of academic dishonesty, including the acquisition and or use, without permission, of tests or other academic material belonging to a member of the University faculty or staff. A student enrolled at Youngstown State University who secures the services of an individual or enterprise engaged in the selling of term papers or similar academic materials, and who submits these as the student's own work, is committing plagiarism.

B. Furnishing false information to the University with intent to deceive.

C. Forgery, alteration or misuse of University documents, records or identification cards.

   It should be observed that under the Ohio Revised Code, forgery is a felony and is punishable as such.

D. Unlawful and/or vandalistic appropriation of University property (e.g. books, magazines or parts thereof) with the result that others are deprived of its use and benefits.

E. Misuse of computer privileges, including unauthorized use of an account number, password, program, files or file definition.

Procedures for reporting, investigating, and considering disciplinary action are found in *THE CODE*. A copy of this publication may be obtained from the offices of the First-Year Student Center, the Vice President for Student Affairs or Bytes and Pieces in Kilcawley Center.

## ACADEMIC GRIEVANCES

Student complaints concerning instruction should be discussed first with the student's instructor. If not resolved at that level, the complaint may then be brought to the chairperson of the department. An appeal may be made to the dean of the college, should the student not feel the matter has been handled fairly. The Student Academic Grievance Subcommittee was established by the Academic Senate to further hear student complaints concerning instruction. Students wishing to file a complaint should contact the Student Government Secretary of Grievances in Room 2090, Kilcawley Center. Further information may be found in *THE CODE* which may be obtained from the offices of the First-Year Student Center, New Student Orientation, the Vice President for Student Affairs, or Bytes and Pieces in Kilcawley Center.

## ABSENCE FROM CLASSES AND EXAMINATIONS

The problem of excessive class absence concerns instructor and student, and consequently requires their mutual effort. All students must realize that for their own welfare they are expected to attend all class meetings of courses in which they are enrolled.

The instructor, however, has the prerogative of determining the relationship between class attendance, achievement, and course grades, and the responsibility for communicating the relationship to the students at the beginning of each quarter.

A student must have the instructor's consent in order to take any examination at a time other than that scheduled.

## THE CLASS HOUR, QUARTER HOUR, AND QUARTER HOUR OF CREDIT

The *class hour* is a weekly 50-minute class period and is the basic unit of instruction. The term *quarter hour* signifies one class hour a week carried for one 11-week quarter (or the equivalent in a summer term). A *quarter hour of credit* is the amount of credit given for one quarter hour successfully completed. Each *quarter hour of credit* represents an average of *three hours of study and instruction* every week through the quarter.

## THE STUDENT LOAD

The quarter hours of credit a student carries per quarter depend on the degree sought and on the curriculum being followed. Students interested in taking 26 credit hours or more per quarter must seek approval from the dean of their college.

## FULL-TIME STATUS

A full-time undergraduate student is one carrying 12 or more quarter hours for credit per quarter.

## ACADEMIC CLASSIFICATION

All students working for any undergraduate degree conferred by this University are ranked in classes, by quarter hours completed, as follows:

Freshman . . . . . 0-47 Quarter Hours of Credit
Sophomore . . . . . 48-95 Quarter Hours of Credit
Junior . . . . . 96-143 Quarter Hours of Credit
Senior . . . . . 144 or more Quarter Hours of Credit

For purposes of satisfying course prerequisites, the term "senior standing" may be defined by reference to the specified curriculums of a given school or college, if it provides detailed programs leading to the attainment of a degree.

## COURSE-NUMBERING SYSTEM AND ABBREVIATIONS

It is important that the student be familiar with the University's course-numbering system and its significance, and with the abbreviations used to indicate the amount of credit.

### UPPER AND LOWER DIVISIONS

Courses numbered from 500 to 599 are designed for the freshman level; from 600 to 699, the sophomore; from 700 to 799, the junior level; and from 800 to 899, the senior level. The freshman and sophomore levels constitute the lower division, and the junior and senior levels the upper division.

**Comma.** Ordinarily, a comma between numbers (e.g., 501, 502, 503) indicates that the course extends throughout the year, but that credit toward graduation is given for each course individually.

### ABBREVIATIONS

The abbreviation "q.h." at the end of a course description stands for "quarter hours of credit." Thus, credit for a three-hour, three-quarter course is indicated by the notation "3+3+3 q.h.," meaning "three quarter hours of credit each quarter."

The abbreviation "NC" means "No Credit." Thus, "2 NC" indicates that the course offers no quarter hours of credit but that the course is counted as two hours for load and billing purposes.

"Prereq." stands for "Prerequisite." Though the prerequisite for a course is usually listed in the course description, it may be given in the general information at the beginning of a group of course descriptions.

The key for course area abbreviations can be found on page 342.

An *asterisk* or other *reference mark* ordinarily refers to a note immediately following that curriculum. Occasionally, however, such a note may be at the foot of the page.

NEOUCOM stands for Northeastern Ohio Universities College of Medicine.

## GRADING SYSTEM

Teachers assign grades on the basis of achievement in the subject matter of the course and in accordance with accepted professional standards for that subject. The grade earned by a student thus represents the quality of work and is not based merely on competition within the class.

The grade of **A** represents exceptional work in which the student shows that he/she has firmly grasped and achieved objectives of the course.

The grade of **B** indicates very good work and considerable grasp of the essentials of the course.

The grade of **C** indicates good work and a usable grasp of the essentials of the course.

The grade of **D** indicates a definite, but not necessarily coherent, knowledge of the course.

The grade of **F** indicates that the student has not achieved even a minimum grasp of the essentials of the course. This grade can also result from failure to withdraw officially from a course (See *Change of Registration* and *Refund of Fees Upon Withdrawal*).

An incomplete grade of **I** may be given to a student who has been doing satisfactory work in a course but, for reasons beyond the control of the student and deemed justifiable by the instructor, had not completed all requirements for a course when grades were submitted. A written explanation of the reason for the **I** and a date (which must be within one year) by which all course requirements will be completed, must be forwarded to the Office of the Registrar for inclusion in the student's permanent record, with copies to the student and department chairperson.

The instructor will initiate a grade change upon completion of the course requirements. If no formal grade change occurs within one year, the **I** automatically converts to an **F.** If graduation occurs within one-year time period, the Incomplete Grade will be converted to an **F** before graduation.

Department chairs are granted authority to convert grades of **I** into final grades in cases where instructors may have severed connections with the University or have become incapacitated before converting the grades.

A progress grade, **PR**, is given in certain approved courses to indicate that work is still in progress on a project that occupies more than one quarter. This grade is changed to a final letter grade at the end of the quarter in which the work is completed.

The **PR** grade may also be given at the end of the quarter in courses specifically identified as competency-based* to indicate that the student needs more time to demonstrate a mastery of the subject matter. In such instances, the **PR** grade will be converted to a letter grade by the instructor no later than the end of the subsequent quarter, excluding the summer quarter. A **PR** grade not changed by this time is automatically converted to an **F** grade.

**W** represents a withdrawal properly processed at any time from the beginning of the third week through the end of the sixth week of any quarter (or from the fifth calendar day through the third week of any 5-week summer term). Withdrawal thereafter (or improperly done, at any time) is recorded as **F.** If the grade resulted from circumstances over which the student had no control, the student may petition the appropriate dean to change the grade to **W.**

When withdrawals change a student's status (full-time to part-time), the student immediately forfeits any privileges contingent upon full-time status, and all interested parties which legally require it will be notified.

The distribution of achievement levels, and therefore of grades, in a large unselected group of students generally follows the normal frequency curve, in which **5%** to **10%** are A's, **20%** to **25%** B's, **40%** C's, **20%** to **25%** D's, and **5%** to **10%** F's. However, since it

*The definition of competency-based instruction is to be provided by the instructor responsible for the course. Competency-based courses are so designated in the quarterly *Schedule of Classes*.

is likely that substantial variation from the normal will occur in individual classes, the instructor does not use the "curve" as a standard to be imposed, but only as a model against which the instructor may compare each particular class, using his or her own judgment on the basis of professional standards.

Instructors may use plus and minus modifications of the grades, but they are not recorded or used in calculating the point average.

### Audit (AU)

The AU grade indicates a student has registered for a course on an audit basis and has met the audit attendance requirement established by the instructor. Failure to meet the attendance requirement results in a grade of AU(W).

Students must indicate their election of the Audit grading option at the time of registration or within the time limits established for adding a class. The Audit option will not be changed to the standard grading option beyond the last day to add a class.

### Credit/No-Credit (CR/NC)

Credit/No-Credit grades are given in some specific courses as approved by the Academic Senate.

### Credit/No-Credit (CR/NC)(Student Option)

To encourage students to experiment with courses outside their major field of concentration, a Credit/No-Credit Policy exists within the following guidelines.

Youngstown State University students who have completed at least 16 quarter hours of credit and have a grade point average of 2.00 or better, or transfer students admitted unconditionally who have at least 16 quarter hours of transfer credit, may elect to take a course for Credit/No-Credit.

This means that the grade recorded for the student is not a letter grade but either **CR** (Credit) or **NC** (No-Credit).

Students opting the CR/NC basis are not so identified on the class roster. The instructor assigns grades as usual. If a CR/NC student gets an A, B, or C, the grade officially assigned is **CR**; otherwise it is **NC**. In either case, the grade point average is not affected.

This option may be elected for a maximum of twenty (20) quarter hours for the baccalaureate degree or ten (10) quarter hours for the associate degree. Courses offered only under the **CR/NC** option (by department designation) DO NOT count as a student elected Credit/No Credit class. Students are restricted to taking one CR/NC course in the fall, winter and spring quarters. However, it affords students flexibility in the summer quarter where we have two five-week sessions and three 3 1/3 week sessions with the foreign language. Students may elect to take one course in each session of summer term (one the first five weeks and one the second five weeks or for courses offered in 3 1/3 week sessions to take all courses in those sequences using the CR/NC grading option).

**Courses taken under the CR/NC option may not be counted toward a student's major or minor.** Students should confer with their advisors prior to electing the CR/NC option.

Students must indicate their election of the CR/NC option at the time of registration or within the time limits established for adding classes. **The CR/NC option will not be changed to the standard grading option beyond the last day to add a class.**

**An I** (Incomplete) may be assigned when additional work must be made up at a later time to complete the requirements for credit.

### Traditional Grade/No Credit

To receive credit for courses offered on a traditional grade/no credit basis, a student must earn a grade of C or better. If the student fails to do so, an NC is entered on his or her transcript.

An NC does not fulfill the requirements for satisfactory completion of the course; it does not affect the grade point average. Such courses are identified in the course descriptions.

## THE POINT AVERAGE AND SCHOLASTIC STANDING

The student's scholastic standing is indicated by the quality point average (Also called "Grade Point Average," "Grade Average," or "Point Average").

For determining this, every grade has a quality point value for each quarter hour it represents, as follows: **A**, four quality points; **B**, three points; **C**, two points; **D**, one point; **F**, zero points. For example, an **A** in a three-hour course is worth 12 quality points; a **D** in a four-hour course, four points; and an **F** in any course, zero points. To find the point average, the total number of quality points earned is divided by the total number of quarter hours attempted. Thus a student who attempts 16 quarter hours and earns 40 quality points has a point index of 2.50. Only grades of A, B, C, D, and F are included in the calculation of the point average.

## PROFICIENCY IN ENGLISH

The student's ability to express himself or herself in English is not the concern of the English Department alone, but of every member of the University faculty. Inadequate competence in this respect is to be regarded as a reason for lowering a student's grade in any course in the University.

## GRADE REQUIREMENTS AND PROBATION

Four categories of academic standing have been established: Good Standing, Warning, Probation, and Suspension. The last three categories are intended not as punishments, but as opportunities that can ultimately enable the student to achieve graduation. Suspension means an unspecified period of separation from the

University (generally a minimum of two quarters) to permit maturation in judgment and responsibility on the part of a student, which should improve the student's capacity for academic achievement. Any student who is suspended from the University for academic reasons is not eligible for readmission until the lapse of at least two academic quarters, for the first suspension. If a student is suspended twice for academic reasons, the second suspension shall be for a duration of at least two years. An exception may be granted in rare and unusual cases upon the recommendation to the dean by the student's advisor and department chair.

Recognizing that the transition from high school to college may be a difficult one, the University has set the minimum levels of academic achievement during the student's first two years somewhat below the level required for graduation. Academic standing is based on the total academic hours (TH) completed, including accepted transfer hours. The point averages (PA) required for good standing are as follows:

| TH | REQUIRED PA |
|---|---|
| 1-14 | 1.50 |
| 15-29 | 1.60 |
| 30-44 | 1.70 |
| 45-59 | 1.80 |
| 60-74 | 1.90 |
| 75+ | 2.00 |

A student whose point average falls below the specified average for the number of credit hours achieved will be given a warning.

A student who has been warned and who fails to bring the average up to the minimum by the end of the following quarter will be put on probation for the next quarter. A probationary student who has failed to bring the average up to the minimum by the end of this probationary quarter will be suspended; however, a student who makes substantial improvement during a probationary quarter and averages at least 2.00 for that quarter will be continued on probation even though the student's cumulative average does not reach the desirable minimum.

Transfer students admitted in good standing or on probation must meet those point average requirements indicated for their total hours including transfer hours accepted by this University.

## STATUTE OF LIMITATIONS (EXCLUDING OLDER GRADES)

An undergraduate student currently enrolled may petition the dean of his or her school to exclude from the calculation of the grade point average grades earned five or more calendar years before. If the petition is approved, all grades (not merely grades of D and F) earned during the specified quarter or semester and all previous grades (not merely grades of D and F) will then be removed from the calculation. However, all grades remain on the permanent record.

Excluded course credit (including transfer credit) will not count toward the total hours required for graduation. However, courses passed may fulfill basic curriculum requirements and may satisfy prerequisites for higher courses where applicable. Courses excluded from the calculation may be taken again and repeated once without infringing upon repeat privileges spelled out in catalog course descriptions. Courses excluded are not subject to credit by examination. A student whose petition has been approved is ineligible for graduation honors. Only one petition from each student may be approved.

## GRADE REPORTS

A report of the student's grades is sent to every student by the Records Office as soon after the close of a quarter as possible.

## GRADE CHANGES

Application for grade changes may be secured from the office of the college in which a student is enrolled, or from the Records Office. Applications for grade changes must be signed by the instructor, department chair, and dean unless the change is from incomplete (I) or a progress (PR). All grade changes must be submitted to the Records Office by the dean or instructor; they will not be accepted from the student. **After a degree has been conferred, in no case may a grade change be made for a course(s) taken while pursuing that degree.**

A students' academic record contains a complete history of his or her academic performance while earning a degree. Therefore, the academic record of a student who graduates may not be revised using *REPETITION FORM,PETITION FOR CHANGE OF GRADE FROM F TO W,* or *STATUTE OF LIMITATIONS.* In the case of a student who has completed a two-year Associate degree, the above policy may, on occasion, be waived, but only if the student is currently pursuing a baccalaureate degree. However, changes cannot be made in a student's record which would affect the status of the awarded associate degree. Waivers must be approved by the appropriate dean.

## THE DEAN'S LIST

The Dean's List (for each quarter except summer) includes those full-time undergraduate students who have earned a 3.4 average for not less than 12 quarter hours' credit for the quarter just ended.

Included in the listing for the spring quarter are those part-time students who have maintained a 3.4 average for the fall, winter and spring quarters, and who have accumulated a minimum of 12 quarter hours of credit for the three quarters.

## CLASS HONORS

To be eligible for undergraduate class honors a freshman must have completed at YSU at least 18 quarter-hours; a sophomore 36 quarter-hours; a junior 54 quarter-hours; and a senior 72 quarter-hours.

Honors are based on the accumulative point average at YSU only; no transfer work is included. Both full-time and part-time students are eligible provided they have a minimum accumulated point average of 3.00, and have earned at least 12 credits in traditionally graded courses taken during the four quarters (including summer) preceding the quarter in which honors are awarded. Transient students, post-graduate transfer students, and YSU students who have received a baccalaureate degree prior to spring quarter in the academic year in which the honors convocation is held are not eligible. A student can receive class honors only once as a member of a particular class (freshman, sophomore, etc.). The number of honor recipients approximates the top one percent of the total fall enrollment of every class in each undergraduate unit of the University, but it may slightly exceed this figure because of ties.

Class honors certificates are awarded annually at the Honors Day Convocation.

## HONORS CONVOCATION

The Honors Convocation recognizes those students who have distinguished themselves academically. Class honors certificates are given on this occasion, and some of the awards listed under *Awards and Prizes* are announced and presented.

## HONORABLE DISMISSAL

A transcript indicates the academic status of a student. Disciplinary action is not shown on a student's academic record.

If a statement of honorable dismissal is needed, the dean of the appropriate college will furnish one, provided the student is of good character, has a satisfactory record of conduct, has no financial obligations to the University, and is withdrawing voluntarily for acceptable reasons; and provided that the student, if withdrawing during a term, follows the official procedure for a change of registration.

## TRANSCRIPTS

The official transcript is a record of all coursework taken at Youngstown State University. Transcripts may be ordered only by the student. Transcripts may be ordered in person at the Registrar's counter, by mail, or by fax. Mail and fax requests should be sent to the Records Office and should include the student's name, any former name(s), social security number, dates of attendance, and written signature. Students are advised that most graduate and professional schools and many employers accept transcripts only if sent directly by the University. (For transcript fee see Student Fees and Charges.)

## TRANSIENT STUDENT AUTHORIZATION

YSU students desiring to attend another institution as transient students must complete and submit the *Transient Student Authorization* form, available from the dean of the college in which they are enrolled. Instructions are on the back of the form.

Credit will be granted for approved course work in which a grade of 'C' or better is received. It is the student's responsibility to have an official transcript sent from the other institution to the YSU Records Office.

## COMMENCEMENT

There are three graduation ceremonies each year: Winter Commencement (March), at the end of the second quarter of the academic year; Spring Commencement (June), at the end of the third quarter of the academic year; and Summer Commencement, at the end of the summer session.

There is no graduation ceremony at the end of the fall quarter. Diplomas and transcripts for students who have completed the requirements for a degree at the end of the fall quarter and who have applied for candidacy for December graduation bear a December graduation date. However, diplomas for fall graduates are not distributed until the Winter Commencement ceremony in March.

## GRADUATION HONORS

Students graduating with a baccalaureate degree who rank high scholastically are awarded special honors at the commencement exercise, as follows:

Those who attain a quality point average of 3.8 or higher are granted their degrees *Summa Cum Laude.*

Those who attain a quality point average of less than 3.8 but not less than 3.6 are granted their degrees *Magna Cum Laude.*

Those who attain a quality point average of less than 3.6 but not less than 3.4 are granted their degrees *Cum Laude.*

Students graduating with any associate degree who rank high scholastically are awarded special honors at the commencement exercise, as follows:

Those who attain a quality point average of 3.7 or higher are granted their degrees With High Honors.

Those who attain a quality point average of less than 3.7 but not less than 3.4 are granted their degrees With Honors.

All Youngstown State University grades will be counted in determining honors for graduation.

Transfer students who are baccalaureate degree candidates must have at least 90 quarter hours of credit at Youngstown State University, or those who are associate degree candidates must have at least 60 quarter hours of credit at Youngstown State University to be eligible for graduation honors. However, no transferred credit — work taken at any time at an institution other than Youngstown State University — is included in the calculation of the point average.

# STUDENT FEES AND CHARGES
# 1995-96

## TUITION

### INSTRUCTIONAL FEE

| | | | |
|---|---|---|---|
| Undergraduate | | | |
| Part-time, 1 to 11 credits | $ | 68 | per credit |
| Full-time, 12 to 15 credits | $ | 816 | per quarter |
| In excess of 15 credits per quarter | $ | 68 | per credit |
| Graduate Students | $ | 77 | per credit |

### GENERAL FEE

| | | | |
|---|---|---|---|
| Students registering for 1-11 credits | $ | 18 | per credit |
| Students registering for 12 or more credits | $ | 212 | per quarter |

### NON-RESIDENT TUITION SURCHARGE

**Regional Service Area*:**

| | | | |
|---|---|---|---|
| Students registering for 1 to 11 credits | $ | 60 | per credit |
| Students registering for 12 to 15 credits | $ | 720 | per quarter |
| Students registering for more than 15 credits | $ | 60 | per credit |

**Outside of Regional Service Area:**

| | | | |
|---|---|---|---|
| Students registering for 1-11 credits | $ | 88 | per credit |
| Students registering for 12-15 credits | $ | 1056 | per quarter |
| Students registering for more than 15 credits | $ | 88 | per credit |

### HOUSING CHARGES

| | | | |
|---|---|---|---|
| Room and Board per academic year | $ | 3,900 | |
| Payable $1,300 per quarter, except that an extra $200 is collected the first quarter of residency and the Spring is reduced by $200. (If a resident does not stay through the Spring Quarter, the $200 is forfeited.) | | | |
| Single Room Surcharge | $ | 240 | |
| Residence Hall Summer Session | | | |
| Room, per five-week session | $ | 350 | |
| Single Room Surcharge, per five week session | $ | 120 | |
| Security Deposit (paid first quarter) | $ | 50 | |
| University Apartments (room only, per person per academic year) | $ | 2,550 | |
| Summer (room only-five weeks) | $ | 400 | |
| Voluntary Board Plan (Students not rooming in University housing) | | | |
| Nineteen-meal Plan - per week | $ | 615 | per quarter |
| Fifteen-meal Plan - per week | $ | 525 | per quarter |
| Ten-meal Plan - per week | $ | 420 | per quarter |
| Five-meal Plan - per week | $ | 230 | per quarter |

### SPECIAL PURPOSE FEES

| | | | |
|---|---|---|---|
| Career Planning Program Test | $ | 25 | per use |
| Career Services Credentials | $ | 5 | |
| Change of Registration | $ | 10 | per change |
| Credit by Examination | $ | 40 | per course |
| Early Advising & Registration | $ | 60 | |
| Graduation Fee | $ | 25 | |
| Late Application for Grad. fee (after 3rd wk. of qtr.) | $ | 50 | |

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*The Youngstown State University Regional Service Area, for Non-Resident Tuition Surcharge purposes, is defined as including the counties of Chautauqua, New York; Allegheny, Armstrong, Beaver, Butler, Clarion, Crawford, Erie, Fayette, Forest, Greene, Indiana, Jefferson, Lawrence, Mercer, Venanago, Warren, Washington, and Westmoreland, Pennsylvania; and Brooke, Hancock, Marshall, and Ohio, West Virginia.

| | | | |
|---|---|---|---|
| Course Fee | $ | 20 | per course |
| Computer Assisted Course Fee | $ | 25 | per course |
| Computer Intensive Course Fee | $ | 35 | per course |
| Late Payment Fee | $ | 21 | |
| Late Registration Fee | $ | 50 | |
| Parking Permit: per academic quarter | $ | 35 | per quarter |
| Per Day Without Permit | $ | 2 | |
| Performance Music (plus tuition) | $ | 30 | per credit |
| Proficiency Examination | $ | 25 | per course |
| Transcript | $ | 5 | per copy |
| Tuition Installment Payment Plan Application Fee | $ | 21 | per use |
| Tuition Installment Payment Plan Late Payment Fee | $ | 14 | |
| Undergraduate Application Fee (first time applicant) | $ | 25 | |
| Former student returning | $ | n/c | |
| Professional Practice Participation Fee | $ | 55 | per course |

**SERVICE CHARGES**

| | | | |
|---|---|---|---|
| Child Development Laboratory Charge | $ | 25 | per quarter |
| Diploma Mailing (not assessed those attending commencement) | $ | 12 | |
| Diploma Replacement | $ | 30 | |
| Early Childhood Practicum Charge | $ | 25 | per quarter |
| Elem. Educ. Reading Specialist Charge | $ | 25 | per quarter |
| Health & Physical Education Activity : Set by and paid to independent vendor. | | | |
| Health & Physical Education Locker & Towel: | | | |
| All authorized users | $ | 25 | per quarter |
| Lock Replacement | $ | 6 | |
| Towel Replacement | $ | 6 | |
| I.D. Replacement Charge | $ | 12 | |
| I.D. Validation Sticker Replacement Charge | $ | 7 | |
| Maag Library Carrel Key (paid at Maag) | $ | 25 | |
| Returned Check or Credit Card Charge | $ | 25 | |
| Student Locker Rental (paid at Kilcawley) | $ | 10 | academic year |
| Thesis Binding | $ | 25 | |
| Withdrawal | $ | 25 | |

**FINES**

Library:

1.) Overdue book: $.10 per day to maximum of $11, plus cost of book replacement including a $10 processing charge.

2.) Overdue reserve book: $.55 per day to a maximum of of $11, plus cost of book replacement including a $10 processing charge.

3.) Unauthorized removal of closed reserve book: $.55 per day to a maximum of $11, plus cost of book replacement, including a $10 processing charge plus $5.

Parking Violations:

| | | |
|---|---|---|
| Class I - All violations except those in Class II (Fines double if not paid within 20 days of ticket issuance) | $ | 10 |
| Class II - Parking in a Handicap Zone without proper permit, Parking at a No Parking sign, Tow Away Zone, Loading Zone, Official Use Only Sign, Fire Lane or in the Campus Core area. (Fines double if not paid within 20 days of issuance) | $ | 35 |

**THE UNIVERSITY RESERVES THE RIGHT TO CHANGE ANY FEE WITHOUT NOTICE.**

## FEES, SERVICE CHARGES, AND FINES

Fees for each registration are due on or before the pertinent "Payment Due" date published in the "Important Dates" section of the relevant *Schedule of Classes,* which is published for each quarter as an issue of the *Youngstown State University Bulletin.* Payment of fees is required before the registration is completed. Checks are to be made payable to Youngstown State University. Discover, MasterCard and VISA are honored. A payment installment plan is available for Fall, Winter and Spring Quarters. Application must be made each quarter at the Bursar's Office. Payment of fees is made by mail to the Bursar or at the payment windows. Failure to make payments by the due date will result in the student being assessed late fees and/or dropped from classes for non-payment.

Approximately 50 percent of the educational and general fund revenue of Youngstown State University is received as a subsidy from the State of Ohio. The balance must be raised from the students and from other non-appropriated sources. The Board of Trustees of Youngstown State University has pledged to make every effort to keep the required fees as low as is consistent with providing quality education. It is intended that fees not be adjusted more often than annually and that fee changes be announced in the spring or early summer. The Board of Trustees does, however, reserve the right to change any fee, charge or fine without notice if conditions warrant.

All outstanding charges must be paid before fees will be accepted for registration. Graduation and transcript of credits will be held until all financial obligations to the University are satisfied. Recipients of financial aid through the University receive an award voucher from the Scholarships and Financial Aid Office. The signed award voucher, payment notice, and any balance owed must be sent or delivered to the Bursar's Office no later than the payment notice due date in order to complete the registration process.

A table included in this section lists all fees, charges and fines for the current academic year. An explanation of each may be found below.

### FEES

*Tuition.* The sum of the instructional fee and the general fee is the tuition for the student.

*Instructional Fee.* This charge is assessed all students each quarter. The rate is per academic quarter hour of credit for one to 12 credits or for more than 15 credits; it is a flat rate for students registering for 12 to 15 credits during one quarter. Students registering for 15 or more credits pay the flat rate plus the per-credit rate for each credit over 15. This fee supplements the state subsidy and is a source of revenue for the University's educational and general fund.

*Audited Courses.* Students may audit courses (*i.e.,* register to take a course without receiving credit). The fee for auditing a course is the same as if the course were taken for credit.

*General Fee.* This charge is also assessed all students each quarter; the rate depends upon the number of credits registered for. This fee is for non-instructional services such as Kilcawley Center, intercollegiate athletics, intramural sports, performing artists and lecture programs, student government, and the Career Ser vices Office.

*Non-Resident Tuition Surcharge.* As noted above, all students pay the instructional fee and the general fee. Those students who are not legal residents of Ohio must pay a surcharge in addition. Students who are legal residents of the *regional service area pay a lesser surcharge than do students who are legal residents of other areas. The regional service area includes twenty-three counties in New York, Pennsylvania, and West Virginia.

*Performance Music Fee.* This fee is in addition to the regular instructional fee. It is assessed students taking music lessons and applies on a per-credit basis.

*Undergraduate Application Fee.* This fee is charged every *new* undergraduate student applying for admission and any former YSU student who has not been enrolled the past four quarters. This fee is non-refundable.

*Change of Registration Fee.* A fee is charged for any change of registration, including complete withdrawal, unless the change is caused by the University (e.g. a class is cancelled). This fee also applies when a student withdraws from the University. Students making a change in registration which results in an increase in fees will receive a revised statement of the amount due. Failure to make payment within ten days of the date of revision results in a penalty assessment equal to two-thirds of the *late payment fee.*

*Credit by Examination Fee.* A fee is charged for each course for an individual examination provided by an academic department to determine whether a student can be given academic credit for his or her knowledge of the course material. The fee must be paid before the test can be taken.

*Graduation Fee.* A fee is charged anyone who is to receive an earned degree; it is to be paid before the application for graduation is filed with the dean of the school or college awarding the degree. The fee covers the cost of the required academic attire (cap and gown) and the diploma. No reduction or waiver of the fee occurs for graduation *in absentia* or for use of non-academic attire. The fee is assessed for each earned degree granted but not for an honorary degree. There is a late application for graduation fee charged to anyone who applies after the third week of the quarter.

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*The regional service area includes the counties of Chautauqua, New York; Allegheny, Armstrong, Beaver, Butler, Clarion, Crawford, Erie, Fayette, Forest, Greene, Indiana, Jefferson, Lawrence, Mercer, Venango, Warren, Washington, and Westmoreland, Pennsylvania; and Brooke, Hancock, Marshall, and Ohio, West Virginia.

*Late Payment Fee.* Payment of a bill after the due date results in assessment of a late payment fee. The instructional fee, general fee and non-resident tuition surcharge are due in full as shown in the *Schedule of Classes.* All fees and charges billed must be paid in full. Partial payments are not accepted. This fee is also charged any student who registers after classes begin. (Also see *Change of Registration).*

*Late Registration Fee.* A fee is charged a currently enrolled student who fails to register for the next term at the assigned time and later registers at the time assigned new or returning students.

*Course Fee.* The course fee is designed to partially offset expenses associated with courses that make use of supplies, equipment or personnel support beyond that associated with typical lecture courses. Examples include chemical supplies, engineering equipment, and language laboratory assistants.

*Computer Fees.* The $25 "Computer Assisted Course Fee" and the $35 "Computer Intensive Course Fee" are designed to partially offset the expenses associated with classes that require significant use of computers. Examples of these expenses include computer hardware, computer software, network wiring, and lab monitors. Courses that require students to spend between 10% and 50% of their combined class and homework time working on computers are assessed the "Assisted" fee. The "Intensive" fee is attached to courses for which in-class and out-of-class computer use exceeds 50%.

*Parking Permit Fee.* A permit to park in YSU parking facilities is issued to students and employees of the University upon payment of a fee. The fee is for the academic quarter. Some areas are restricted (e.g. for students only, faculty/staff only, resident hall residents only). The current *Parking Regulations* brochure with its enclosed parking lot map should be consulted. A daily permit may be purchased by those wishing to use parking facilities for a short period of time. Visitor short term meter parking is available in several lots. The parking permit fee is refundable only if the student withdraws and returns the permit and access card. Any refund is prorated at the daily parking rate through the end of the withdrawal period (first six days of regular term), unless and *Application for Involuntary Withdrawal* is filed and the permit and access card are returned within five days of withdrawal. No refund for permits returned later than five days after withdrawal.

*Health and Physical Education Locker and Towel Fee.* Students enrolled in a class requiring use of a basket, or towel service in Beeghly Physical Education Center or the Sports Complex do not pay a fee. Other authorized persons pay a fee each academic quarter. Loss of or damage to the lock or towel will result in assessment of a replacement charge.

*Proficiency Examination Fee.* A fee is charged for an examination provided by an academic department to determine a student's proficiency for some reason other than assignment of academic credit. If academic credit is to be awarded, the credit by examination fee applies and not this fee.

*Testing Fees.* The University Counseling and Testing Center supervises a variety of special tests used for admission to college, graduate, or professional schools. The fees are established by the agencies responsible for the tests. Students are advised to contact the center for information and to make reservations. An additional fee is charged if a student is allowed to take a test without a reservation.

*Tuition Installment Plan.* There is an installment plan available for student tuition payments. Application must be made in the Bursar's Office. There is a fee for this option.

## SERVICE CHARGES

*Identification Card or Sticker Replacement Charge.* A charge is made for replacement of an ID Card or a current-term validation sticker to be affixed to the card.

*Physical Education Activity Charge.* Certain activity courses (e.g. bowling, skiing, ice skating, scuba diving) are available only upon the payment of a charge sufficient to cover the cost of the facility or transportation. These charges are set by the operator of the facility, are paid to that operator (not to the University), and are in addition to any other applicable fee.

*Housing Charges.* University housing is available for the academic year and summer terms. The academic year contract includes fall, winter, and spring quarters. Charges are billed quarterly. The residence contract includes room and 19 meals per week. In addition to the charge for service, a security deposit is required. Payment and refunds are as scheduled in the housing contract. Meal tickets are also available for students who are not residents of University Housing.

*Returned Check or Credit Card Charge.* A charge is levied on anyone whose check or charge is returned unpaid by the bank. If any late payment results therefrom, the applicable fee is also assessed. Failure to pay billing of return check and/or charge within six days; and/or a second check/charge return will result in the University not accepting this type of payment at any of its collection points and subject the student to withdrawal for the term.

*Student Locker Rental.* A limited number of lockers are available in various buildings for the convenience of commuting students. Locker payments and assignments are made in the Kilcawley Center.

*Thesis-Binding Charge.* A charge is made for each copy of a master's thesis bound by the William F. Maag, Jr. Library.

*Transcript of Credits Charge.* A charge is made for each transcript issued by the Associate Director, Records. Transcripts will not be issued for anyone with outstanding debts owed to the University.

## FINES

*Parking Violation Fine.* Parking without a permit, parking in unauthorized areas and other offenses as identified in the *Parking Regulations* brochure will result in the issuance of a citation against the vehicle and its owner, or against the student responsible for the vehicle (e.g., a student driving parent's car). Payment of a fine removes the citation. In certain cases, vehicles may be towed. See the regulations for detailed information.

*Library Fines.* Fines are assessed for failure to return books on time as stipulated or for the unauthorized removal of a reserved book. Willful damage or defacement of library materials or other property is a violation of state law and is punished as such.

## REDUCTION/REFUND OF FEES CHARGES UPON WITHDRAWAL

To withdraw from a single course, or all courses, it is necessary to complete a change of registration form and present it to the Registrar's Office, Jones Hall. Changes of registration are not valid until processed by the Registrar. Nonattendance of class or notification to the instructor or department does not constitute official withdrawal.

A full reduction of the instructional, general, performance music, and laboratory materials fees, and the nonresident surcharge, will be provided for all withdrawals in conformity with the following schedule:

| COURSE DURATION* | 100 PERCENT REFUND** | NO REFUND |
|---|---|---|
| 10 weeks or more | 6th day of term or earlier | 7th day of term or later |
| 5-9 weeks | 5th day of term or earlier | 6th day of term or later |
| less than 5 weeks | 3rd day of term or earlier | 4th day of term or later |

*Every day of the week is counted except Sunday.

**For complete withdrawals from any term, in addition to the change of registration fee, a withdrawal charge of $25 as well as all applicable fees, fines and penalties will be deducted from all refunds. Student accounts paid with financial assistance will be billed the $25 charge. The YSU student identification card must be surrendered before the refund is paid. After the refund period, the $25 withdrawal charge is not assessed.

If fees were paid by scholarship, loan or grant-in-aid, the appropriate credit is issued to the fund from which the initial payment was made. Pro-rata refunds are calculated for first-time freshmen Title IV recipients who completely withdraw during the first six (6) weeks of the quarter.

No refunds or adjustments are made on student accounts until the tenth day of the term.

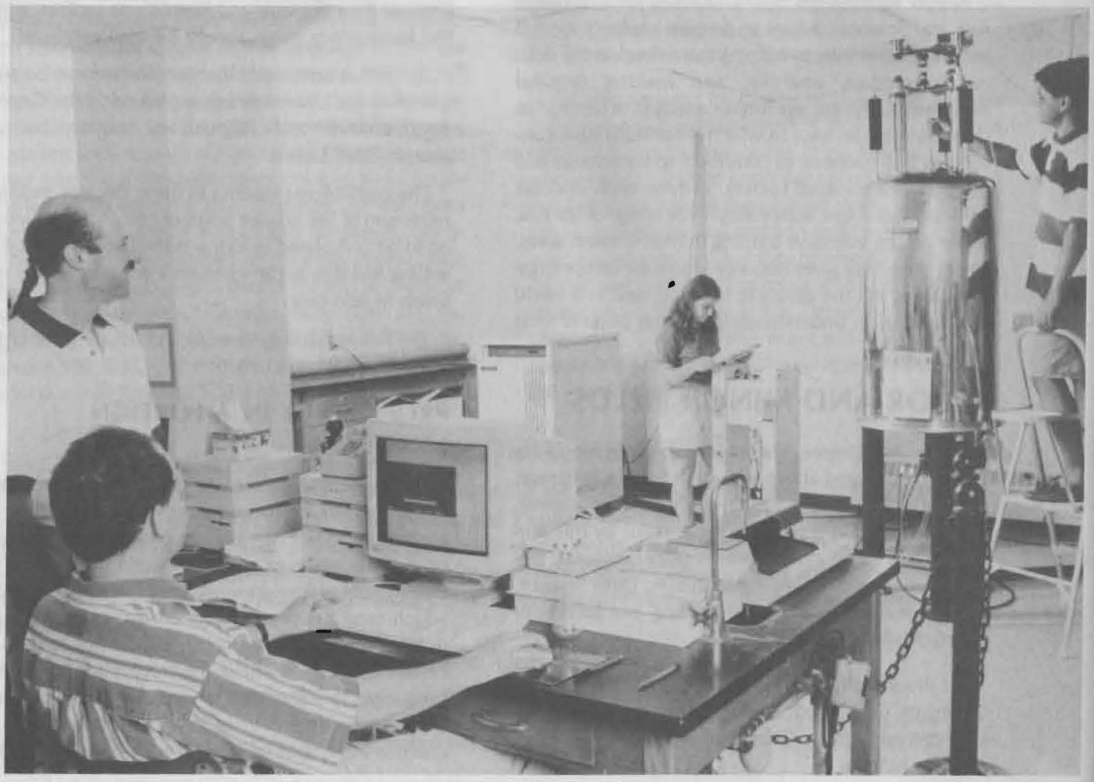
Any withdrawal, or reduction in academic hours, after the schedule outlined above will not be entitled to a reduction of charges and/or refund. If a student withdraws for reasons beyond his or her control (e.g., illness, military service, job transfer, or shift change imposed by the employer which creates a direct conflict with the class schedule), the fee charges may be reduced in direct proportion to the number of weeks enrolled. An application for Involuntary Withdrawal can only be processed for courses in which the student has already received a grade of "W" (withdrawn). Applications for involuntary withdrawal will only be considered for quarters falling with the immediately preceding **one-year time period** (4 quarters). Appeals pertaining to quarters beyond this one-year time limit will not be accepted. All Applications for Involuntary Withdrawal must be documented, and are processed only by mail on forms provided by the Bursar. Address such correspondence to the Fees and Charges Appeals Board, c/o Bursar, Youngstown State University, Youngstown, OH 44555.

# The College of Arts and Sciences

*Barbara Brothers, Dean*

*Daryl Mincey, Assistant to the Dean*

*Charles Singler, Assistant to the Dean*



## ORGANIZATION AND DEGREES

The College grants three Bachelor's degrees: Bachelor of Arts (A.B.), Bachelor of Science (B.S.) and Bachelor of Science in Applied Science (B.S. in A.S.). Additionally, two Associate degrees are offered: Associate in Arts (A.A.) and the Associate in Applied Science (A.A.S.). The departments of this unit are:

Department of Biological Sciences
Department of Chemistry
Department of Computer and Information Sciences
Department of Economics
Department of English
Department of Foreign Languages and Literatures
Department of Geography
Department of Geology
Department of History
Department of Mathematics
Department of Philosophy and Religious Studies

Department of Physics and Astronomy

Department of Political Science and Social Science

Department of Psychology

Department of Sociology and Anthropology

## OBJECTIVES OF THE COLLEGE OF ARTS AND SCIENCES

Within Youngstown State University the College of Arts and Sciences strives to prepare students for full and productive lives by helping them develop the skills of observation, analysis, and making rational judgements. The college further attempts to familiarize students with the ways in which these skills have contributed and continue to contribute to knowledge and progress in a civilized society. To these ends students are introduced to a reasonably wide range of studies, while getting intensive training in their chosen areas. Students are thus given not only a basis for competence in a career, but the ability to function well in a world which requires understanding in areas beyond their specialties.

## MAJOR AND MINOR FIELDS

*For the A.B. degree.* The major may be in any of the departments listed above with each foreign language, and each discipline in a multi-discipline department, being regarded as a separate department for this purpose. It may be an interdepartmental or combined major in American Studies, Black Studies, Earth Science, Labor Relations, Professional Writing and Editing or Social Studies.

*For the B.S. degree.* Majors are possible in Biology, Chemistry, Combined Science, Computer Science, Environmental Studies, Geology, Mathematics, Physics, and Psychology.

*Prospective Teachers.* Prospective elementary or secondary teachers may work toward an A.B., B.S., or B.S. in Ed. degree. Prospective high school teachers major in the Arts and Sciences Department of their principle field and are advised by that department except for the requirements for teacher certification, for which advisement is by the School of Education.

In addition to the A.B. and B.S. degrees, there is the B.S. in A.S. degree for Computer Information Systems, the A.A. in selected programs, and also, the A.A.S. degree is available for Computer Information Systems and Social Services Technology.

The minor or minors for any of these degrees, unless determined by a prescribed curriculum, may be in any discipline or disciplines (other than that of the major) in which it is possible to take 21 quarter hours.

Students whose needs are not completely met by existing conventional programs may wish to investigate and apply for the individualized curriculum program. (See General Requirements and Regulations.)

## REQUIREMENTS FOR DEGREES

It is the student's responsibility to see that all the graduation requirements for the degree sought are satisfied. For the A.B. and B.S. degrees, these comprise:

1. The pre-college or preparatory courses for each degree are normally taken in high school, but any that were not may be made up before the junior year in the University. They are listed below; for further information see *Courses Required For Graduation,* in the General Requirements and Regulations section, where the explanatory notes should be read carefully.

2. The courses and other requirements to be completed in the University are explained in the General Requirements and Regulations section but are recapitulated below.

The curriculums leading to these degrees require a minimum of 186 quarter hours of credit and are designed to be completed in four academic years. A student willing and able to carry heavier loads successfully may finish in less time.

The B.S. in Ed. degree requirements are given in the School of Education section.

### PROFICIENCY IN A FOREIGN LANGUAGE

The student's proficiency in a foreign language is determined by the successful completion of either the elementary and/or intermediate courses in the language or a proficiency examination administered by the Department of Foreign Languages. The only languages which meet the degree requirements are those listed in the *Courses of Instruction* section that follows. In certain cases the Chair of the Department of Foreign Languages is authorized to approve other languages if the appropriate courses have been taken at an accredited American or foreign college or university.

*For the Bachelor of Arts degree: Four high school units in one foreign language, or two units of each of two languages,* satisfies the requirement with no further study at the university level. A student who has *three high school units in one language* can meet this requirement by successfully completing either the second intermediate course in that language or the first full year of a second foreign language. A student with *two high school units in one language* can meet the requirement by completing either the two intermediate courses in that same language or the first full year of a second language. A student with *one unit of high school language* can meet the requirement by taking either the last elementary course and both intermediate courses in that language, or the last elementary course in that language and the full first year of another language, but he or she receives no university course credit for the last elementary course. A student with *no units of high school foreign language* must take the three elementary and two intermediate courses in one language, or the three elementary courses of each of two languages, but in either case he or she receives no university course credit for the first three courses.

*For the Bachelor of Science degree:* either three or four years of one high school foreign language, or *two years each of two high school foreign languages,* satisfies the requirement with no further study at the university level. A student with *two high school units in one foreign language* may meet the requirement for this degree by taking either the first intermediate course in the same language or the first full year of another foreign language. A student with *one high school unit in a foreign language* may meet the requirement by successfully completing either the last elementary and the first intermediate course in that language or the last elementary course in that language and the first full year of another language, but he or she receives no university course credit for the last elementary course. A student with *no units of high school foreign language* must take the three elementary courses and one intermediate courses in one language, or the three elementary courses of each of two languages, but in either case he or she receives no university course credit for the first three courses. (Note: For the Bachelor of Science degree only, German 505, 506 are the equivalent of the full elementary course in German; Russian 505, 506 are the equivalent of the full elementary course in Russian. 505 and 506 cannot be used to make up a high school deficiency for students who graduated after 1985.)

*Repetition of high school course work.* A student may repeat for full university course credit any course which is the equivalent of a course he or she has already completed in high school. At this University, courses 501 and 502 in a foreign language are the equivalent of the first year course in that language in high school, 503 is the equivalent of the second year, 601 of the third year, and 602 of the fourth year.

The knowledge of the foreign language does not have to be the result of enrollment in classes; it may have been acquired through some other means. Students who have acquired the knowledge of a foreign language through other means than course work, may elect to take a proficiency examination to fulfill part — or all — of the requirement, but they receive no course credit for that part of it. Detailed information about these examinations is available in the Department of Foreign Languages. Only students who can show evidence of reasonable preparation will receive permission to take the examinations.

## DEGREE REQUIREMENTS

Requirements for completion of a baccalaureate degree within the College of Arts and Sciences include all University requirements detailed in the **General Requirements and Regulations** section of this bulletin (i.e., requirements regarding pre-college units, total university credits, course levels, majors and minors, grade point average, residency and degree applications). Specific requirements for each major in the College of Arts and Sciences are listed by department. However, all Arts and Sciences' baccalaureate degrees require completion of the following General Requirements:

(For B.S.A.S. and A.A.S. and A.A. degree requirements, please refer to the chart on page 45.)

| **BASIC COURSES (Same as under General Requirements and Regulations)** | **Quarter Hours of Credit** | |
|---|---|---|
| | **A.B.** | **B.S.** |
| English 550-551, Basic Composition 1-2 | 8 | 8 |
| Health Sciences 590, Health Education | 3 | 3 |
| Human Performance and Exercise Science Activity Courses | 3 | 3 |
| **AREA COURSES** | | |
| **See Table of Courses under General Requirements and Regulations for specific details.** | | |
| Humanities<br>Courses in at least two of the following areas: courses in the department of Philosophy & Religious Studies, literature courses from the department of English and Foreign Languages, history and/or appreciation courses in the College of Fine and Performing Arts, and Black Studies 601. Students seeking a high school teaching certificate must take at least one course in each of two of the following areas: Fine Arts, Philosophy, and/or Religious Studies. | 16 | 16 |
| Social Studies<br>Courses in at least two of the following departments and/or areas: Economics, Geography (except Physical Geography); History; Political Science and Social Science; Psychology; Sociology and Anthropology; Social Work; and Black Studies 600. | 20 | 20 |
| Science/Mathematics (at least 8 q.h. of Science)<br>Courses in at least two of the following departments: Biological Sciences, Chemistry, Geology, Geography (Physical only), Physics, and Astronomy, Mathematics and Computer and Information Sciences. (No more than eight quarter hours may be in Mathematics and/or Computer and Information Sciences.) | 16 | Included in the major |

**OTHER COURSES (In addition to those under General Requirements and Regulations)**

| | | |
|---|---|---|
| A Foreign Language ..... | 8-20 | 4-16 |
| For the A.B. degree, the requirement is the successful completion of the two intermediate courses (or equivalent) if the language is the one used to fulfill the entrance requirement. If a different language is used, the requirement is different (See *Proficiency in a Foreign Language*, above). For the B.S. degree, the requirement is the successful completion of the first quarter of the intermediate course (or equivalent) of the same language used to fulfill the entrance requirement, or the complete 3-quarter elementary course (or equivalent) if a different language is elected. If the entrance requirement has not been met, see *Proficiency in a Foreign Language*, above. | | |
| Balance required for graduation ..... | 100-112 | 95-107 |
| The student allots these hours, in accordance with requirements and desires, to completing a major, one or more minors, teaching fields, other special objectives, and elective courses anywhere in the University for which the student can satisfy the prerequisites and which are acceptable toward the degree. (Prospective high school teachers must allot 41 of these hours to courses required for teacher education; see *Required Courses for a High School Provisional Certificate.* | | |

# COURSES OF INSTRUCTION AND CURRICULA

In the following department sections, the course requirements for the various majors are given, but other requirements are not repeated from the list above.

The student should be familiar with the course-numbering system and its significance, as well as the abbreviations used to indicate the amount of credit. These are explained in the General Requirements and Regulations section.

# AMERICAN STUDIES

*Associate Professor of English, Linkon (Coordinator).*

The program for the combined major in American Studies aims, in general terms, to provide a focus for a liberal education. Thus it can be used for almost any preprofessional training. The value of a good liberal education should be obvious to the individual planning on future graduate work in any of the humanities or the social sciences. The student expecting to enter government service will find this program particularly appropriate.

The major is designed to stimulate realistic and critical comprehension of American culture through focusing on America's multiplicity, learning its historical roots in western civilization, and acquiring enough knowledge of a foreign culture to make meaningful comparisons.

For the combined major in American Studies one of the following programs is to be completed.

## Option I:

A. Required Courses:

1. History 511, 512, 513, 605, 606.
2. English 618, 665.
3. A foreign civilization course.
4. Geography 722.
5. American Studies 801, 802, 803.

B. One course from each of the following groups:

1. The Humanities
   a. Art or Music 517.
   b. Any English course approved by the coordinator.
   c. Philosophy 600, 625, 704, 711, 712, 807, 808, 811.
   d. Religious Studies 601, 811.
2. American History (Upper Division).
3. Anthropology, Economics or Sociology.
   a. Anthropology 602.
   b. Economics 530, 630, 631, 701, 702, 802.
   c. Sociology 500, 600, 601, 640, 700, 705, 707.
4. Political Science: A course in American or Comparative Government.

C. Four courses from any one of the numbered groups under B, excluding those taken as fulfillments for B.

### Option II:

A student interested in a particular problem within American society defined neither by a conventional major nor by Option I may before the end of the sophomore year work out with the advisor an individual pattern of courses appropriate to the problem. The student must initiate the proposal and show capability for better-than-average performance. A senior project (details to be worked out with the advisor) will be accomplished under this option.

### Lower Division Courses

601. *American Identity.* Study of American identity through historical, literary, artistic, material, media, and other sources. Emphasis on American pluralism and cultural debates over the meaning of American identity. May be applied to humanities requirements. 4 q.h.

### Upper Division Courses

801, 802, 803. *Perspectives on America.* A study of the American scene from differing points of view — cultural, political, social, economic. Prereq.: Senior standing. Required of seniors majoring in American Studies; open to other seniors with consent of teachers. 3+3+3 q.h.

## ANCIENT LANGUAGES AND LITERATURE

*See Greek; Latin; Philosophy and Religious Studies.*

## ANTHROPOLOGY

*See Sociology and Anthropology.*

## ARTS AND SCIENCES

A&S 700. *Human Values in Medicine.* A behavioral science and humanities perspective on individual and social issues which affect medical care delivery. In addition to classes, seminars, and workshops, it may include field projects, participation in health related investigations and presentations, and personal development programs.

A&S 750. *Study Abroad.* An individually-arranged program of foreign study. Programs can be of 3 general types: (1) study trips conducted by YSU faculty, (2) trips or residential programs sponsored by consortial universities, and (3) independent trips. For independent trips, YSU faculty will design appropriate educational objectives and evaluate students' performance in meeting these objectives. A written plan detailing these objectives must be approved by a faculty member of the Global Awareness Committee and the Dean of Arts and Sciences prior to the commencement of the trip. For all three categories, credit toward fulfillment of major and area requirements will be determined by the dean(s) of the relevant school(s)/colleges(s), in consultation with the appropriate department chair(s). Note: Study abroad generally requires about one year's advance planning. Prereq.: Sophomore status. 1-20 q.h.

Credit toward fulfillment of the area requirements will be determined by the Dean of the College of Arts and Sciences and will be based upon the selection of courses. May be repeated once. Prerequisite: PSYCH 560 and PHIL 600 or consent of Dean. For current students. 1-10 q.h.

## ASTRONOMY

*See Physics and Astronomy.*

A major in Astronomy is not offered, but a combined major in Physics and Astronomy is possible. Students interested in training for planetarium operation may consult the Planetarium Director.

## BIOLOGICAL SCIENCES

*Professors Fishbeck, Kreutzer, MacLean, Peterson, Schroeder, Sobota (Chair), Toepfer, Yemma; Associate Professors Chuey, Karas, Krontiris-Litowitz, Leipheimer, Rufh, Sebastiani; Assistant Professors Asch, Fagan, Sturm, Usis.*

Courses in the Department of Biological Sciences may be applied toward a Bachelor of Arts or Bachelor of Science degree. The department offers specialized study areas that provide information needed by students planning to enter the fields of botany, dentistry, health-related careers, nursing, medicine, medical technology, microbiology, molecular biology, and veterinary medicine. Suggested programs suitable to these fields are available at the department office or from any of the department advisors.

For the Master of Science degree program in the Biological Sciences, see the *Graduate School Catalog.*

For the B.A. degree, the major in Biology comprises BIOL 509, 510, 611 or 612 and at least 33 other hours of Biology, of which 21 hours must be in upper division courses. Also required is CHEM 515, 516, 517 and CSCI 530. Recommended courses in other sciences are CHEM 719, 720, 721 (Organic) and a year of PHYS (501, 502, 502L, 503, 503L); a mathematics course in statistics, MATH 714, is also recommended.

For the B.S. degree, the Biology major must include BIOL 509, 510, 611 or 612 and at least 41 other hours of Biology, of which 30 must be in upper division courses. Also required are CHEM 515, 516, 517 and 719, 720, 721; PHYS 501, 502, 502L, 503, 503L; and MATH 550 and 714 and CSCI 530.

Students seeking admission to medically-related professional schools should complete the B.S. program. Elective courses under either program may be in any disciplines, however, Earth Science, Computer Science, Advanced Mathematics, and Psychology are particularly recommended.

The mathematics and physics courses may not be taken under the credit/no-credit option. (For general University requirements, see the General Requirements and Regulations section of this catalog.)

**Recommended curriculum meeting science requirements of medically-related professional schools.**

## BIOLOGY

509 — Principles of Biology 1
510 — Principles of Biology 2
611 — Principles of Biology 3
721 — Genetics
790 — Molecular Biology of the Gene
790L— Molecular Biology of the Gene Laboratory
836 — Molecular Biology of the Cell
836L— Molecular Biology of the Cell Laboratory
702 — Microbiology
713 — Vertebrate Histology
770 — Vertebrate Zoology
775 — Comparative Anatomy
792 — Introduction to Animal Physiology
834 — Vertebrate Physiology 1
835 — Vertebrate Physiology 2

## CHEMISTRY

515, 516, 517 — General Chemistry
719, 720, 721 — Organic Chemistry
711, 712 — Biochemistry

## MATHEMATICS

520 — Computer Literacy
550 — Calculus for Social, Managerial, and Life Sciences I
717 — Statistical Methods

## PHYSICS

501, 502, 502L, 503, 503L — Fundamentals of Physics 1, 2, 3

For a curriculum leading to certification for high school teaching in the Biological Sciences, see the College of Education section of this catalog.

For curriculums in the Health Sciences, see the College of College of Health and Human Services section of this catalog.

## Lower Division Courses

504. *Human Evolution and Genetics.* Mendelian genetics as it applies to man and his evolutionary history, including the genetic problems and evolutionary relationships of mankind. Not applicable to the Biology major. Four hours lecture a week. 4 q.h.

505. *Biology and the Modern World.* Findings, applications, and thinking of the science of Biology as related to problems today. Primarily for the science area requirement. Not applicable to the Biology major. Four hours lecture a week. 4 q.h.

*509. *Principles of Biology I.* A lecture course with laboratory for students majoring in Biology or related disciplines. Topics will include chemical and physical foundations of life, structure and function of cells, cellular organelles, metabolism, cell divisions, inheritance and basic molecular biology. High school chemistry or equivalent recommended. Required of all Biology majors. Three hours lecture and two hours laboratory a week. 4 q.h.

*510. *Principles of Biology II.* A lecture course with laboratory for students majoring in Biology or related disciplines. Topics will include principles of evolution, diversity, phylogeny and systematics. Required of all Biology majors. Three hours lecture and two hours laboratory a week. Prereq.: BIOL 509. 4 q.h.

*551, *552. *Physiology and Anatomy of Humans.* Structure and function of the human organism. Prereq.: High school chemistry and biology, or equivalent. Not applicable to the Biology major. Three hours lecture and two hours laboratory a week; must be taken in sequence. 4+4 q.h.

*560. *Paramedical Microbiology.* Characteristics, epidemiology, and pathology of viruses, rickettsiae, bacteria, and protozoa of medical significance. Not applicable to the Biology major. Three hours lecture and one three-hour laboratory-discussion period a week. 5 q.h.

**565. *Introductory Forestry 1.* An introduction to forestry in the United States. Contribution of forestry to the national economy. Discussion of the principles of forest tree management. 4 q.h.

599. *Orientation to Medicine.* An introduction to the philosophy of medicine through examination of ideas ancient to modern. The Hippocratic Ideal, The Oath of Maimonides, The Meaning of Knowledge, Humanism in Medicine, Independent Thought in Medicine, and The Uncertainty Factor. One hour of lecture a week. Prereq: Admission to the NEOUCOM-YSU Program or consent of the instructor and the department chair. 1 q.h.

*604. *Food Microbiology.* Role of microbes in food preservation, fermentation, spoilage, sanitation, and food poisoning. Two hours lecture, four hours laboratory a week. Prereq.: One four hour laboratory science course. For Human Ecology majors only. 4 q.h.

*611. *Principles of Biology III.* A lecture and laboratory course comparing the structure and function of animals. Three hours lecture and two hours laboratory a week. Either 611 or 612 is required of all Biology majors. Prereq.: BIOL 509 and 510 or permission of instructor. 4 q.h.

*612. *Principles of Biology IV.* A lecture and laboratory course which examines ecological concepts and compares the structure and function of plants. Three hours lecture and two hours laboratory a week. Either 611 or 612 is required of all Biology majors. Prereq.: BIOL 509 and 510 or permission of instructor. 4 q.h.

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*Additional fee required.

**May not be used to fulfill biology requirement for biology majors.

661. *Economic Botany.* Enumeration, ecology, culture, distribution, use and biological significance of plants that serve useful purposes for man as food, fiber, wood, drugs, or ornament. Designed for the University science requirement. Four hours lecture a week. 4 q.h.

*665. *Coniferous Dendrology.* A study of the important species of gymnosperms in the United States with emphasis on range, identification, and silvical characteristics. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 506 or consent of instructor. 4 q.h.

*666. *Hardwood Dendrology.* A study of the major types of angiosperms in the United States, with emphasis on range, identification, and silvical characteristics. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 565 or consent of instructor. 4 q.h.

*676. *Silvics.* The influence of location factors on forest cover and the effect of forest vegetation on the site. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 565 or consent of instructor. 4 q.h.

*686. *Introductory Soil Science.* Fundamentals of the biological, chemical, and physical properties that influence soil productivity. Laboratory work includes observation, evaluation, and quantitative determination of soil properties that influence plant growth. Three hours lecture and two hours laboratory a week. Prereq.: CHEM 516 or consent of instructor; GEOL 505 recommended. 4 q.h.

692. *Human Sexuality.* An interdisciplinary approach to the study of human sexuality. Holistic approach dealing with questions that concern the college student of today. Includes problems in sex education, the nature of sexuality, the relationship of sex to personal identity, and sexual mobility. Factual information will be given in the areas of physiological reproduction, contraception, venereal disease, sexual disfunctions, techniques, and response. Listed also as HSC 692, PSYCH 692 and SOCIO and ANTHRO 692. Prereq.: HPES 590. Does not count toward general University requirement. 4 q.h.

699. *Medical Applications Case Studies.* Applications of biological and chemical concepts in the practice of medicine. May be repeated to a total of three hours credit. Prereq.: Admission to NEOUCOM-YSU Program, or consent of instructor and department chair. 1 q.h.

## Upper Division Courses

*700. *Non-Vascular Plants.* A presentation of classification, morphology, reproduction, ecology, and economic aspects of monera, algae and fungi. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510, 612. 5 q.h.

*701. *Invertebrate Zoology.* Essentials of structure, function, and classification of invertebrates. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510, 611. 5 q.h.

*702. *Microbiology.* Scope and evolution of microbiology: microscopy, anatomy, cultivation of bacteria, reproduction and growth, bacterial metabolism, microbial genetics, viruses, resistance and immunity, and control. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510, 611, or admission to NEOUCOM-YSU program. 4 q.h.

703. *Clinical Immunology.* Fundamentals of antigen antibody reactions applied to serological procedures performed in the clinical laboratory. Two hours lecture per week. Must be taken concurrently with BIOL 703L. Identical with MLTEC 703. Prereq.: BIOL 509, 510, and 611. 2 q.h.

*703L. *Clinical Immunology Laboratory.* Laboratory work includes VDRL, ASO, febrile, latex, pregnancy, and viral tests. Techniques practiced include flocculation, precipitation, complement fixation, and titration procedures used in the clinical laboratory. Three hours of laboratory a week. Must be taken concurrently with BIOL 703. Listed also as MLTEC 703L. 1 q.h.

*710. *Mammalian Anatomy.* A composite study of the anatomical systems of mammals, based on the cat. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510, 611. 4 q.h.

713. *Vertebrate Histology.* The microscopic study of mammalian tissue. Four hours lecture a week. prereq.: BIOL 509, 510 and 611. 4 q.h.

*713L. *Vertebrate Histology Laboratory.* The preparation of mammalian tissue using various histological techniques. Students prepare their own slides for study. Four hours laboratory a week. Prereq. or concurrently: BIOL 713. 2 q.h.

*715. *Aquatic Entomology.* Introduction to the morphology, phylogentic relationships and evolutionary adaptions of aquatic insects and their ecological role in aquatic ecosystems. Laboratory exercises and field trips will investigate collection methods and the identification of the major orders and families of aquatic insects. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510, 611. 4 q.h.

721. *Genetics.* Genetic material, reproductive cycles, sex determination, mitosis, meiosis, mendelism, probability, linkage, genes in populations, mutation, evolution. Four hours lecture a week. Prereq.: BIOL 509, 510, 611, or admission to NEOUCOM-YSU program, or consent of instructor. 4 q.h.

*721L. *Genetics Laboratory.* Experiments with subjects such as corn, fruit flies, and higher organisms; preparation and study of chromosomes; statistical analysis of crossing and mutation experiments. Four hours laboratory a week. Prereq. or concurrent: BIOL 721. 2 q.h.

*751. *Water Quality Analysis 1.* An introduction to physical, chemical and biological measurements of water quality. Provides laboratory experience in the

*Additional fee required.

analysis of natural waters, drinking water and wastewater. Emphasizes procedures for the collection and interpretation of data on current environmental problems. Two hours lecture and six hours laboratory per week. Identical to CHEM 751 and CIEGR 751. Prereq.: CHEM 603. 4 q.h.

*752. *Water Quality Analysis 2.* Advanced analytical techniques for evaluation of environmental problems. Topics include pollutant transport in natural waters, toxic contaminants in drinking water and advanced wastewater treatment. Experience with several modern laboratory instruments is provided. Experiments focus on analysis of samples from local water bodies and treatment facilities. Two hours lecture and six hours lab per week. Identical to CHEM 752 and CIEGR 752. Prereq.: BIOL 751. 4 q.h.

*762. *Field Botany.* Identification, ecology, and significance of local plants. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510 612. 5 q.h.

*765. *Vascular Plants.* Structure, function, reproduction, and phylogenic relationships of representative vascular plants and mosses. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510 612. 5 q.h.

*770. *Vertebrate Zoology.* Taxonomic presentation of phylum chordata with emphasis on the relationships and significance of vertebrates. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510, 611. 4 q.h.

*771. *Entomology.* An introduction to the morphology, physiology, development, and control of insects. Survey of insect orders and families. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510, 611. 5 q.h.

*775. *Comparative Vertebrate Anatomy.* Comparison of morphology of vertebrates, emphasizing evolutionary development of organ systems. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 770 or consent of instructor. 5 q.h.

*780. *Introduction to Ecology.* Principles governing the relationship of organisms to their environment. A holistic approach to ecology framed in the concepts of ecosystems. Three hours lecture and one three-hour laboratory — discussion period a week. Prereq.: BIOL 509, 510, 611 or 612. 5 q.h.

*787. *Diagnostic Microbiology.* A clinical approach to the study of human pathogenic microorganisms, including types of infections, frequency, isolation, identification, and treatment. Two hours of lecture and six hours of laboratory per week. Prereq.: BIOL 702. Cross listed with MLTEC 787. 4 q.h.

789. *Human Beings and the Technological Society.* An interdisciplinary critical examination of human beings in the modern technological society from the perspectives of the social, engineering, and life sciences. The topics will be (1) the history of technology, (2) the world's available energy and material resources, (3) population dynamics as they interact with nature and the human ecosystem, (such as "The Green Revolution," cybernation, value concepts, and techniques to forecast societal changes). Listed also as Sociology and Chemical Engineering 789. Prereq.: Junior standing or consent of instructor. 4 q.h.

790. *Molecular Biology of the Gene.* Physical and chemical structure of nucleic acids, DNA replication, transcription, translation, recombinant DNA and genetic engineering and regulation of gene activity in prokaryotes and eukarayotes. Two hours lecture a week. Prereq.: BIOL 509, 510 and 611; or admission to the NEOUCOM-YSU program or consent of instructor. 2 q.h.

*790L. *Molecular Biology of the Gene Laboratory.* The quantitative determination of protein, deoxyribonucleic acid, and ribonucleic acid in cultures of microorganisms subjected to various antibiotic treatments. Four hours laboratory a week. Prereq. or concurrent: BIOL 790. 2 q.h.

*792. *Human Physiology 1.* Concepts of homeostasis and physiological regulation. Study of nervous, muscular and endocrine systems that participate in physiological regulation and metabolism. Four hours lecture and two hours laboratory a week. Prereq.: BIOL 509, 510, and 611 or admission to the NEOUCOM-YSU program, or consent of instructor. 5 q.h.

793. *Human Physiology 2.* Mechanisms of function of cardiovascular, respiratory, renal, digestive, and temperature regulation systems. Four hours lecture per week. Prereq.: BIOL 792, or consent of instructor. 4 q.h.

793L. *Human Physiology 2 Laboratory.* Experiments on the cardiovascular, respiratory, renal, digestive, and temperature regulation systems. Three hours per week. Prereq. or concurrent: BIOL 793, or consent of instructor. 1 q.h.

*801. *Environmental Microbiology.* The activities of microorganisms, primarily bacteria, in air, soil, water, and sewage. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 702. 4 q.h.

*803. *Population and Community Ecology.* Current concepts of animal population and community ecology, including statistical analysis of field-collected data. Students who have had BIOL 802 will not receive credit for BIOL 803. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 780 or consent of instructor. 5 q.h.

804. *Aquatic Ecology.* Ecological, physical, and chemical aspects of aquatic ecosystems. A study of interaction between aquatic organisms and their environment. Four hours lecture a week. Prereq.: BIOL 780 or consent of instructor. 4 q.h.

*804L. *Aquatic Ecology Laboratory.* Field and laboratory studies of structure and function of selected aquatic ecosystems in northeastern Ohio. Four hours laboratory a week. Prereq. or concurrent: BIOL 804, or consent of instructor. 2 q.h.

*Additional fee required.

*805. *Ichthyology.* The ecology, evolution, and taxonomy of fishes, especially those of the midwestern United States. Three hours lecture and two hours laboratory a week. Prereq.: BIOL 780. 4 q.h.

806. *Field Ecology.* A field course to study ecosystems that are distinctly different from the deciduous forest-human systems of northeastern Ohio. Parameters of ecosystem structure are measured to better understand the fundamental properties of ecosystems. Pre- and post-trip lectures, specified experiments, independent study, a written report, and an oral presentation of the independent study project during a post-trip seminar. Prereq.: BIOL 780. 5 q.h.

*808. *Embryology.* Identification of mechanisms: analysis of control of developmental events and processes. Interaction of egg and sperm, penetration and activation of the egg, theories of induction, models of tissue interaction, gene action, and the fate of informational molecules during development. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 770 or admission to the NEOUCOM-YSU program or consent of instructor. 5 q.h.

*809. *Concepts of Developmental Biology.* The study of recent advances in developmental biology with emphasis on submolecular, organismal, and gross differentiation. Two hours lecture and four hours laboratory per week. Prereq.: BIOL 808 or consent of instructor. 4 q.h.

*812. *Mycology.* Morphology, physiology, classification, ecology, and economic and medical importance of fungi. Laboratory investigation of morphology and physiology. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 702. 4 q.h.

*819. *Taxonomy of Flowering Plants.* Phylogenetics, systematics, geographical distribution, and evolutionary development of herbaceous plants; taxonomic systems based on morphology and biochemistry. Laboratory exercises include extensive field collections. Three hour lecture and four hours laboratory a week. Prereq.: BIOL 765. 5 q.h.

*821. *Plant Anatomy.* Comparative anatomy and histology of the vascular plants. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510, 612, or consent of instructor. 5 q.h.

*822. *Plant Physiology.* Physiochemical nature of life processes of plants. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 509, 510, 612, and CHEM 517, or consent of instructor. 5 q.h.

823. *Molecular and Population Genetics.* Concepts of gene structure and action; aspects of inheritance in populations. Four hours lecture a week. Prereq.: BIOL 721 or permission of instructor. 4 q.h.

*824. *Bacterial and Viral Physiology.* Physiological processes of bacteria and viruses, with emphasis on their relationship to disease. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 702. 4 q.h.

*825. *Radioisotopes in Biology.* Use of radioactive isotopes as tracers of vital substances within biological systems. Students employ autoradiography, liquid scintillation, and gas flow techniques to study uptake, movement, and biosynthesis of substances. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 790. 4 q.h.

*827. *Gene Manipulation.* The use of restriction endonucleases for isolation and cloning of foreign DNA in bacteria via plasmid and phage vectors. Introduction of foreign DNA into cultured mammalian cells using the calcium chloride and vector-assisted techniques. Two hours lecture and four hours laboratory per week. Prereq.: BIOL 702 and 790. 4 q.h.

*829. *Neuroanatomy.* Anatomical study of the brain and the spinal cord with special emphasis on clinical significance. Three hours lecture and two hours laboratory a week. Prereq.: BIOL 792 or consent of instructor. 4 q.h.

*830. *Immunology.* Fundamentals of immunological systems, including both humoral and cellular immunological phenomena. Three hours lecture and four hours laboratory a week. Prereq.: BIOL 702 and CHEM 721. 5 q.h.

831. *Biological Seminar.* A study of the historical and contemporary literature in biology. Written and oral reports, round-table discussions. Prereq.: Junior standing and consent of instructor. 2 q.h.

832. *Principles of Neurobiology.* Topics include cell and molecular biology of the neuron, properties of excitable membranes, functional neuroanatomy, motor systems of the brain, integration of sensory and motor systems, localization of higher cortical functions, and diseases of the central nervous system. Prereq.: BIOL 792 or consent of instructor. 4 hours lecture per week. 4 q.h.

833. *Mammalian Endocrinology.* A detailed examination of the hormones of the hypothalamus, pituitary, thyroid, adrenal, pancreas, gonads, and other organs with putative endocrine function. The course will focus on the physiological functions of hormones and their mechanisms of action with emphasis on the human. Four hours lecture a week. Prereq.: BIOL 792 or consent of instructor. 4 q.h.

*834. *Vertebrate Physiology 1.* Detailed study of the cardiovascular system, exchange dynamics of blood, interstitial fluid, lymphatics, and renal regulation of extracellular fluid composition, volume, and acid-base balance with emphasis on human physiology. Three hours lecture a week, four hours laboratory a week. Prereq.: BIOL 793 and 793L, or consent of instructor. 5 q.h.

*835. *Vertebrate Physiology 2.* Detailed study of respiratory and gastrointestinal systems, metabolism, and temperature regulation. Three hours lecture, four hours laboratory per week. Prereq.: BIOL 834; or consent of instructor. 5 q.h.

*Additional fee required.

836. *Molecular Biology of the Cell.* Relationship of eukaryotic cell structure to function, integrating the biochemical dynamics of biomembrane systems including receptors, bioenergetics and the physiochemical environment. Three hours lecture a week. Prereq.: BIOL 790 or consent of instructor. 3 q.h.

*836L. *Molecular Biology of the Cell Laboratory.* Current techniques involved in isolation, observation, and characterization of eukaryotic cells and their components. Four hours laboratory a week. Prereq. or concurrent: BIOL 836. 2 q.h.

*837. *Cytology and Techniques.* A study of the structure and organization of protoplasm, using current methods of preparing and observing living and fixed cells. Two hours lecture and four hours laboratory a week. Prereq.: CHEM 721. 4 q.h.

*838. *Biology of Enzymes.* Enzymes in biological systems and the interrelationships of enzymes with metabolism, cell membrane function, and cellular development. Two hours lecture and four hours laboratory a week. Prereq.: BIOL 836 and CHEM 721. 4 q.h.

*840. *Microbial Pathogenic Mechanisms.* Molecular mechanisms for virulence of pathogenic microorganisms., Three hours lecture per week. Prereq.: BIOL 702, or consent of instructor. 3 q.h.

*841. *Animal Parasitology.* The biological implications of parasitism. Diagnosis, morphology, and life histories of the parasites of humans and domestic animals. Two hours lecture and four hours laboratory a week. Prereq.: Consent of instructor. 4 q.h.

842. *Advanced Parasitology.* The host-parasite interphase at the evolutionary, ecological, physiological, and molecular levels. A synthesis is developed of the current concepts of the parasitic niche. Prereq.: BIOL 841. 4 q.h.

844. *Physiology of Reproduction.* Current concepts of reproductive processes and their physiological control in mammalian systems. Prereq.: BIOL 792 or equivalent. 4 q.h.

850. *Problems in Biology.* Special biological problems for which materials and equipment are avilable and for which the student is qualified. Available at all times. Prereq.: Recommendation of staff. 1-4 q.h.

853. *Biometry.* Application of fundamental theory and procedures to the statistical analysis of biological data. Prereq.: Consent of instructor. 4 q.h.

860. *Evolution.* Genetic and ecological forces in the evolutionary process. Prereq.: BIOL 721. 4 q.h.

861. *Sociobiology.* Examines current theories attempting to explain social behavior in invertebrate and vertebrate taxa in terms of social evolutionary theory. Emphasizes altruism, group selection, kinship theory and cost/benefits to genetic fitness within the overall process of natural selection. Prereq.: BIOL 509, 510 and 611 and 25 hours in Biology or consent of instructor. 3 q.h.

*868. *Gross Anatomy I.* Dissection of the human body with emphasis on the functional and topographic anatomy and clinical correlations. Two hours lecture-demonstration and four hours laboratory a week. Must be taken in sequence. Prereq.: BIOL 710. 4 q.h.

*869. *Gross Anatomy II.* Dissection of the human body with emphasis on the functional and topographic anatomy and clinical correlations. Two hours lecture-demonstration and four hours laboratory a week. Prereq.: BIOL 868. 4 q.h.

*872. *Protozoology.* Morphology, phylogeny, and bionomics of protozoa. Two hours lectures and four hours laboratory a week. Prereq.: BIOL 721 or consent of instructor. 4 q.h.

*873. *Mammalogy.* The vertebrate class, mammalia, will be covered in detail considering evolutionary development, taxonomic position and characteristics, geographical distribution, ecological interactions, and economic significance. Students will observe mammalian characteristics and make a personal representative collection of mammals as laboratory requirements. Students who have taken BIOL 772 cannot receive credit for this course. Two hours lecture and four hours laboratory per week. Prereq.: BIOL 770. 4 q.h.

## PRE-FORESTRY

There are several ways in which a student may pursue interests in forestry or plant science at YSU:

### 4 + 1 Program

A student may elect to obtain a B.S. degree at YSU in plant-related courses. Upon receiving the B.S. degree, and if qualified, the student may then enroll in a master's program at a forestry and plant science school.

### 2 + 2 Program

A student may concentrate on a pre-forestry program at YSU for two years and then transfer to a forestry or plant science school.

### Duke University Co-operative Program (3 + 2)

YSU has a co-operative program in forestry with Duke University in which the student attends YSU for three years, and then transfers to Duke University for the remaining two years. Successful completion of this program gives the student a B.S. degree from YSU in Biology and an M.S. degree from Duke in Forestry or environmental management.

Many of the courses in the Department of Biological Sciences at YSU apply toward degrees in the agricultural and plant sciences at other schools.

For further information about forestry, plant science, and related agricultural programs, contact the pre-forestry advisor, Department of Biological Sciences, Youngstown State University, Youngstown, Ohio 44555; Telephone (216) 742-1941.

*Additional fee required.

# BLACK STUDIES

*Professor Brown-Clark (Director).*

The purpose of this interdisciplinary major is to facilitate academic investigation and analysis of the historical, social, and aesthetic impact of people of African descent on American society and the world. It also provides for the systematic study of the problems confronting the modern multi-ethnic world.

# MAJOR IN BLACK STUDIES

The major in Black Studies is part of a program leading to the Bachelor of Arts degree, and students electing the major must satisfy all other requirements for that degree. The major must include a minimum of 48 hours in Black Studies courses and other courses approved for Black Studies. At least 28 hours must be in upper division courses. A grade of C or better is required in every course counted toward either the major or a minor in Black Studies.

All Black Studies majors must complete the following courses:

I. CORE Courses (16 Quarter Hours)

Black Studies 600 ..... 4 q.h.
Introduction to Black Studies 1
Black Studies 601 ..... 4 q.h.
Introduction to Black Studies 2
Black Studies 700 Black Studies Colloquium 1 ..... 4 q.h.
Black Studies 701 Black Studies Colloquium 2 ..... 4 q.h.
History 663 African Civilization ..... 4 q.h.

II. 8-16 hours from among the following social studies courses (for course descriptions, see the various department listings):

*American Studies 801, 802, 803 ..... 3+3+3 q.h.
Perspectives on America
Anthropology 770 ..... 4 q.h.
African Cultures
History 630 ..... 4 q.h.
The Black Experience in American History
History 749 ..... 4 q.h.
History of African-U.S. Relations
*History 801 ..... 4 q.h.
Select Problems in American History
History 750 ..... 4 q.h.
History of Modern South Africa in the Sahara
*History 860 ..... 4 q.h.
Select Problems in Third World History
Political Science 706 ..... 3 q.h.
Minority Group Politics
Psychology 745 ..... 4 q.h.
The Minority Individual
Social Work 726 ..... 4 q.h.
The Black Family
Social Work 727 ..... 4 q.h.
The Black Community
Sociology 700 ..... 5 q.h.
Minority Groups

Or other social studies courses when applicable and approved by the director of the Black Studies program.

III. 8-16 hours from among the following humanities courses (for course descriptions, see the various department listings):

Art 742 ..... 3 q.h.
African Art
Art 744 ..... 3 q.h.
African-American Art
Humanities 620 ..... 4 q.h.
Introduction to African Literature
English 871 ..... 4 q.h.
The Black Experience in American Literature
Music 510 ..... 3 q.h.
Survey of Jazz
Religious Studies 708 ..... 4 q.h.
African American Religion

Or other humanities courses when applicable and approved by the director of the Black Studies program.

IV. In addition to the minimum of 32 hours in Black Studies and courses directly relevant to Black Studies, the major may include as many as 16 hours in any other courses approved by the director of the Black Studies program.

## Suggested Minor

A minimum of 21 hours in courses listed above including the four CORE courses.

## Lower Division Courses

600. *Introduction to Black Studies 1.* The social-historical and intellectual heritage of black people in Africa and the Americas. This course is applicable to the University requirement in the social studies area. 4 q.h.

601. *Introduction to Black Studies 2.* The cultural and intellectual heritage of black people in Africa and the Americas as reflected in literature, philosophy, and art. This course is applicable to the University requirement in the humanities area. 4 q.h.

## Upper Division Courses

700. *Black Studies Colloquium 1.* A social studies seminar focusing on the historical, economic, political, or social aspects of the experiences of people of African descent. Prereq.: BLKST 600 or consent of instructor. May be repeated once with different content. 4 q.h.

701. *Black Studies Colloquium 2.* A humanities seminar focusing on the art, music, literature and/or philosophy of people of African descent. Prereq.: BLKST 601 or consent of the instructor. May be repeated once with different content. 4 q.h.

*When applicable by the Director of the Black Studies Program.

# BOTANY

*See Biological Sciences.*

# CHEMISTRY

*Professors Del Bene, Foldvary, Koknat, Lukin, Mettee, Mincey (Chair), Schildcrout; Associate Professors Hunter, Mike; Assistant Professors Falconer, Jackson, Serra, Wagner.*

The Bachelor of Science degree is recommended for those who plan to make a career in chemistry; a recommended program which meets the standards of the American Chemical Society is provided below after the course descriptions. The Bachelor of Arts degree is recommended for those who plan to go into a medical or dental field and for those who plan to enter business or secondary education careers related to chemistry. The required courses for a B.S. degree with a major in Chemistry are listed in the B.S. curriculum. The courses required for an A.B. degree are those listed in the A.B. curriculum below. Chemistry majors may not count Chemistry 500 or 501 toward the 186 quarter hours required for the baccalaureate degree.

Students in pre-professional programs such as pre-pharmacy and pre-optometry may obtain appropriate curriculums and advisement in the Department of Chemistry.

Credit may not be received for more than one course or sequence of the following pairs: CHEM 500/501; CHEM 591, 592/515, 516, 517; CHEM 796, 797/711, 712; CHEM 801/739.

*The segments of all chemistry courses extending through more than one quarter must be taken in sequence unless otherwise indicated.*

*Eye protection must be worn in all chemistry laboratories at all times.*

## Lower Division Courses

*Chemistry 500, 501, 505, 506, and 510 may be counted toward the University science-area requirement, but are not intended for Chemistry or Engineering majors.*

500. *Chemistry in Modern Living.* A one-quarter introduction to basic chemical concepts, the scientific method, and the impact of chemistry on human life and society. Examples may include water treatment, air quality, plastics, drugs, cosmetics, energy resources, food, and the chemical basis of life. Four hours lecture-discussion; no laboratory. 4 q.h.

501. *Introduction to Chemistry.* Chemical concepts and principles with their relation to the properties of simple chemical systems. Development of problem-solving skills. For students without high school chemistry and others needing preparation for Chemistry 505 or 515. Four hours lecture-recitation; no laboratory. Prereq.: One unit each of high school algebra and geometry or MATH 511 or equivalent. 4 q.h.

*505, *506. *Chemistry for the Allied Health Sciences 1, 2.* Fundamentals of inorganic, organic, and biological chemistry including applications to the human organism. Three hours lecture and three hours laboratory-discussion. Prereq.: CHEM 501 or one unit of high school chemistry; two units of high school mathematics (algebra or geometry) or MATH 511 or equivalent. 4+4 q.h.

*510. *Introduction to Chemistry Laboratory.* Accompanies Chemistry 501, for those desiring laboratory experience. Three hours laboratory-discussion. Prereq. or concurrent: CHEM 501. 1 q.h.

*515, *516, *517. *General Chemistry 1, 2, 3.* The fundamental principles and the more important elements and compounds; qualitative analysis. Intended for majors in the natural sciences and engineering. Three hours lecture and three hours laboratory-discussion. Prereq.: Three units of high school algebra and geometry (or MATH 511 and 512 or their equivalents), and one unit of high school chemistry or CHEM 501 or 505. 4+4+4 q.h.

550H. *The Molecular World.* The historical development of chemical thought including critical experiments, the discoveries of fundamental laws, and turning points in understanding molecular structure and behavior. Cultural and historical contexts that defined the work of some of those who made major contributions to this development; critical exploration of technical and societal implications of the modern view of matter. Four hours lecture-discussion. Prereq.: One year of high school chemistry and admission to the Honors program. 4 q.h.

591H, 592H. *Principles of Chemistry 1, 2.* Fundamental principles of chemistry and introduction to inorganic chemistry. This sequence and its accompanying laboratory cover material similar to that in General Chemistry, with important concepts treated in greater depth. Three hours lecture-discussion. Prereq.: Admission to the NEOUCOM-YSU program or Honors program. Concurrent: CHEM 593H with 591H; 594H with 592H. 3+3 q.h.

*593H, *594H. *Principles of Chemistry Laboratory 1, 2.* Introduction to laboratory techniques, including inorganic qualitative and quantitative analysis. Three hours laboratory-discussion. Concurrent: CHEM 591H with 593H; 592H with 594H. 1+1 q.h.

*603, *604. *Quantitative Analysis 1, 2.* Chemical equilibrium, stoichiometry, theory of errors, and volumetric and gravimetric procedures as applied to quantitative determinations. Introduction to electroanalytical and spectrophotometric methods. Emphasis on development of technique. Three hours lecture and six hours laboratory. Prereq.: CHEM 517 or 592 for 603. 5+5 q.h.

650. *Introduction to Undergraduate Research.* An introduction to the methods of chemical research under the direction of a faculty member. May include

*Additional fee required.

literature searching and analysis, instructional laboratory development, and/or original basic or applied research. May be repeated to a maximum of six q.h. Prereq. or concurrent: CHEM 516 or equivalent and approval of department chair. 1-2 q.h.

699. *Medical Application Case Studies.* Applications of biological and chemical concepts in medicine. May be repeated to a total of three hours credit. Prereq.: Admission to NEOUCOM-YSU program or consent of instructor and department chair. 1 q.h.

## Upper Division Courses

*705. *Nutritional Biochemistry.* Phases of biochemistry of special interest in home economics and dietetics. Credit cannot be received for this course if credit is received for any other biochemistry course. Three lectures and three hours laboratory-discussion. Prereq.: CHEM 506. 4 q.h.

*711, *712. *Biochemistry 1, 2.* The chemistry and metabolism of living organisms, with laboratory work to illustrate modern biochemical methods. Primarily designed for Biology and Medical Technology majors. Two hours lecture and three hours laboratory-discussion. Prereq.: CHEM 603, 721; and BIOL 506, 507, 508 or equivalent. 3+3 q.h.

*713. *Clinical Biochemical Techniques.* Advanced clinical techniques designed for Medical Technology majors. Two three-hour laboratories. Prereq.: CHEM 712 or 799. 2 q.h.

*719, *720, *721. *Organic Chemistry 1, 2, 3.* Organic compounds, reactions, and theories. Typical preparations and procedures of analysis. Three hours lecture and three hours laboratory. Prereq.: CHEM 517 or 592. 4+4+4 q.h.

729. *Inorganic Chemistry 1.* The fundamental principles underlying the structure and properties of the elements and their compounds. Prereq. or concurrent: CHEM 740. 3 q.h.

730. *Clinical Radiochemistry.* An introductory and systematic study of radioisotopes in clinical practice. Three hours lecture. Prereq.: CHEM 517 or 592. 3 q.h.

*730L. *Clinical Radiochemistry Laboratory.* Methods of detection and measurement of radiation, with emphasis on the development of techniques and safety in a clinical radiation laboratory. Three hours laboratory. Prereq. or concurrent: CHEM 730. 1 q.h.

*739, *740, *741. *Physical Chemistry 1, 2, 3.* Principles and applications of physical chemistry. Three hours lecture and three hours laboratory. Prereq.: CHEM 603; PHYS 610, 611, 610L, 611L or PHYS 650, 502L, 503L. Prereq. or concurrent: MATH 674. 4+4+4 q.h.

*751. *Water Quality Analysis 1.* An introduction to physical, chemical, and biological measurements of water quality. Provides laboratory experience in the analysis of natural waters, drinking water, and wastewater. Emphasizes procedures for the collection and interpretation of data on current environmental problems. Two hours lecture and six hours laboratory. Identical to CEEGR 751 and BIOL 751. Prereq.: CHEM 603. 4 q.h.

*752. *Water Quality Analysis 2.* Advanced analytical techniques for evaluation of environmental problems. Topics include pollutant transport in natural waters, toxic contaminants in drinking water, and advanced wastewater treatment. Experience with several modern laboratory instruments is provided. Two hours lecture and six hours lab. Identical to CEEGR 752 and BIOL 752. Prereq.: CHEM 751. 4 q.h.

790. *Undergraduate Seminar.* The student will participate in departmental seminars and will present a seminar to the class. May be repeated once. Prerequisite or concurrent: CHEM 603 and 720. 1 q.h.

796. *Fundamentals of Biochemistry 1.* Amino acids, nucleic acids, enzymes, and coenzymes; biochemical energetics. Three hours lecture. Prereq.: Admission to NEOUCOM-YSU program or consent of instructor and department chair, CHEM 603 and 721. 3 q.h.

797. *Fundamentals of Biochemistry 2.* Metabolism of carbohydrates, lipids, proteins, and nucleic acids, with special emphasis on mammalian systems. Three hours lecture. Prereq.: CHEM 796. 3 q.h.

*798, *799. *Fundamentals of Biochemistry Laboratory 1, 2.* Analysis and separation techniques of biochemistry. Three hours laboratory-discussion. Prereq.: CHEM 603,721. Concurrent: CHEM 796 with 798, 797 with 799. 1+1 q.h.

801. *Elements of Physical Chemistry.* An introduction to thermodynamics, chemical structure, reaction rates, and other physical properties of chemical systems, emphasizing applications in biology and health-related fields. Four hours lecture. Prereq.: CHEM 517 or 592; PHYS 503; MATH 550 or 681; and senior standing. 4 q.h.

*803, *804. *Chemical Instrumentation 1, 2.* The theoretical foundations of instrumental procedures and use of instruments in analytical work. CHEM 803: Two hours lecture and six hours laboratory. CHEM 804: Two hours lecture and three hours laboratory. Prereq.: CHEM 604 and 741. 4+3 q.h.

805. *Applied Spectroscopy.* Infrared, ultraviolet, nuclear magnetic resonance, electron spin resonance, mass spectrometry, and methods of current interest as applied to chemical systems. Three hours lecture. Prereq.: CHEM 721; Prereq. or concurrent: CHEM 740 or permission of instructor. 3 q.h.

*807. *Chemical-Instrumentation Interfacing.* An introduction to the use of microprocessor-based equipment for data acquisition and manipulation and for instrument control in chemical experimentation. Interfacing requirements will be stressed. Three hours lecture and three hours laboratory. Prereq.: CHEM 804. 4 q.h.

*Additional fee required.

810. *Chemical Literature.* The development of skills necessary to effectively use the primary sources of chemical information and supporting abstracts, indices, and computer-based search systems. Scientific writing. Prereq.: CHEM 720. 2 q.h.

813. *Thermodynamics and Kinetics.* Fundamentals of chemical thermodynamics and kinetics with applications in both ideal and real chemical systems. Three hours lecture. Prereq.: CHEM 740. 3 q.h.

821. *Intermediate Organic Chemistry.* An introduction to advanced study in organic reactions and theories. Three hours lecture. Prereq.: CHEM 721; Prereq. or concurrent: CHEM 739 or 801. 3 q.h.

*822. *Organic Analysis.* Qualitative and functional-group analysis of organic compounds. Laboratory exercises and discussion of underlying principles. One hour lecture and six hours laboratory-discussion. Prereq.: CHEM 721. 3 q.h.

*823. *Organic Synthesis.* Preparations of organic compounds and applicable instrumental techniques. One hour lecture and six hours laboratory with discussion. Prereq.: CHEM 721. 3 q.h.

824. *Polymer Chemistry.* Polymerization processes and polymer structure-property relationships. Prereq.: CHEM 720. 3 q.h.

*825. *Polymer Chemistry Laboratory.* Preparation and characterization of some polymers. One hour lecture and six hours laboratory. Prereq.: CHEM 824. 3 q.h.

829, 830. *Inorganic Chemistry 2 and 3.* 2: Current interpretations of the chemistry of nonmetals and pretransition metals. 3: Transition metals and coordination compounds. Need not be taken in sequence. Prereq.: CHEM 729, 741. 2+2 q.h.

*831. *Inorganic Chemistry Laboratory.* Preparation of typical inorganic compounds and their characterization. Six hours laboratory-discussion. Prereq. or concurrent: CHEM 729, 740. 2 q.h.

835. *Nuclear Chemistry and Its Applications.* Nuclear structure and reactions, types of radioactive decay, radiation detection, measurements, and techniques in handling radioactive materials. Prereq.: CHEM 740 or 801. 3 q.h.

836. *Chemical Bonding and Structure.* Application of molecular orbital theory and symmetry to chemical bonding, structure, and spectroscopy. Prereq.: CHEM 740. 3 q.h.

850. *Undergraduate Research.* Research participation under the direction of a faculty member. May be repeated to a maximum of nine q.h. Prereq.: CHEM 603 or 719 and approval of department chair. 2 or 3 q.h.

*Additional fee required.

860. *Regulatory Aspects of Industrial Chemistry.* Roles and responsibilities of industrial chemists. Industrial hygiene and safety. Industrial chemical processes, their waste products, their environmental effects, and the treatment of pollutants. Governmental regulations relating to waste disposal, product safety, occupational safety, resource conservation, environmental protection, and problems of awareness and compliance. Prereq.: CHEM 604 and 721. 2 q.h.

864. *Chemical Toxicology.* An introduction to the clinical, forensic, industrial, and environmental aspects of chemical toxicology. The therapeutic and toxic limits of drugs. The actions, control, and treatment of poisons and environmental agents. Prereq.: CHEM 721 and either 604 or permission of instructor. 3 q.h.

*Each student majoring in Chemistry will be assigned a faculty advisor by the department. The advisor will discuss the overall curriculum necessary for a degree in Chemistry and will assist the student in the preparation of a suitable course sequence and choice of a minor or minors.*

All chemistry majors are urged to consult their advisors regularly to avoid curricular problems.

In both of the following curricula, the electives must satisfy all the general requirements for the degree sought (see Requirements for Degrees). German is strongly recommended for meeting the foreign language requirement in the B.S. curriculum.

## RECOMMENDED CURRICULUM LEADING TO A B.S. DEGREE WITH A MAJOR IN CHEMISTRY

### FIRST YEAR

| Courses | Cr. Hrs. |
|---|---|
| CHEM 515, 516, 517 | 12 |
| ENGL 550, 551 | 8 |
| MATH 571, 572, 673 | 14 |
| HSC 590 | 3 |
| Electives | 11 |
| | 48 |

### SECOND YEAR

| Courses | Cr. Hrs. |
|---|---|
| CHEM 719, 720, 721 | 12 |
| CHEM 603, 604 | 10 |
| PHYS 510, 510L, 610, 610L, 611, 611L | 15 |
| MATH 674 | 4 |
| Electives | 4 |
| | 45 |

### THIRD YEAR

| Courses | Cr. Hrs. |
|---|---|
| CHEM 739, 740, 741 | 12 |
| CHEM 729 | 3 |
| CHEM 831 | 2 |
| HPES Activities | 3 |
| Electives | 28 |
| | 48 |

FOURTH YEAR

| Courses | Cr. Hrs. |
|---|---|
| CHEM 803, 804 | 7 |
| CHEM 822 or 823 | 3 |
| CHEM 829 or 830 | 2 |
| Electives | 33 |
| | 45 |

NOTE: The electives must include 6 q.h. from the following courses: CHEM 805, 807, 813, 821, 824, 825, 835, 836, 850, 864, and approved upper division courses in mathematics, computer science, physics, biological science, and chemical and materials engineering. One elective course must be an upper-division chemistry laboratory course, which may be from the preceding list.

## RECOMMENDED CURRICULUM LEADING TO THE A.B. DEGREE WITH A MAJOR IN CHEMISTRY

This curriculum provides the minimum chemical background needed for pursuing career goals in business, secondary education, and other technical medical-related fields. A listing of suggested electives for various minors is available in the Chemistry Department Office.

FIRST YEAR

| Courses | Cr. Hrs. |
|---|---|
| CHEM 515, 516, 517 | 12 |
| ENGL 550, 551 | 8 |
| MATH 571, 572, 673 | 14 |
| HSC 590 | 3 |
| Electives | 11 |
| | 48 |

SECOND YEAR

| Courses | Cr. Hrs. |
|---|---|
| CHEM 719, 720, 721 | 12 |
| CHEM 603, 604 | 10 |
| MATH 674 | 4 |
| PHYS 510, 510L, 610, 610L, 611, 611L | 15 |
| Electives | 6 |
| | 47 |

THIRD YEAR

| Courses | Cr. Hrs. |
|---|---|
| CHEM 739, 740, 741 | 12 |
| CHEM 729 | 3 |
| HPES Activities | 3 |
| Electives | 28 |
| | 46 |

FOURTH YEAR

| Courses | Cr. Hrs. |
|---|---|
| Electives | 45 |

## COMBINED B.S./M.S. PROGRAM IN CHEMISTRY

This is a five-year program. Prospective students seeking admission to the program may submit an application to the Chemistry Department during their senior year in high school. Students in the program start graduate studies after three years. They will normally receive the BS degree after 3½ years and the MS degree after 5 years.

## COMBINED B.S./M.D. PROGRAM

This is a six-year program. Students enroll as candidates for the combined B.S./M.D. program and are so identified during their first two years. After eight quarters of college-level work they are eligible for admission to the second or medical-school phase of the program. Each student successfully completing the program will be awarded the B.S. degree from this institution and the M.D. degree from the College of Medicine. See: The Northeastern Ohio Universities College of Medicine, and Combined Science.

## COMBINED SCIENCE

A Combined Science major leading to the Bachelor of Arts or Bachelor of Science degree comprises a minimum of 70 q.h. of science courses distributed as follows:

(1) At least 30 q.h. in biology, chemistry, geology, or physics with 12 q.h. in each of two sciences listed above. Only courses designated as applicable to the major may be utilized in meeting the requirement.

(2) An additional 16 q.h. in any of the sciences listed above, or in other related courses such as astronomy, mathematics, or meteorology.

The students must also satisfy all other requirements for the degree sought (see *Requirements for Degrees).*

Students who elect this major are advised by the Science Department in which they plan to receive the largest number of quarter hours of credit.

A student completing the combined B.S./M.D. program normally receives the Bachelor of Science degree with the major in Combined Science. This special program satisfies all the requirements listed above but follows a prescribed curriculum (available in the College of Arts and Sciences Dean's Office).

## COMPUTER AND INFORMATION SCIENCES

*Professors Boggess, Chrobak, Duda, Phillips, Santos; Associate Professor Schueller (Chair); Assistant Professor Gaydos, Mullins, Shih, and Sullins; Instructors Bodnovich, Hogue, Jones, Kunar.*

The Department of Computer and Information Sciences offers the Associate and Bachelor of Science in Applied Science degrees in the area of Computer Information Systems, the Bachelor of Science in Computer Science, and the Bachelor of Science in Education degree.

# DEPARTMENT OF BUSINESS INFORMATION SYSTEMS

The courses in the Department of Business Information Systems are designed for students interested in careers in office services and administration and for education students desiring comprehensive and vocational teacher certification in business education.

The Department of Business Information Systems offers a one-year certificate program and a two-year associate degree program leading to the Associate in Applied Business degree. Students in the two-year program can major in Court/Conference Reporting or can choose a concentration in Office Manager, Desktop Publishing Specialist, Legal Secretary, International Secretary, Financial Secretary, or Medical Secretary.

A student who majors in Court/Conference Reporting must have an ACT English score of at least 20. Interested students having lower ACT scores may follow the Legal Secretary concentration until they have an overall point average of 2.5, at which time they may request a transfer to the Court/Conference Reporting major. Court/Conference Reporting majors must have a 3.00 point average in their major courses and a 2.50 overall average to be approved for graduation.

After completing the associate-degree Office Services and Administration program, a student who wishes to complete a baccalaureate program for teaching can complete the requirements for a bachelor's degree with a major in Business Information Systems. Candidates for the Bachelor of Science in Education degree should consult the College of Education section of this catalog. All Business Information Systems majors must pass subject-matter proficiency exams in their teaching field(s) before being approved for student teaching.

After completing the associate-degree program, a baccalaureate degree in Economics is available, with no loss of credits, through an arrangement with the Economics Department in the College of Arts and Sciences.

Grades of C or better are required in all major area subjects for graduation. A major area course in which a grade of D or F was earned must be successfully repeated before taking a course for which it is a prerequisite. A grade of C or higher must be earned in all courses in the certificate program.

Curriculum sheets, course rotation schedules, and suggested quarter-by-quarter schedules may be obtained from the Department of Business Information Systems or from advisors in Williamson Hall, Room 408.

# BUSINESS INFORMATION SYSTEMS

## Lower Division Courses

500. *Survey of American Business.* An outline of the nature and scope of American business with emphasis upon the needs of supervisory management personnel. Analysis of business formation and business management is general. Functional division of business and industry with discussions of legal, societal, and environmental factors related to overall operational success. 4 q.h.

505. *Business Language Skills.* Grammatical proficiencies and transcription skills necessary for successfully completing programs in the Business Information Systems Department. Students taking this course must add four hours to degree requirements. 4 q.h.

506. *Information Processing Skills.* Extensive practice and application in correct word usage, spelling, and punctuation. Transcription from tapes, hardcopy, and rough drafts. Prereq.: ACT English score of 16 and BIS 523 or equivalent. 3 q.h.

510. *Office Procedures.* Basic secretarial and clerical procedures, telephone techniques, behavioral problems, basic filing procedures, use of reference material, and office systems. Must be taken in first or second quarter of program. 4 q.h.

*514. *Business Computer Systems.* Hands-on business software with emphasis on disk operating systems, word processing, database and spreadsheet applications. 4 q.h.

*520. *Beginning Keyboarding.* Beginning keyboarding for all students. Taught on microcomputers; some practice on electronic typewriters. Includes use of word processing procedures, report and business letter preparation. One hour of lecture and three hours lab per week. 2 q.h.

*523. *Intermediate Keyboarding.* Preparation of business documents such as reports, tables, letters, and manuscripts. Taught on microcomputers; some practice on electronic typewriters. Two hours of lecture, two hours laboratory. Prereq.: BIS 520 or equivalent. 3 q.h.

534. *Alphabetic Shorthand 1.* Principles of shorthand based on the English alphabet, and development of a speed of 60 words a minute on business letters. 4 q.h.

535. *Machine Shorthand 1.* Learning the theory of machine shorthand. 4 q.h.

536. *Machine Shorthand 2.* Review of theory with emphasis on dictation speed and transcription. A speed of 60-80 words a minute should be attained. Prereq.: BIS 523 and 535. 4 q.h.

*Additional fee required.

537. *Machine Shorthand 3.* Emphasis on dictation speed and transcription. A dictation speed of 80-100 words a minute should be attained. Prereq.: BIS 536. 4 q.h.

538. *Machine Shorthand 4.* Emphasis on dictation speed and transcription. A dictation speed of 120 words a minute should be attained. Prereq.: BIS 537. 4 q.h.

539. *Alphabetic Shorthand 2.* Reinforcement of transcription and dictation practices. A dictation speed of 90 words a minute should be attained by the completion of this course. Students will be required to spend as many additional shorthand lab hours per week as necessary in open student-monitored lab to attain this speed. Four hours of lecture. Prereq.: BIS 534 and BIS 523. 4 q.h.

*613. *Microcomputer Applications.* Microcomputer vocabulary, DOS commands, disk care, interpretation of language used in manuals, and hardware/software selection criteria. Courseware will include tutorials and microcomputer software products; e.g., word processing, database, spreadsheets, specialized computer applications, and/or integrated packages. 4 q.h.

*623. *Advanced Keyboarding.* Preparation of specialized business documents which relate to student's concentration area through the use of simulations and individualization. Taught on microcomputers. Two hours of lecture, two hours of laboratory. Prereq.: BIS 523. 3 q.h.

635. *Machine Shorthand 5.* Emphasis on dictation speed and transcription. A dictation speed of 140 words a minute should be attained. Prereq.: BIS 538. 4 q.h.

636. *Machine Shorthand 6.* Emphasis on dictation speed and transcription. A dictation speed of 160 words a minute should be attained. Prereq.: BIS 635. 4 q.h.

637. *Machine Shorthand 7.* Emphasis on dictation speed and transcription. A dictation speed of 175 words a minute should be attained. Prereq.: BIS 636. 4 q.h.

638. *Machine Shorthand 8.* Emphasis on dictation speed and transcription. A dictation speed of 200-225 words a minute should be attained for competency in job level skills. Prereq.: BIS 637. 4 q.h.

*641. *Magnetic Media.* Intensive study and utilization of microcomputer application software. Includes issues in proof-reading techniques, microcomputer applications, and related technology. Lab time required. Prereq.: BIS 513 and 523 or instructor's permission. 4 q.h.

*642. *Advanced Applications in Magnetic Media.* Advanced software applications and issues in information processing and related technologies are explored. Input from rough drafts and dictation media are used. Decision making, proofreading, and revisions will be emphasized. Lab time required. Prereq.: BIS 641. 4 q.h.

*651. *Introduction to WordPerfect.* All basic word processing functions, including footnotes, merges, and columns. One hour lecture, three hours of laboratory per week. Prereq.: BIS 520 or equivalent. 2 q.h.

*652. *Desktop Publishing Using WordPerfect.* Includes graphics, lines, fonts, and style sheets. Will produce flyers, brochures, and newsletters. One hour lecture, three hours of laboratory per week. Prereq.: BIS 651 or equivalent. 2 q.h.

*653. *Introduction to Spreadsheets.* Software package will use Lotus 1-2-3 command structure. Includes commands, techniques, formats, ranges, windows, prints, graphics, and macros. One hour lecture, three hours of laboratory per week. 2 q.h.

*654. *Disk Operating System (DOS).* Comprehensive coverage of Disk Operating System used on IBM PCs or compatibles. Includes internal and external commands, batch files, directories, file management, and hard disk management. One hour lecture, three hours of laboratory per week. 2 q.h.

*655. *PC Desktop Publishing.* Includes Introduction to Command structure of desktop publishing software package. Does not include design considerations. Will produce documents that combine text and graphics. One hour lecture, three hours of laboratory per week. 2 q.h.

663. *Office Management.* Principles and practices of effective office systems. Office budgeting, information management through hardware and software selection and utilization, ergonomics, office design, proper procedures for conducting business meetings. Prereq.: BIS 510 and 513. 4 q.h.

*671. *Professional Publication–Layout & Design.* Integration of graphics, text, and scanned images. Student will design publications ranging from simple brochures to multi-chapter documents. Lab time required. Prereq.: BIS 513. 4 q.h.

*672. *Desktop Publishing 1.* Document creation using desktop publishing software on a microcomputer. Application must be mastered on a software package used by industry. Lab time required. Prereq.: BIS 671. 4 q.h.

*673. *Desktop Publishing 2.* Specialized and advanced document creation using desktop publishing software used by industry. A second software package must be mastered. Lab time required. Prereq.: BIS 672. 4 q.h.

690. *Courtroom Experience.* Supervised courtroom experience. Student will take testimony as recorded by court reporter and transcribe. Four hours of class and four hours of courtroom dictation per week. Prereq.: BIS 638 and dictation proficiency of 225 wpm. 4 q.h.

698. *Special Topics.* An in-depth study of business information systems. Topics will vary each quarter. May be repeated for different topics. Prereq.: Sophomore standing. 1-4 q.h.

*Additional fee required.

699. *Internship.* An opportunity to apply classroom theory to on-the-job work experience related to the student's major area of specialization. Participants engage in three activities during the quarter: work at an approved site, complete a related project, and attend bi-weekly seminars. Prerequisite: sophomore in good standing and permission of internship coordinator. One hour of credit may be earned for approximately 6-7 hours of participation per week. Grading will be CR/NC. 1-4 q.h.

## Upper Division Courses

704. *Business Communications.* Communication theory and practice. Business letter writing; oral communication. Review of English usage. Prereq.: ENGL 550. 4 q.h.

*710. *Advanced Business Computer Systems.* Advanced concepts and vocabulary of information processing; includes advanced software applications. Topics include office automation, data communications, networking, decision support systems, computer security, and hardware and software evaluation criteria. Prereq.: BIS 514. 4 q.h.

*714. *Advanced Spreadsheets.* Includes macros, look-up tables, advanced problems, templates, and projects with emphasis on accounting and finance applications. Prereq.: BIS 514. 4 q.h.

*718. *Automated Office Systems.* Students organize and operate an information center utilizing decision-making skills and information systems procedures and components. Lab time required. Prereq.: BIS 641 or 642 within one year or permission of instructor. 4 q.h.

*741. *Electronic Files Management Systems.* Information management; database management software; micrographics; file structure and design; input and output formats; media selection; storage, safety, and security issues; migration techniques; technologies, communication capabilities and user information requirements. Prereq.: BIS 513. 4 q.h.

760. *Office Work Experience for Teacher Certification.* To give Business Education students the opportunity to earn work experience hours to apply toward the two-year requirement for vocational certification. Students will take this course concurrently with approved work experience and will be permitted to double the hours of work for the purpose of vocational certification. The course may be repeated for a maximum of 2,000 work experience hours. Grading for BIS 760 is CR/NC. Prereq.: Approval of BIS Chair. 3 q.h.

762. *Independent Study for Teacher Certification.* To give Business Education students the opportunity to earn work experience hours to apply toward the two-year requirement for vocational certification. Each quarter hour of credit is equivalent to 125 work-experience hours, with a maximum of 500 work-experience hours for this course. Credit hours will be dependent upon the complexity of the study undertaken and the course may be repeated, with a different topic of study, for a maximum of 8 quarter hours credit. Grading for BIS 762 is CR/NC. Prereq.: Approval of BIS Department Chair. 1-4 q.h.

810. *Techniques in Teaching Typewriting.* Includes demonstration and practice of techniques in teaching typewriting, with emphasis on the psychology of skill development and currently accepted theories. Prereq.: Junior standing and BIS 523. 2 q.h.

820. *Techniques of Office Simulation Procedures.* Prepares students to teach in an office simulation environment. The student will participate in a simulation package. Prospective teachers gain insight into problems encountered by students during simulation exercises. Prereq.: EDUC 704. 4 q.h.

826. *Teaching Intensive and Cooperative Business Education.* Organization, administration, implementation, and evaluation of Intensive and Cooperative Business Education programs at the secondary and adult education levels. Selection, instruction, curriculum, and placement of vocational students. Same as EDUC 826. Prereq.: EDUC 706 and 706L. 4 q.h.

830. *Techniques of Teaching Shorthand.* Examines research in methods and techniques of teaching shorthand and its related areas. Includes techniques necessary for dictation, and criteria for transcription evaluation. Prereq.: Junior standing. 2 q.h.

831. *Alternate Shorthand Systems.* The fundamentals of Century 21, notehand, and other kinds of shorthand and how they differ from Gregg shorthand. Intended for business education majors and graduate students. Three hours lecture only. Prereq.: Junior standing. 3 q.h.

860. *Principles and Problems of Business Education.* The principles underlying the complete area of business education and its sub-areas: including such topics as nature, purposes, history and development, curriculum, educational levels, materials, equipment, administration and supervision standards, evaluation, guidance, public relations, job placement, research, teacher qualifications, legislation, and cooperation with business. Prereq.: EDUC 704 or graduate standing. 3 q.h.

# OFFICE SERVICES AND ADMINISTRATION PROGRAM

## General Education Requirements:

| Courses | Cr. Hrs. |
|---|---|
| ENGL 550, 551 Basic Composition 1, 2 | 8 |
| HSC 590 Health Education | 3 |
| ECON 520 Principles of Economics 1 | 4 |

*Additional fee required.

ECON 621 Principles of Economics 2 **or**
PSYCH 560 General Psychology .....3 or 4
MATH 506 Mathematics of Business **or**
MATH 642 Applied Finite Math .....5

**23-24**

## Major Requirements:

| Courses | Cr. Hrs. |
|---|---|
| BIS 510 Office Procedures | 4 |
| BIS 513 Business Computer Systems 1 | 4 |
| BIS 523 Intermediate Keyboarding* | 3 |
| BIS 623 Advanced Keyboarding | 3 |
| BIS 641 Magnetic Media | 4 |
| BIS 642 Advanced Magnetic Media | 4 |
| BIS 663 Office Management | 4 |
| BIS 704 Business Communications | 4 |
| BIS 718 Automated Office Systems | 4 |
| Concentration Area (see below) | 15-17 |
| | **49-51** |

## Other Requirements:

| Courses | Cr. Hrs. |
|---|---|
| BIS 500 Survey of American Business | 4 |
| BIS 514 Business Computer Systems 2 | 4 |
| BIS 699 Internship | 4 |
| BIS 741 Electronic Files Management | 4 |
| ACCTG 503 Elementary Accounting | 4 |
| MGT 735 Communication for Mgt. and Business | 4 |
| | **24** |

## Concentrations:

### OFFICE MANAGER (16 q.h.)

| Courses | Cr. Hrs. |
|---|---|
| MGT 725 Fundamentals of Mgmt. | 4 |
| MGT 804 Human Resource Mgmt. 1 | 4 |
| MGT 604 Legal Environment of Bus. **OR** BIS 714 Advanced Spreadsheets | 4 |
| MGT 750 Human Behavior in Org. | 4 |

### DESKTOP PUBLISHING SPECIALIST (16 q.h.)

| Courses | Cr. Hrs. |
|---|---|
| BIS 671 Prof. Pub./Layout & Design | 4 |
| BIS 672 Desktop Publishing 1 | 4 |
| BIS 673 Desktop Publishing 2 | 4 |
| Approved ART course | 4 |

### LEGAL SECRETARIAL STUDIES (15 q.h.)

| Courses | Cr. Hrs. |
|---|---|
| BIS 506 Information Proc. Skills | 3 |
| CRJUS 500 Intro. to Criminal Justice | 4 |
| CRJUS 720 Legal Terminology/Research | 4 |
| CRJUS 602 American Criminal Courts **or** CRJUS 621 Evidence **or** MGT 604 Legal Env. of Bus. | 4 |

### INTERNATIONAL SECRETARY (16 q.h.)

| Courses | Cr. Hrs |
|---|---|
| 3 approved Foreign Language courses | 12 |
| BIS 698 Special Topics **or** approved international or cultural course | 4 |

### FINANCIAL SECRETARY (16 q.h.)

| Courses | Cr. Hrs. |
|---|---|
| ACCTG 602 Financial Accounting | 4 |
| ACCTG 603 Managerial Accounting | 4 |
| ACCTG 703 Intermediate Accounting 1 | 4 |
| BIS 714 Advanced Spreadsheets | 4 |

### MEDICAL SECRETARY (17 q.h.)

| Courses | Cr. Hrs. |
|---|---|
| BIS 506 Information Processing Skills | 4 |
| MATEC 501 Medical Terminology | 4 |
| MATEC 600 Medical Insurance Forms | 3 |
| MATEC 602 Med. Diag. & Proc. Coding | 3 |
| MATEC 610 Intro. to Disease Proc. | 4 |

### COURT/CONFERENCE REPORTING

General University requirements:

| Courses | Cr. Hrs. |
|---|---|
| ENGL 550, 551 Basic Composition 1 and 2 | 8 |
| POLIT Elective | 4 |
| HSC 590 Health Education | 3 |
| SOCST Elective | 3 |
| SCI/MATH Elective | 4/5 |
| | **22/23** |

Other requirements:

| Courses | Cr. Hrs. |
|---|---|
| BIS 500 Survey of American Business | 4 |
| BIS 510 Office Procedures | 4 |
| BIS 523 Intermediate Typewriting | 3 |
| BIS 535 Machine Shorthand 1 | 4 |
| BIS 536 Machine Shorthand 2 | 4 |
| BIS 537 Machine Shorthand 3 | 4 |
| BIS 538 Machine Shorthand 4 | 4 |
| BIS 623 Advanced Typewriting | 3 |
| BIS 635 Machine Shorthand 5 | 4 |
| BIS 636 Machine Shorthand 6 | 4 |
| BIS 637 Machine Shorthand 7 | 4 |
| BIS 638 Machine Shorthand 8 | 4 |
| BIS 690 Court Reporting Practicum | 4 |
| BIS 704 Business Communications | 4 |
| CRJUS 602 American Criminal Courts* | 4 |
| CRJUS 621 Evidence* | 4 |
| CRJUS 720 Legal Terminology & Research* | 4 |
| MATEC 501 Medical Terminology | 4 |
| MGT 604 Legal Env. of Business | 4 |
| **Total Credit Hours** | **96/97** |

*Criminal Justice prerequisite waived.

# COMPUTER INFORMATION SYSTEMS

The Computer Information Systems program leads to the two year Associate in Applied Science and the four year Bachelor of Science in Applied Science degrees.

## ASSOCIATE DEGREE PROGRAM

The Computer Information Systems associate degree program emphasizes the use of computers to solve business or science problems. The graduate will be employed in positions involving direct use of microcomputers and mainframe computers for business or science administration and decision support applications.

In addition to completing all general University requirements, students wishing to receive the Associate in Applied Science degree must complete the following:

1) At least 40 quarter hours in Computer Information Systems of which 28 quarter hours are specified. Specified courses are: Computer Information Systems 540, 610, 615, 620, 621, 626, and 640.

2) English 550 and 551.

3) Math 550 or 570.

4) Management 511 and Accounting 602 and 603.

5) Economics 520 and 624.

6) Four hours of science outside the department.

7) Four hours of a social studies elective.

## BACHELOR'S DEGREE PROGRAM

The Computer Information Systems professional will develop their ability to conceptualize, design, and implement high quality information systems based upon computer systems ranging from a simple single user to complex, interactive, and multiuser distributed systems.

In addition to completing all general University requirements, students wishing to receive the Bachelor in Applied Science degree must complete the following:

1) At least 76 quarter hours in Computer Information Systems of which 48 quarter hours are specified. Specified courses are: Computer Information Systems 540, 610, 615, 620, 626, 640, 714, 718, 721, 818, 822, and 840.

2) English 550 and 551.

3) Math 550 or 570 and Math 642 or 645.

4) Management 511 and Accounting 602 and 603.

5) Four hours of science outside the department.

6) Twelve hours of a social studies including Economics 520 and 624.

7) Four hours of Humanities.

8) Speech 651.

*520. *Computer Systems Literacy.* A survey of computer concepts and applications. Network access and electronic mail. Emphasis on software applications packages available for microcomputers, including word processing, spread sheets and data bases. Listed also as CSCI 520. Not applicable to the CSCI or CIS majors. 4.q.h.

*525. *Survey of Modern Operating Systems.* An introduction to the common operating systems currently used by computers, such as, DOS, Microsoft Windows, UNIX, and X-windows. Topics include setting up the user's work environment, file manipulation, and other common commands. Listed also as CSCI 525. Not applicable to the CSCI or CIS major. 4 q.h.

*540. *Survey of Computer and Information Sciences.* Concepts, theory, and contemporary issues underlying the computing sciences. Introduction to computer applications, the YSU computing environment, the use of communication and information networks, and basic problem-solving techniques using computers. This course is intended for BIS/CIS/CSCI majors and minors. Listed also as CSCI 540. 4 q.h.

*550. *Survey of Language Topics.* Introductory language courses with emphasis on writing structured programs in a particular computer language. The language topic and special prerequisites will be announced in advance. Not applicable to the CSCI or CIS majors. Listed also as CSCI 550. Prereq.: varies by topic or permission of instructor. 4.q.h.

*601. *Scientific Programming.* An introductory course in computer programming using the science-oriented language known as Fortran. Three hours of lecture and three hours of laboratory per week. Prereq.: MATH 520. 4 q.h.

*602. *Programming in C.* An introduction to programming concepts and techniques, with an emphasis on scientific and engineering applications. An accelerated survey of the C programming language and an introduction to the UNIX programming environment. Not applicable to the CSCI or CIS major. Listed also as CSCI 602. Prereq.: MATH 525 or equivalent. 4 q.h.

*605. *MVS JCL & Utilities.* General purpose programs found in computer installations, including sort/merge routines, report generators, magnetic tape routines, supervisory routines, and ramdom-access utility programs. Prereq.: CIS 540. 4 q.h.

*608. *Business Programming 2.* The application of Cobol Language to the solution of advanced problems in business. Techniques of programming using mass storage devices. Prereq.: CIS 607 or consent of instructor. 4 q.h.

*609. *Interactive Computing Applications.* The study and use of interactive computing methods in commercial and technical applications. Emphasis on terminal programming of higher level languages such as REXX and EXEC II. Three hours lecture and three hours laboratory per week. Prereq.: CIS 607 or consent of instructor. 4 q.h.

*Additional fee required.

*610. *Programming and Problem Solving.* Techniques for designing, writing, and testing programs using a high-level language. Topics include loops, decisions, arrays, program modularity, use of multiple files, and report generation. Three hours lecture and three hours lab. Prereq.: CIS/CSCI 540 or equivalent. 4 q.h.

*612. *Programming PL/1.* Detailed study of the PL/1 language; demonstration of its applicability to engineering, mathematical, and commercial problems. Three hours of lecture and three hours of laboratory per week. Prereq.: CIS 601 or CIS 607. 4 q.h.

*613. *RPG Programming.* A detailed study of the Report Program Generator (RPG) language. Applications programs ranging from business reporting to master file updating. Prereq.: CIS 610. 4 q.h.

*615. *Business Programming.* Use of one or more programming languages for writing business-related programs. Table (array) processing, file input and output, sorting, report generations, and multi-step jobs. Introduction to non-sequential files. Three hours lecture and three hours lab per week. Prereq.: CIS 610. 4 q.h.

*620. *Data Structure and Design.* The theory and application of data structures. Linked structures, chain processing, trees, networks and graphs will be implemented. Prereq.: CIS 610. 4 q.h.

*621. *Data Communications.* Develops the communication system pertaining to transmission media; communication hardware, including modems, switches, multiplexers, terminals and gateways; and various protocols to manage the network pathways and data traffic. Prereq.: CIS 610. 4 q.h.

*624. *Microcomputer Programming.* The use of microcomputer programming languages and operating systems. Three hours lecture and three hours laboratory per week. Prereq.: CIS 601, or CIS 607, or consent of instructor. 4 q.h.

*626. *Visual/Object-oriented Programming.* Use of one or more visual programming languages in conjunction with the concepts of object-oriented programming. Development of interactive programs using a graphical user interface. Three hours lecture, three hours lab per week. Prereq.: CIS 610. 4 q.h.

*630. *User Interface Design.* The design, implementation, and evaluation of human-computer interfaces. Emphasis will be on practical applications of guidelines to modern multimedia and graphical user interfaces. Listed also as CSCI 630. Prereq.: CIS 610 or CSCI 610. 4 q.h.

*635. *UNIX Environment.* Use of the UNIX operating systems or similar systems, including editors, file management, shell scripts, and language compilers. Prereq.: CIS 610. 4 q.h.

*640. *Business Programming Project.* Design and construction of one or more business-related programming projects using several languages and multiple file formats. Three hours lecture, three hours lab per week. Prereq.: CIS 615 and CIS 620. 4 q.h.

*700. *Data Structures and Design.* The theory and application of data structures. Linked structures, chain processing, trees, networks and graphs will be implemented. Prereq.: CIS 624. 4 q.h.

*701. *Science Programming Applications.* Use of computers to solve basic technical problems in electrical, chemical, structural, and mechanical design. Three hours of lecture and three hours of laboratory a week. Prereq.: CIS 601, MATH 570 or equivalent. 4 q.h.

*711. *Advanced Assembler Programming.* Advanced symbolic programming techniques, exercises, and case studies. Prereq.: CIS 611. 4 q.h.

*714. *Assembly language and Architecture.* Fundamentals of computer architecture and organization. Forms of data representation. Assembly language and machine language programming. The assembly process. Methods and protocols for subroutine linkage. Prereq.: CIS 640. 4 q.h.

*716. *Advanced Operating Systems.* An advanced study of operating systems, including UNIX, with emphasis on multiprogramming, multiprocessing, interprocess communication, time-sharing, and virtual memory and storage. Prereq.: CIS 616. 4 q.h.

*718. *Operating Systems Concepts.* Concepts of computer operating systems, including memory allocation, job scheduling, process communication, and input/output processing. Examinations of operating systems on several platforms. Prereq.: concurrent: CIS 714. 4 q.h.

720. *Telecommunications.* Principles behind the different types of data-transmission hardware and techniques, with communication links in time-sharing and realtime systems. Prereq.: CIS 611 or consent of instructor. 4 q.h.

*721. *Data Communications Networking.* A study of present methods for design and evaluation of information networks, LAN and WAN. To include queuing, routing, security, reliability, error detection and correction, and distributed processing. Prereq.: CIS 621, or BIS 663 and 710. 4 q.h.

*730. *Introduction to Computer Graphics.* A practical introduction to the techniques of computer raster graphics, including scan conversion, two-and three-dimensional clipping and windowing, tranformations and viewing in 3D. Algorithms and more advanced topics will be surveyed. Listed also as CSCI 730. Prereq.: CIS/CSCI 630 and MATH 572 or equivalent, or consent of instructor. 4 q.h.

*804. *Programming in Operations Research Applications.* Basic operations-research techniques and programming. Linear programming, queuing, mathematical modeling, and network analysis. Prereq.: CIS 640 and MATH 645 and 32 q.h. of CIS courses applicable to the major. 4 q.h.

*Additional fee required.

*808. *CICS Programming.* A detailed study of CICS (Customer Information Control System), including CICS commands, file definitions, screen definitions, and application programming. Prereq.: CIS 714 or consent of instructor 4 q.h.

*810. *Special Topics.* The content of this course will vary from term to term. It will be concerned with various topics to allow a student to remain current with the changing computer technology. Subject material will be announced in advance. Prereq.: CIS 611 or consent of instructor. May be repeated up to 8 q.h. 1-4 q.h.

*814. *Advanced Business Systems and Procedures.* The study of system analysis, design, and implementation using the data flow analysis and systems development life cycle approach. Prereq.: CIS 618 and junior standing. 4 q.h.

*818. *Development of Data Bases.* The basic structure, design, development, implementation, and modification of data bases for use in management information systems. Prereq.: CIS 640 and 32 q.h. of CIS courses applicable to the major. 4 q.h.

819. *Parallel and Distributed Computing.* A survey of current development of parallel processing with emphasis on parallel programming. Topics include parallel architectures, inter-connection networks for interprocessor communication, parallel sorting/searching algorithms, parallel constructs for parallel programming paradigms, and implementation of the algorithms in a parallel language. Prereq.: CSCI 740 or permission of instructor. 4 q.h.

820. *Computer Center Operations.* The organization of a computer center, with emphasis on features and selection criteria of communication equipment, including mainframe, minicomputer, and microcomputer systems. Prereq.: CIS 640 and 32 q.h. of CIS courses applicable to the major, or BIS 663 and 710. 4 q.h.

*822. *Data Base Applications.* Design and development of applications using data base languages. Prereq.: CIS 818. 4 q.h.

*824. *Artificial Intelligence in Decision Making.* A study of software from the field of artificial intelligence. Topics may include software for robotic control, expert systems, or logic programming. Prereq.: CIS 818. 4 q.h.

*831. *Virtual Reality Systems.* An investigation into the use, design, implementation, and evaluation of virtual reality interfaces. Experience with VR systems using both 2D projections and stereoscopic display and other systems. Students will work in multidisciplinary groups. Listed also as CSCI 831. Prereq.: CIS/CSCI 730. 4 q.h.

*840. *Business Systems Analysis & Design.* The study of computing and information systems analysis, design, and implementation. This project course uses many of the concepts presented throughout the curriculum. Prereq.: CIS 822 and senior standing. 4 q.h.

*Additional fee required.

## Possible Course Scheduling for CIS Curriculum

### FIRST YEAR

#### FIRST QUARTER

| Courses | Cr. Hrs. |
|---|---|
| CIS 540 Survey of C&IS | 4 |
| ENGL 550 Basic Composition 1 | 4 |
| MGMT 511 Intro to Business | 3 |
| Free Elective | 4 |
| | 15 |

#### SECOND QUARTER

| Courses | Cr. Hrs. |
|---|---|
| CIS 610 Program/Problem Solving | 4 |
| ENGL 551 Basic Composition 2 | 4 |
| Science Elective | 4 |
| PHIL 619 Logic | 4 |
| | 16 |

#### THIRD QUARTER

| Courses | Cr. Hrs. |
|---|---|
| CIS 615 Business Programming | 4 |
| CIS Elective | 4 |
| MATH 550 Calc. for Soc./Man. or MATH 570 Calculus for Engineering | 5 |
| HSC 590 Health Education | 3 |
| | 16 |

#### FOURTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| CIS 620 Data Structure & Design | 4 |
| CIS Elective | 4 |
| ECON 520 Principles of Economics 1 | 4 |
| SPCH 651 Communication for Business and the Professions | 3 |
| | 15 |

#### FIFTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| CIS 621 Data Communications | 4 |
| CIS 626 Visual/Object-oriented Prog. | 4 |
| ACCTG 602 Financial Acctg. | 4 |
| Social Studies Elective | 4 |
| | 16 |

#### SIXTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| CIS Elective | 4 |
| CIS 640 Business Prog. Project | 4 |
| ECON 624 Economics & Social Statistics | 4 |
| ACCTG 603 Managerial Acctg. | 4 |
| | 16 |

**SEVENTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| CIS 714 Assembly Lang./Comp. Org. | 4 |
| MGT 725 Fundamentals of Mgt. | 4 |
| MATH 642 Applied Finite Math or MATH 645 Math for Ops. Research | 5 |
| Elective for Minor | 4 |
| | 17 |

**EIGHTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| CIS 718 Operating Systems Concepts | 4 |
| Social Studies Elective (700 or 800 level) | 4 |
| Science Elective | 4 |
| Elective for Minor | 4 |
| | 16 |

**NINTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| CIS 721 Data Commun. & Netwk. | 4 |
| Elective for Minor (700/800 level) | 4 |
| Social Studies Elective | 4 |
| PHIL 625 Business & Prof. Ethics | 4 |
| | 16 |

**TENTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| CIS 818 Devel. of Data Bases | 4 |
| CIS Elective (700/800 level) | 4 |
| Elective for Minor | 4 |
| HPES Activity | 1 |
| | 13 |

**ELEVENTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| CIS 822 Data Base Applications | 4 |
| CIS Elective (700/800 level) | 4 |
| Elective for Minor | 4 |
| Humanities Elective | 4 |
| HPES Activity | 1 |
| | 17 |

**TWELFTH QUARTER**

| | Cr. Hrs. |
|---|---|
| CIS 840 Bus. Sys. Analysis/Design | 4 |
| CIS Elective (700/800 level) | 4 |
| Elective for Minor (700/800 level) | 4 |
| HPES Activity | 1 |
| | 13 |

**Total Credit Hours 4 Years.....187**

# COMPUTER SCIENCE

The Computer Science program leads to the degree of Bachelor of Science or Bachelor of Science in Education. The flexibility of the program allows the student many choices upon graduation. Three major possibilities are: first, graduates will be qualified to pursue graduate work in computer science; second, all graduates will be qualified to work as operating systems analysts or systems programmers; and finally, the student may study another discipline as a minor field to become an application programmer in that discipline.

In addition to completing all general University requirements, students wishing to receive the Bachelor in Applied Science degree must complete the following:

1. At least 55 quarter hours in Computer Information Systems of which 41 quarter hours are specified. Specified courses are: Computer Science 540, 610, 610L, 615, 620, 701, 740, 805, 806, 870 and at least two quarter hours of credits in 890. Electives in Computer Science must be selected from upper division offerings. At most, one of Computer Science 875, 885, 886 may be selected as a major elective for the B.S.

2. A minor in mathematics comprising 26 quarter hours, all of which are specified. They are Mathematics 571, 572, 673, 725, 743, and 760.

3. An approved program of technical electives. Courses used to satisfy this requirement must be approved in advance by the Department of Computer and Information Sciences.

4. Eight hours of science outside the department.

## Computer Science Minor

The following courses are recommended for students who wish to minor in computer science: Computer Science 540, 610, 610L, 615 and two of 620, 701, 750, 780, 800 or 820.

## Lower Division Courses

*520. *Computer Systems Literacy.* A survey of computer concepts and applications. Network access and electronic mail. Emphasis on software applications packages available for microcomputers, including word processing, spreadsheets and data bases. Listed also as CIS 520. Not applicable to the CSCI or CIS major. 4 q.h.

*525. *Survey of Modern Operating Systems.* An introduction to the common operating systems currently used by computers, such as, DOS, Microsoft, Windows, UNIX, and X-windows. Topics include setting up the user's work environment, file manipulation, and other common commands. Listed also as CIS 525. Not applicable to the CSCI or CIS majors. 4 q.h.

*540. *Survey of Computer and Information Sciences.* Concepts, theory, and contemporary issues underlying the computing sciences. Introduction to computer applications, the YSU computing environment, the use of communication and information networks, and basic problem-solving techniques using computers. This course is intended for BIS/CIS/CSCI majors and minors. Listed also as CIS 540. 4 q.h.

*Additional fee required.

*550. *Survey of Language Topics.* Introductory language courses with emphasis on writing structured programs in a particular computer language. The language topic and special prerequisites will be announced in advance. Not applicable to the CSCI or CIS major. Listed also as CIS 550. Prereq.: varies by topic or permission of instructor. 4 q.h.

*560. *BASIC Programming.* An introduction to computer programming on microcomputers. A structured version of BASIC will be used. Topics will include array processing and input/output. Not applicable to the Computer Science major. Prereq.: MATH 512 or equivalent. 4 q.h.

*602. *Programming in C.* An introduction to programming concepts and techniques with an emphasis on scientific and engineering applications. An accelerated survey of the C programming language and an introduction to the UNIX programming environment. Not applicable to the CSCI or CIS majors. Listed also as CIS 602. Prereq.: MATH 525 or equivalent. 4 q.h.

610. *Computer Programming 1.* An introduction to problem-solving methods and algorithms using a high-level programming language. Designing, coding, debugging, and documenting programs using techniques of good programming style. Prereq.: CIS/CSCI 540 or equivalent. 4 q.h.

*610L. *Programming Laboratory.* Introduction to the use of a computer terminal in the creation and manipulation of files. Two hours per week. Designed to accompany CSCI 610 for those who desire instruction in use of terminals. Concurrent CSCI 610. 1 q.h.

*615. *Computer Programming 2.* Continuation in program design, style and expression, in debugging and testing, especially for larger programs. Introduction to algorithmic analysis, string processing, recursion, internal search/sort methods and simple data structures. Prereq.: CSCI 610 or equivalent, and MATH 571. 4 q.h.

*620. *Assembly Language and Instruction Set Architecture.* A general study of basic computer structures, data representation, addressing techniques, instruction execution, and machine language. Symbolic coding and assembly systems, macro definition and generation, and program segmentation and linkage. Absolute and relocatable loaders, I/O structures. Prereq.: CSCI 615 or equivalent. 4 q.h.

*630. *User Interface Design.* The design, implementation, and evaluation of human-computer interfaces. Emphasis will be on practical applications of guidelines to modern multimedia and graphical user interfaces. Listed also as CIS 630. Prereq.: CIS 610 or CSCI 610. 4 q.h.

*650. *Language Topics.* Intensive language courses with emphasis on writing efficient programs in a particular programming language. Each language topic is open only to students without previous credit in that particular language. The language topic and special prerequisites will be announced in advance. Prereq.: varies by topic or permission of instructor. 2-4 q.h.

*690. *Individual Study in Computer Programming.* Individual study of a computer language. The instructor will be available for consultation and will evaluate the student's progress. The CR/NE grading system will be used. May be repeated twice with consent of the chair of the department. 2 q.h.

## Upper Division Courses

*701. *Computer Programming 3.* Advanced programming techniques for design and implementation of large programs. Object-oriented design and programming, including classes, inheritance, and polymorphism. Introductory software engineering techniques for program development, specification, documentation, verification, and user interface design. Prereq.: CSCI 615. 4 q.h.

710. *Introduction to Discrete Structures.* Basic set theory, including functions and relations. Boolean algebra, propositional logic, regular expressions, and finite automata. Prereq.: CSCI 610 or equivalent, and MATH 673. 4 q.h.

*730. *Introduction to Computer Graphics.* A practical introduction to the techniques of computer raster graphics, including scan conversion, two-and three-dimensional clipping and windowing, transformations and viewing in 3D. Algorithms and more advanced topics will be surveyed. Listed also as CIS 730. Prereq.: CIS/CSCI 630 and MATH 572 or equivalent, or consent of instructor. 4 q.h.

740. *Computer Logic and Organization.* Fundamentals of logic design, digital components, instructions design, arithmetic operations, processor (CPU) and control unit design, memory systems, and input/output. Optional topics include performance evaluation, pipelining, and survey of parallel processors. Prereq.: CSCI 620 and 710. 4 q.h.

*750. *Advanced UNIX and C Programming.* Use of UNIX programming environment and associated tools and utilities. Command language programming. Systems programming with ANSI C. May include UNIX internals and system administration. Prereq.: CSCI 620 or consent of instructor. 4 q.h.

*770. *Survey of Programming Languages.* A survey of several programming languages. Languages surveyed may include Ada, Modula-2, C, LISP, and SNOBOL. Prereq.: CSCI 701. 4 q.h.

*780. *Microcomputer System Software.* Programming microprocessor based systems using assembly language. Study of addressing techniques, machine language, program segmentation and linking on microcomputers. Prereq.: CSCI 620. 4 q.h.

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*Additional fee required.

801. *Software Engineering.* Developing and maintaining complex software systems. Process and lifecycle models, and tools for software development (such as CASE). Specification methods, prototyping, validation and verification strategies, and version maintenance. Management of the system development process. A group project is required. Prereq.: CSCI 701 and 710, or consent of instructor. 4 q.h.

*805 *Systems Programming.* Topics selected from aspects of systems programming, including assemblers, loaders, linkage editors, macro processors, and file management systems. Prereq.: CSCI 701. 4 q.h.

*806. *Operating Systems.* Study of the various components of operating systems including kernels and monitors, concurrency and parallel processing, processor management, storage management, device management, I/O processing and file management. Prereq.: CSCI 805 or permission of instructor. 4 q.h.

*807. *Compiler Design.* Study of compiler design and construction, including context-free languages, lexical analysis, parsing, code generation and optimization. Prereq.: CSCI 710 and 805, or consent of instructor. 4 q.h.

814. *Computer Architecture.* A continuation of the study of high-performance sequential computer architectures begun in CSCI 740. Topics include performance evaluation, instruction set design, processor implementation techniques, pipelining, vector processing, memory hierarchy design, and parallel architectures. Prereq.: CSCI 740. 4 q.h.

*817. *Communication Networks.* Study of network structures and topologies, international standards, models, communication media and protocols, hardware and software. Prereq.: CSCI 710 and MATH 743, or consent of instructor. 4 q.h.

819. *Parallel and Distributed Computing.* A survey of current development of parallel processing with emphasis on parallel programming. Topics include parallel architectures, inter-connection networks for interprocessor communication, parallel sorting/searching algorithms, parallel constructs for parallel programming paradigms, and implementation of the algorithms in a parallel language. Prereq.: CSCI 740 or permission of instructor. 4 q.h.

*820. *Simulation.* Methods for modeling discrete-event systems by algorithmic approaches using simulation languages. Prereq.: CSCI 620 and one of MATH 714 or 743, or permission of instructor. 4 q.h.

*830. *Advanced Computer Graphics.* A thorough investigation of graphics algorithms. Topics will include hidden surface removal, parametric curves, lighting, shading, and texturing. An implementation of a graphics project is required. Prereq.: CIS/CSCI 730 and MATH 725. 4 q.h.

*831. *Virtual Reality Systems.* An investigation into the use, design, implementation, and evaluation of virtual reality interfaces. Experience with VR systems using both 2D projection and stereoscopic display and other systems. Students will work in multidisciplinary groups. Listed also as CIS 831. Prereq.: CIS/CSCI 730. 4 q.h.

*835. *Artificial Intelligence.* Study of the theory and application of intelligent systems. Topics may include general problem-solving techniques, knowledge representation and expert systems, vision and perception, natural language processing. AI systems and languages. Prereq.: CSCI 701 and 710, and MATH 725. 4 q.h.

840. *Theory of Finite Automata.* The structural and behavioral aspects of finite automata. Prereq.: CSCI 710 and MATH 725. 4 q.h.

*855. *Database Design and Information Retrieval.* Study of physical database storage, relational and object data modeling, logical database design (normalization process), and structural query languages. Prereq.: CSCI 710. 4 q.h.

*860. *Programming Language Structures.* Systematic approach to the study of the structures of programming languages. Formal descriptions, syntax, semantics and technical characteristics. Prereq.: CSCI 705 and 750. 4 q.h.

*870. *Data Structures and Algorithms.* Study and application of analysis and design techniques to nonnumerical algorithms. Topics selected from algorithms acting on sets, trees, graphs; memory management; notions of complexity and related areas. Prereq.: CSCI 701 and 710. 4 q.h.

*875. *Computer-Assisted Instruction (CAI).* Introduction to CAI components: questioning episodes, formal answer processing, types of responses, types of trials, analysis of algorithms, and a description of authoring usages. Not applicable to the CSCI major. Prereq.: CSCI 701 or consent of instructor. 4 q.h

*881. *Microcomputer System Architecture.* A state-of-the-art course on microcomputer architecture. Topics will include introduction to microcomputer systems, 16 and 32 bit microprocessors, direct memory access and other I/O transfer schemes, architecture of I/O processors, introduction to computer communications. Prereq.: CSCI 740 and 780. 4 q.h.

*885. *Evaluation of Educational Software and Hardware 1.* A critical analysis of educational software for various academic disciplines and grade levels. The use of evaluative forms and the study of existing review criteria. Analysis and evaluation of hardware alternatives, peripheral devices, networking, and hardware expansions in an educational setting. Not applicable to the CSCI major. Prereq.: CSCI 701 or consent of instructor. 4 q.h.

*886. *Evaluation of Educational Software and Hardware 2.* A continuation of the analysis and evaluation of educational software and hardware begun in CSCI 885. The emphasis in this course will be on equipment used in grades K - 6. Not applicable to the CSCI major. Prereq.: CSCI 885. 4 q.h.

*Additional fee required.

890. *Computer Projects.* Individualized study of a topic in computer science culminating in a written report and an oral presentation. May be repeated up to 10 quarter hours. Prereq.: 36 q.h. of computer science applicable to the minimum requirements for a computer science major. 2-5 q.h.

893. *Computer Science Internship.* An academic/industrial experience which the student works as part of a Data Center's programming group for a quarter. The student intern will be employed for at least 20 hours per week. Each student will have a faculty advisor and an industrial advisor who will periodically review the student's work as an intern. A written report on the internship must be submitted by the student. For a computer science major, internship hours may be applied only to the technical electives requirement. May be repeated once with permission of the department chair. Prereq.: 24 quarter hours of computer science including CSCI 705 and permission of the department internship supervisor. 2-5 q.h.

*895. *Special Topics.* A study of special topics in computer science. May be repeated up to 10 quarter hours. Subject matter, credit hours and special prerequisites will be announced in advance. Prereq.: Permission of instructor. 2-5 q.h.

## EARTH SCIENCE

*Professor I. Khawaja (Supervisor).*

Earth Science may be the major for the Bachelor of Arts degree or the Bachelor of Science in Education degree.

It is designed to meet the needs of students desiring a broad background in Earth Science. The major also provides the necessary background for graduate students and for a teaching field in Earth Science.**

An Earth Science major consists of a minimum of 70 quarter hours of science courses distributed as follows: 42 quarter hours from Specified courses, and either 28 q.h. from Electives I or 28 q.h. from Electives II.

**Specified** (42 q.h.)

ASTRO 504 Descriptive Astronomy ..... 4
ASTRO 608 Moon and Planets ..... 4
GEOG 603 Weather ..... 4
GEOG 737 Soils and Land Use ..... 4
GEOL 505 Physical Geology ..... 4
GEOL 513 Physical Evolution of North America ..... 4
GEOL 514 Life of the Geologic Past ..... 4
GEOL 602 Intro to Oceanography ..... 4
GEOL 608 Geology Laboratory ..... 4
GEOL 615 Geology and the Environment 1 ... 4
GEOL 815 Geology and the Environment 2 ... 2

**Electives I** (28 q.h.) for Earth Science Teaching Professionals

BIOL 508 Principles of Biology 3 ..... 4
CHEM 515, 516 General Chemistry I, II ..... 8
CSCI 530 Computer Literacy ..... 4
GEOG 730 Climatology ..... 4
GEOL 701 Geomorphology ..... 6
GEOL 702 Glacial Geology ..... 4
GEOL 704 Structural Geology ..... 3
GEOL 704L Structural Geology Laboratory ..... 2
GEOL 706 Geol. of Economic Mineral Deposits . 5
GEOL 708 Megascopic Petrography ..... 6
GEOL 714 Principles of Paleontology ..... 4
GEOL 801 Mineralogy ..... 6
GEOL 802 Stratigraphy and Sedimentation ..... 4

**Electives II** (28 q.h.) for other professionals
At least two courses from the following Geology:

GEOL 701 Geomorphology ..... 6
GEOL 702 Glacial Geology ..... 4
GEOL 704 Structural Geology ..... 3
GEOL 704L Structural Geology Laboratory ..... 2
GEOL 708 Megascopic Petrography ..... 6
GEOL 706 Geol. of Economic Mineral Deposit . 5
GEOL 714 Principles of Paleontology ..... 4
GEOL 801 Mineralogy ..... 6
GEOL 802 Stratigraphy and Sedimentation .... 4
GEOL 803 Optical Mineralogy ..... 6
GEOL 806 Intro. to X-Ray Diffraction ..... 3
FIELD GEOLOGY ..... 4
CHEM 515, 516, 517 General Chemistry I, II, III ..... 12
CSCI 530 Computer Literacy ..... 4
ENVI SCI 751, 752 Water Quality Analysis I, II ..... 8
MATH 714 Probability and Statistics ..... 5
MATH 550 or MATH 570 or MATH 571 Calculus ..... 5

*Additional fee required.

**Interested students should consult the Chair of the Department of Geology.

## ECONOMICS

*Professors Bee, Kermani, Koss, Liu, Mehra, Milley, Stocks (Chair); Associate Professors Morris, Petruska, Porter, Riley, Usip.*

The Department of Economics offers majors in Economics and in Labor Relations.

A major in Economics comprises 48 quarter hours. Required courses are 530, 630, 631; 624, 705, 710 and 712. MATH 550 or equivalent is a prerequisite for ECON 709, 710 or 712. The following courses may be applied toward a major in Economics: HIST 714 and MKTG 703.

The major is designed to prepare students for research and statistical work in business or government; and for graduate study leading to careers in law, journalism, government and international affairs, teaching, industrial relations, and business economics.

### Lower Division Courses

510. *An Introduction to Economic Thought.* The basic principles of both microeconomics and macroeconomics are introduced, including the topics of supply and demand, decision making by the producer and consumer, and the determination of national output and employment. Not applicable toward a major in Economics. 4 q.h.

530. *Principles 1: Microeconomic Theory and Policy.* Introduction to supply and demand analysis. The theories of perfect competition and imperfect competition as applied to the markets for goods, services, and labor. Effects of taxes and government regulation of markets on price and output. Students who have completed ECON 621 will not receive credit for this course. Prereq.: MATH 512 or high school Algebra 2 or equivalent. 4 q.h.

624. *Economics and Social Statistics 1.* Probability theory with emphasis upon uncertainty in estimating parameters and testing hypotheses. Evaluation, single-sample estimating. Prereq.: Sophomore standing. 4 q.h.

630. *Principles 2: Macroeconomic Theory and Policy.* The methods of national income accounting and measurement of economic performance. Theories of inflation, unemployment, and economic growth; the banking system; and the effectiveness of government monetary and fiscal policies in the control of inflation and unemployment. Students who have completed ECON 520 will not receive credit for this course. Prereq.: ECON 530. 4 q.h.

631. *Principles 3A: Economic Issues.* Designed to suit the needs of Economics and other liberal arts majors. Economic analysis applied to problems in labor, agriculture, antitrust regulation, social welfare and poverty, urban areas, environment, international trade, international finance, and less developed countries. Not applicable toward a major in Economics if student has taken ECON 632. Students who have completed ECON 522 will not receive credit for this course. Prereq.: ECON 630. 4 q.h.

632. *Principles 3B: International Economics.* Designed to suit the needs of business majors. Determinants of a nation's exports and imports of goods and services. The effects of free and restricted international trade on a nation's welfare, income, and employment structure. Balance of payments problems, exchange rate regimes and currency unification. International investment and regional development. Not applicable toward a major in Economics if student has taken ECON 631. Students who have completed ECON 622 will not receive credit for this course. Prereq.: ECON 630. 4 q.h.

650. *Environmental Economics and Policy.* The economics of resource depletion and environmental damage. An evaluation of conservation strategies and pollution control policies. Benefit-cost analysis and its use in the policy making process. The use of science and economic analysis in the creation of environmental law. Prereq.: ES 601. 4 q.h.

## Upper Division Courses

701. *Money and Banking.* Organization and operation of commercial banking in the United States; central banking under the Federal Reserve System; basic theory. Monetary policy as a determinant of national income. Prereq.: ECON 631 or 632. 4 q.h.

702. *Public Finance.* The development and present status of public finance; federal, state, and local expenditures and taxation; theories of tax incidence, axioms of taxation, theories in justification of taxation and government spending; tax reform. Study of the techniques of fiscal policy with emphasis on its role as a determinant of the level of national income. Prereq.: ECON 631 or 632. 4 q.h.

705. *Economics and Social Statistics 2.* Continuation of estimating and testing using small sample techniques. Correlation, simple and multiple regression, time series, index numbers, nonparametric statistics, and introduction to decision theory. Prereq.: ECON 624. 4 q.h.

707. *Economics for Engineers.* A study of American manufacturing: The evolution of major industries, and their technological and economic growth, maturity, current problems, and outlook for the future. Prereq.: ECON 530 and MATH 673. 4 q.h.

709. *Mathematical Economics.* A course designed to give students of Economics a mathematical background with special emphasis on the theory of functions of real variables, fundamentals of differential and integral calculus as applicable to the macro- and micro-economic theory. Prereq.: Econ 631 or 632 and Math 550. 4 q.h.

710. *Intermediate Micro-Economic Theory.* A systematic analysis of the theory of demand and the theory of the firm: production input and output choices, and some basic concepts of linear programming. An intensive analysis of the theory of the firm: competitive pricing; monopoly pricing; pricing in imperfect competition; and the theory of rent, profits, interest, and wages. Prereq.: ECON 631 or 632 and either ECON 709 or MATH 550. 5 q.h.

712. *Intermediate Macro-Economics.* The construction of national income and production accounts and the basic determinants of income, output, and employment. Determination of the level of employment, interest, and money through the classical versus Keynesian aggregative economics. Prereq.: ECON 631 or 632 and either ECON 709 or MATH 550. 5 q.h.

787. *Population Movements.* Trends in world population in their relation to history, migration, and urbanization. Human demography and ecology: various measurements of the size, density, and distribution of population as well as their economic and social environments. Listed also as SOCIO 787. Prereq.: Junior standing. 4 q.h.

801. *Economics of Industrial Organization.* A systematic analysis of the structure, conduct, and performance of American industry. A quantitative analysis plus a comprehensive review of theoretical models of the market, firm behavior, and performance. Prereq.: ECON 631 or 632. 4 q.h.

802. *Comparative Economic Systems.* Capitalism, socialism, and other major economic systems, giving particular attention to basic processes such as resource allocation and product distribution, frequent references to existing cases such as the U.S., U.S.S.R., and Britian. Prereq.: ECON 631 or 632. 4 q.h.

803. *Business and Government.* The influence of the common law and the development, growth, and present status of competition; imperfect competition, and monopoly in the American economy. Prereq.: ECON 801 or consent of the instructor. 4 q.h.

806. *History of Economic Thought.* This course is designed to provide students with an understanding of the development of economic ideas to include: Mercantilism, Physiocrats, the English Classical School, Utilitarianism, Early Socialist Thought, Karl Marx, the German Historical School, Institutionalists and the Keynesian School. Prereq.: ECON 631 or 632. 4 q.h.

807. *Economic Development.* Analysis of developing economies, particulary Africa, Asia and Latin America. Prereq.: ECON 631 or 632 or permisison of instructor. 4 q.h.

808. *Money and Banking 2.* Procedures employed by financial institutions to assess and manage dafault, market, and call risk. Determination of interest rates, misintermediation, securitization, markets for derivative securities, and markets for collateralized mortgage obligations. Prereq.: ECON 701. 4 q.h.

809. *Current Problems in Money, Banking, and Financial Markets.* The financial market system, including money and capital markets. Current problems are associated with trends in theory and practice. Theories of the interest rate and monetarism. Prereq.: ECON 701 or consent of the instructor. 4 q.h.

810. *Managerial Economics.* An application of economic analysis to business problems. Emphasis upon executive decisions for the allocation of resources. Prereq.: ECON 631 or 632. 4 q.h.

811. *International Trade.* Theories of international trade and specialization; free trade v. protectionism; tariff and non-tariff barriers to international trade; international balance of payments and its components; the role of multinational enterprises in contemporary trade pattern; regional economic integrations and world trade; U.S. commercial policies. Prereq.: ECON 631 or 632 or consent of instructor. 4 q.h.

812. *International Finance.* Theories of foreign exchange and capital movements, international payments, analysis of spot and forward foreign exchange markets, foreign exchange market arbitrage, speculation, and risk hedging. The Bretton Woods aggrement and the contemporary international monetary system. The rise of international organizations and multinational enterprises in the international economy. Prereq.: ECON 631 or 632 or consent of instructor. 4 q.h.

813. *Resource and Environmental Economics.* The economic analysis of depletable, renewable, and inexhaustible resources worldwide. An examination of the limits to growth debate. The regulation of domestic and international markets for fuels. Problems of a throughput economy and transition to a steady-state economy. Prereq.: ECON 631 or 632 or 707. 4 q.h.

820. *Regional Economic Analysis.* Techniques for measuring the growth or decline of economic activity in small-area economies. Topics include economic base anaysis, input-output applications, economic modeling and forecasting, and theory of location and agglomeration. Prereq.: ECON 631 or 632. 4 q.h.

822. *Urban Economics.* Economic analysis of the problems of urbanized areas, using benefit-cost and micro-economic techniques. Prereq.: ECON 631 or 632 and one of the following: 624, 702, or consent of the instructor. 4 q.h.

824. *Applied Time Series Analysis of Economic and Business Data.* An in-depth analysis of time series models and their applications to problems in economics and business. Emphasis on forecasting. Extensive use of standard computer programs. Prereq.: ECON 630 and 705. 4 q.h.

825. *Economic and Business Data Analysis.* An introduction to the applications of various data analysis techniques for confirming as well as exploring structural relationships among social and economic variables. Topics include interpretation of multiple regression and analysis of variance results, discriminant analysis and canonical correlation, principal component analysis, factor analysis, and others. The course emphasizes the correct uses of these techniques and the analysis of computer printouts using computer-program packages. Prereq.: ECON 630 and 705. 4 q.h.

831. *Labor Markets.* Economic theory and analysis of labor as an input in the resource market; principles, labor problems, public policy; theories of the development of the labor movement; economic objectives of trade unions; problems in public control. Prereq.: ECON 631 or 632. 4 q.h.

833. *Collective Bargaining and Arbitration.* Identical with LREL 833. 4 q.h.

843. *Fair Employment Opportunity and Income Security.* Identical with LREL 843. 4 q.h.

850. *Introduction to Decision Analysis.* The study of rational decision-making under economic uncertainty: theory of utility, value of information, normal and extensive analysis, sampling. Bayesian Analysis. Prereq.: ECON 630 and 624. 4 q.h.

853. *Applied Econometrics.* Construction and estimation of economic models with public and business applications, using standard computer programs. Programming ability not required. Prereq.: ECON 621 and 705. 4 q.h.

854. *Computational Economics.* The use of economic theory, operations research (OR) methods, and computer applications to model and solve economic problems. The OR methods include linear, non-linear, integer, and dynamic programming; transportation analysis, and input-output analysis as they relate to the optimization problems of firms, consumers, and financial institutions. Analytics will emphasize economic understanding and policy implications of the solutions. Prereq.: MATH 550 or 571; and MATH 642 (or equivalent). 4 q.h.

855. *Health Economics.* This course applies basic economic principles to the study of the health care industry. Topics include the supply and demand of medical care, the effects of private and public insurance on the health care industry, trends in health care costs, public policies to equalize access to medical care and the dilemma caused by the improvement in life-sustaining technology. Prereq.: ECON 631 or 632. 4 q.h.

899. *Individual Study in Economics.* Individual study of a topic, area, or problem requiring in-depth reading, and a written project. May be repeated once with a different topic, area, or problem. Prereq.: Junior or senior standing, and consent of instructor and department chair. 2-5 q.h.

## CURRICULA

The following are suggested curricula for students wishing to concentrate their studies in a specific area of economics.

### Specialization in International Economics:

Suggested economic courses are economics courses required for the major plus ECON 701, 802, 807, 808, 811, 812. Suggested non-economics courses are MATH 550, CSCI 530 or MGT 601, ACCTG 503, MKTG 703 and 845.

### Specialization in Money and Banking:

Suggested economics courses are economics courses required for the major plus ECON 701, 702, 808, 809, 810. Suggested non-economic courses are MATH 550, CSCI 530 or MGT 601, ACCTG 602, 603, FIN 720 and 730.

### Specialization in Regional and Urban Economics:

Suggested economics courses are economics courses required for the major plus ECON 702, 801, 820, 822, and 825. Suggested non-economics courses are MATH 550, CSCI 530 or MGT 601, GEOG 640, 726 and 830, HIST 606 and 714, POLIT 601, 721 and 722. Students may wish to consider participation in the Urban internship program under the direction of the Department of Political and Social Science.

### Specialization in Quantitative Economic Methods:

Suggested economics courses are economics courses required for the major plus ECON 709, 824, 825, 850, 853, 854. Suggested non-economics courses are MATH 571, 572, 673, 674, 743, CSCI 530 or MGT 601.

## LABOR RELATIONS

To graduate with a major in Labor Relations a student must take all of the following required courses: ECON 530, 630, 631, 624, 705, 831; LREL 833, 835, 841, 843, 845, 849; and MGT 725, 750, 804. The student must also take either POLIT 601 and 707, or PSYCH 560 and 712, or SOCIO 500 and 706. In addition, the student must complete 12 quarter hours from the following list of courses: ACCTG 602, 603, ECON 710, 712, LSTEC 520, 610, 630, MGT 805, POLIT 720, PSYCH 716 and SOCIO 758.

The Labor Relations major incorporates a multidisciplinary approach to employer-employee relations. The program is designed to provide a broad perspective for practitioners in the human resource areas in organizing in the private, quasi-public and public sectors of the economy.

### Upper Division Courses

833. *Collective Bargaining and Arbitration.* Marginal productivity theory as a restraint in labor negotiations; bargaining theory and practice; utilization of third party facilitators; government intervention and control. Listed also as ECON 833. Prereq.: ECON 631 or 632. 4 q.h.

835. *Labor Law.* Development of labor legislation and case law in the U.S.; analysis and economic implications of the effects of the common law, state and federal legislative enactments, judicial decisions, and administrative rulings on labor-management relations. Prereq.: ECON 631 or 632. 4 q.h.

841. *Occupational Health and Safety Legislation.* Economic effects of occupational safety and health legislation on the well-being and productivity of the American labor force; relative efficiency of the U.S. in global competition. Prereq.: ECON 631 or 632. 4 q.h.

843. *Equal Employment Opportunity and Income Security.* Public policy related to discrimination in hiring, pay and fringes, training, promotion and retention of the legally-protected classes. Listed also as ECON 843. Prereq.: ECON 631 or 632. 4 q.h.

845. *Theory, Operation, and Problems of Labor Organizations.* Policies and practices of unions in protecting and expanding the interests of their constituencies in a dynamic technological world. Prereq.: ECON 631 or 632. 4 q.h.

849. *Seminar in Labor Relations.* Selected current topics in labor-management relations. Prereq.: ECON 631 or 632. 4 q.h.

## Curriculum

The following suggested curriculum leads to the degree of Bachelor of Arts with a major in Labor Relations.

**FIRST YEAR**

| Courses | Cr. Hrs. |
|---|---|
| ECON 530 Principles 1 | 4 |
| ECON 630 Principles 2 | 3 |
| ECON 631 or 632 Principles 3 | 3 |
| ENGL 550 Composition 1 | 4 |
| ENGL 551 Composition 2 | 4 |
| MATH 642 App. Finite Math | 5 |
| Humanities Requirement | 8 |
| Foreign Language Requirement | 0-20 |
| Electives | 8 |
| | 39-59 |

**SECOND YEAR**

| Courses | Cr. Hrs. |
|---|---|
| ECON 624 Econ. & Soc. Stat. 1 | 4 |
| ECON 705 Econ. & Soc. Stat. 2 | 4 |
| MATH 550 Calculus Soc. Managerial 1 | 4 |
| HSC 590 Health Education | 3 |
| HPES Activity Courses | 3 |
| Humanities Requirements | 8 |
| Science Requirement | 8 |
| Electives | 13 |
| | 47 |

**THIRD YEAR**

| Courses | Cr. Hrs. |
|---|---|
| ECON 831 Labor Markets | 4 |
| LREL 833 Collect. Barg. & Arb. | 4 |
| LREL 841 Occup. Saf. & Health | 4 |
| MGT 725 Fund. Management | 4 |
| MGT 750 Human Behav. in Org. | 4 |
| Electives | 26 |
| | 46 |

**FOURTH YEAR**

| Courses | Cr. Hrs. |
|---|---|
| LREL 835 Labor Legislation | 4 |
| LREL 843 Equal Employ. Opport. | 4 |
| LREL 845 Thy. Oper. Labor Org. | 4 |
| LREL 849 Sem/Wksp Labor Rel. | 4 |
| MGT 804 Human Res. Mgmt. 1 | 4 |
| Electives | 26 |
| | 46 |

# ENGLISH

*Professors Bowers, Budge, Copeland, W. Greenway, Houck, Martindale, McCracken, Monseau, Salvner, Shale, Sniderman, Wilkinson; Associate Professors Brady, Brown, Brown-Clark, Finney, Gergits, B. Greenway, Linkon, Mullen, Nelson, Reese, Schramer, Stephan (Chair), Tingley; Assistant Professors Attardo, Belanger, Kelvin, Leonard, Strom.*

Beyond the freshman sequence the English major comprises at least 48 hours, including the following distribution.

**Courses**

**Required of all English Majors:**

English 690–Introduction to Literary Study
English 890–Seminar in Literary Study

**American Literary Studies**

Two courses from the following: 618, 770, 780, 862, 864, 871.
Total hours in the area: Minimum of 8.

**British Literary Studies**

One course chosen from the following (literature before the Romantic period): 860, 881, 882, 883, 884, 886.

One course chosen from the following (literature from the Romantics to the present): 887, 891, 892, 895, 896.

One additional course chosen from the courses in British literary studies: 860, 881, 882, 883, 884, 886, 887, 891, 892, 895, 896.

Total hours in the area: Minimum of 12

**Other Literary Studies**

One world literature course chosen from the following: 610, 620, 631, 638, 710, 738.

One course chosen from the following: world literature–610, 620, 631, 638, 710, 738; or film studies–665, 765, 865; or other literature courses-609, 617, 632, 633, 708, 709.

Total hours in the area: Minimum of 8

**Language, Writing, and Discourse**

One upper-level writing course, chosen from the following: 716, 717, 740, 741, 743, 746, 747.

English 755-Principles of Linguistic Study.

One or two of the following: 716, 717, 740, 741, 743, 744, 746, 747, 750, 757, 758, 849, 859.

Total hours in the area: Minimum of 11.

Please note: If you have taken minimum hours in each of the areas, you will need to take an additional course to complete the minimum of 48 hours required for the major.

English 709 and English 741 are required of all English majors planning to teach*. English 741 is offered each fall (and may be offered winter as needed) as part of the English education block (Education 704, Education 883, and English 741). Check with an English education advisor. English majors preparing to teach should take Education 800E, not Education 800G.

Senior Seminar in Literary Study (English 890) replaces the two senior papers previously required of English majors.

*Apply for teacher certification.

For requirements for the PROFESSIONAL WRITING AND EDITING major, see alphabetized catalog listing.

Because the discipline of English involves study of the controlled use of the language, students are expected to demonstrate their writing skills in all English courses.

Literature courses count toward the general requirement in the humanities area, but courses in linguistics and composition do not.

The Department of English maintains the Writing Center for supplemental, noncredit instruction in writing. English majors may apply for student employment as peer tutors in the Center. (See the General Information Section for details.)

## English as a Second Language Courses

508. *Writing for Non-native Speakers.* Development of composition skills in English with special attention to problems of interference from the parent language. Emphasis on statement of thesis, unity and coherence in development of a thesis, and relationship between thesis and mode of development. Entrance on basis of English-as-a Second-Language placement test. Must be taken until a grade of C or better is achieved. **Does not count toward a degree.** To be taken concurrently with ENGL 508L. Grading for ENGL 508 is *ABC/NC.* 4 q.h.

*508L. *Workshop for Non-native Speakers.* Drills and exercises in English grammar and pronunciation. Emphasis on verb tenses, noun markers, and word order. Entrance on basis of English-as-a-Second-Language placement test. To be taken concurrently with ENGL 508. Must be taken until a grade of C or better is achieved. Three hours per week. **Does not count toward a degree.** Grading for ENGL 508L is *ABC/NC.* 2 q.h.

509. *Academic English for Non-native Speakers.* Development of writing and reading comprehension skills in English through outlining, summary, and response. Emphasis on vocabulary, main idea, detail, and conclusion in assigned reading and writing. Entrance on basis of English-as-a-Second-Language placement test. Must be taken until a grade of C or better is achieved. **Does not count toward a degree.** Grading for ENGL 509 is *ABC/NC.* 4 q.h.

511. *Advanced Academic English for Non-native Speakers.* Development of advanced writing and reading skills. Focus on oral-aural fluency, extensive and intensive reading, and formal writing for academic purposes. Entrance on the basis of English-as-a-Second-Language placement test or permission of ESL coordinator. Must be taken until a grade of C or better is achieved. **Does not count toward a degree.** Grading for ENGL 511 is *ABC/NC.* 4 q.h.

*512. *English Conversation for Non-native Speakers.* Development of conversation skills. Focus on oral-aural fluency, idiomaticity, extracting and organizing information, and situation-oriented communicative strategies. Emphasis on meaningful topics relevant to the students' pursuit of their academic goals. Entrance on the basis of English-as-a-Second-Language placement test or permission of ESL coordinator. Must be taken until a grade of C or better is achieved. **Does not count toward a degree.** Grading for ENGL 512 is *ABC/NC.* 4 q.h.

## Lower-Division Courses

*520. *Introductory College Writing 1.* Instruction and practice in effective writing processes, including invention, organization, and revision, with emphasis on editing, coherence, and sentence structure. Focus on general conventions for college essay writing and on developing students' ability to recognize strengths and weaknesses in their own writing and the writing of others. Students meet four hours a week for regular classroom intruction and two hours a week for more individualized instruction in a computer classroom. **Does not count toward the graduation requirement in composition.** Open to students on the basis of English Placement Test results. Grading for English 520 is *ABC/NC.* 4 q.h.

540. *Introductory College Writing 2.* Practice in adapting college-level writing conventions, organizational strategies, and revision and editing techniques to a variety of writing tasks. Focus on responding to written texts in ways that demonstrate expressive, analytical, and evaluative thinking. Students become familiar with conventions for using written sources in essays and learn to integrate reactions of their peers and instructor into their revisions. *Does not count toward the graduation requirement in composition.* Open to students on the basis of English Placement Test results or upon successful completion of English 520. Grading for English 540 is *ABC/NC.* 4 q.h.

550. *Composition 1.* Strategies for writing essays, from the earliest planning stages to final revisions and editing, with emphasis on the roles of writer, audience, and purpose as they affect a piece of writing. Most essays are written in response to assigned readings. Open to students on the basis of English Placement Test results or upon successful completion of English 540. Grading for English 550 is *ABC/NC.* 4 q.h.

550H. *Honors Composition 1.* Strategies for writing essays, from the earliest planning stages to final revision and editing, with emphasis on the roles of writer, audience, and purpose as they affect a piece of writing. Writing assignments treat a broad range of ideas, especially in response to the reading of essays by masters of English prose. Stylistic experimentation is encouraged so that each student can develop a distinctive writing style. Prereq.: eligibility for the Honors Program and permit on the basis of English Placement Test results or upon recommendation of 550 instructor. Grading for English 550H is *ABC/NC.* 4 q.h.

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*Additional fee required.

551. *Composition 2.* Practice in writing with emphasis on the process of investigation: exploration of topics, formulation of tentative theses, collection of data from suitable primary and secondary sources, and clear and appropriate presentation of the results of these inquiries. Prereq.: English 550 or English Placement Test results. Grading for English 551 is *ABC/NC.* 4 q.h.

551H. *Honors Composition 2.* Executing research on a topic of some depth, resulting in a substantial investigative paper. Research is conducted independently and focused on a single project. Prereq.: eligibility for the Honors Program and one of the following: English 550H or equivalent, permit on the basis of English Placement Test results, or recommendation of 550 or 551 instructor. Grading for English 551H is *ABC/NC.* 4 q.h.

*601. *Intermediate Composition For Teachers.* A course to increase proficiency in critical reading and writing. Because the course is designed specifically for students entering the School of Education, readings, discussions, and writing assignments will emphasize current issues in education. Assignments will allow students to practice, collaboratively and individually, the kinds of writing used in teaching. *Does not count toward the English major.* Prereq.: ENGL 551. 4 q.h.

609. *Introduction to Literature.* Primarily British or American works, chosen to illuminate a central topic or theme, are read and discussed critically to promote understanding and enjoyment of reading. Prereq.: ENGL 551. 4 q.h.

610. *Introduction to Classic World Literature.* A selection of classics from a variety of cultures from antiquity to 1900. Prereq.: ENGL 551. 4 q.h.

617. *Women in Literature.* Examination of works by and about women, drawn primarily from American and English writers. Prereq.: ENGL 551. 4 q.h.

618. *American Literature and Society.* Writers and works in relation to the changing conditions of American culture, politics, lifestyles, and social movements. Prereq.: ENGL 551. 4 q.h.

620. *Introduction to African Literature.* A survey of the literature of modern Africa, with emphasis on black African writers. Prereq.: ENGL 551. 4 q.h.

622. *Basic Journalism.* Identical with JOURN 622. 4 q.h.

626. *American Journalism.* Identical with JOURN 626. 4 q.h.

631. *Mythology in Literature.* An introductory study of myths, chiefly classical, with some attention to their origins and cultural significance, and of literary works, both classical and modern, in which myths are used. Prereq.: English 551. 4 q.h.

632. *Images of Women.* An examination through language, literature, film, folklore, and myth, of the ways in which the meanings and representations of woman have been constructed and implemented in Western culture. Introduces key concepts and theoretical frameworks drawn from current scholarship about women. Prereq.: ENGL 551. 4 q.h.

633. *Peace and War in Literature.* An examination of the literature of peace and war and related critical and cultural issues, with emphasis on the twentieth century. Prereq.: ENGL 551. 4 q.h.

638. *Introduction to Modern World Literature.* Fiction, poetry, prose, and drama by writers of the twentieth century from various cultures read to raise questions about how literature represents and criticizes society. Prereq.: ENGL 551. 4 q.h.

646. *Introduction to Fiction Writing.* An examination and application of narrative techniques and conventions designed to introduce the basic elements of writing fiction. Prereq.: ENGL 551. 4 q.h.

647. *Introduction to Poetry Writing.* An examination and application of poetic techniques and conventions designed to introduce the basic elements of writing poetry. Prereq.: ENGL 551. 4 q.h.

648. *Introduction to Script Writing.* An examination and application of dramatic techniques and conventions designed to introduce the basic elements of writing plays and screenplays. May be repeated once. Prereq.: ENGL 551. 4 q.h.

651. *Introduction to Language.* An introduction to language principally for prospective teachers, with emphasis on the nature and function of language and its history, variations, and acquisition. *Does not fulfill the linguistics requirement for English majors.* Prereq.: ENGL 551. 4 q.h.

*665. *Introduction to Film Study.* Principles of film study and interpretation of films through written analysis. Prereq.: ENGL 551. 4 q.h.

690. *Introduction to Literary Study.* Emphasis on the skills used in reading literature and writing literary analysis. *This course is a prerequisite for all upper-division literature.* Prereq.: ENGL 551. 4 q.h.

## Upper-Division Courses

708. *Children's Literature.* A study of the development of children's literature, giving the prospective elementary teacher some ways of judging books for children. *Required of all elementary education candidates.* Prereq.: Any 600-level literature course in English or permission of department chair. 4 q.h.

709. *Adolescent Literature.* A study of literature for and about adolescents and of related topics, including young adults as readers, critical standards for evaluation, and the use of adolescent literature in secondary schools. Prereq.: Any 600-level literature course in English or permission of department chair. 4 q.h.

*Additional fee required.

710. *Selected Topics in European Literature.* A comparative examination of a genre, historical period, or literary movement (e.g., Continental Romanticism, Surrealism, Expressionism, Post-Modernism). Prereq.: any literature course in English or permission of department chair. 4 q.h.

716. *Feature Writing.* Identical with JOURN 716. 4 q.h.

717. *Editorial and Opinion Writing.* Identical with JOURN 717. 4 q.h.

721L. *Journalism Workshop.* Identical with JOURN 721L. 3 q.h.

723. *Make-up and Design.* Identical with JOURN 723. 4 q.h.

738. *Selected Topics in World Literature.* A comparative examination of a genre, historical period, or literary movement (e.g., Nativism, protest literature, colonialism, cultural conflict). Prereq.: any literature course in English or permission of department chair. 4 q.h.

740. *Advanced Writing.* A course designed to strengthen proficiency in essay writing, with emphasis on development of ideas, analysis of style, clarity of thought and expression, editing, and proofreading. Prereq.: ENGL 551 and junior standing. 4 q.h.

741. *Advanced Writing for Teachers.* A course designed to strengthen proficiency in writing, with emphasis on issues related to the teaching of English. *Limited to students seeking English or Comprehensive Communications certification.* Prereq.: Admission to upper-division status in the School of Education. 4 q.h.

*743. *Professional and Technical Communication.* An intermediate composition course to introduce students to essential elements in professional and technical writing: audience analysis; techniques of gathering, interpreting, and presenting information; appropriate styles and formats; an application of computer technology to document design. Prereq.: ENGL 551. 5 q.h.

*744. *Proposal and Report Writing.* Application of rhetorical strategies and principles of design to the preparation of texts in two specific professional communication genres: the proposal and the report. Prereq.: ENGL 743. 4 q.h.

*745L. *Videotext Workshop.* Application of journalistic and technical writing principles through student videotext publications. Students will learn the theory and practice of electronically transmitting word-processed text. Prereq.: ENGL 622 or ENGL 743. May be repeated twice. 2 q.h.

*Additional fee required.

746. *Fiction Writing Workshop.* A supervised workshop in which students may develop their individual narrative skills, styles, and talents. May be repeated once. Prereq.: ENGL 646 or permission of the instructor based on a portfolio of fiction. 4 q.h.

747. *Poetry Writing Workshop.* A supervised workshop in which students may develop their individual poetic skills, styles, and talents. May be repeated once. Prereq.: ENGL 647 or permission of the instructor based on a portfolio of poetry. 4 q.h.

750. *Language and Culture.* Language structure as an instrument in human behavior and social institutions. Prereq.: ENGL 551 or equivalent, and ANTHR 602 or equivalent. Listed also as ANTHR 750. 4 q.h.

755. *Principles of Linguistic Study.* Survey of elements of linguistic structure, methods of analysis and description, theoretical models, and the role of language in human affairs. Prereq.: ENGL 551. 4 q.h.

757. *Development of the English Language.* Sounds, vocabulary, grammar, and usage–from old to contemporary English. Prereq.: ENGL 755. 4 q.h.

758. *English Grammar.* Descriptions and analysis of English language structure. Prereq.: ENGL 551. 4 q.h.

765. *Film Genres.* A study of a particular type of film such as comedy, western, documentary, or science fiction. May be repeated once with a different topic. Prereq.: ENGL 690 or 665 or permission of department chair. 4 q.h.

770. *Historical Periods in American Literature.* Poetry and prose in the context of a specific era of U.S. literary history. May be repeated once with a different topic. Prereq.: ENGL 690 or permission of department chair. 4 q.h.

780. *American Genres.* A study of a particular type of literature (e.g., the short story, autobiography, or film) as it developed in the United States. May be repeated once with a different topic. Prereq.: ENGL 690 or permission of department chair. 4 q.h.

820. *Advising Student Publications.* Identical with JOURN 820. 4 q.h.

824. *Press Law and Ethics.* Identical with JOURN 824. 4 q.h.

825. *Selected Topics in Journalism.* Identical with JOURN 825. 4 q.h.

849. *Professional and Technical Editing.* A study of the skills needed to make appropriate editorial changes in the grammar, mechanics, style, format, and organization of manuscripts for scholarly, trade, and professional publications. The course deals with stages in the publishing process, mechanical and substantive editing, and the use of house or press style. Prereq.: ENGL 551 and junior standing. 4 q.h.

859. *Selected Topics in Discourse.* Study in depth of a specific topic such as stylistics, semantics, or rhetoric. May be repeated once with a different topic. Prereq.: 740 or 741 or 755 as appropriate to topic. 4 q.h.

860. *Chaucer and the Medieval World.* Chaucer's principal works with some study of his immediate predecessors and contemporaries. Prereq.: ENGL 690 or permission of department chair. 4 q.h.

862. *American Literary Circles.* A study of one group of American writers who shared a cultural context or who influenced each other's work. May be repeated once with a different topic. Prereq.: ENGL 690 or permission of department chair. 4 q.h.

864. *Selected Topics in American Literature.* An important aspect of or approach to America's literary heritage not covered in other courses in the curriculum. May be repeated once with a different topic. Prereq.: ENGL 690 or permission of department chair. 4 q.h.

865. *Selected Topics in Film.* An important aspect of or approach to film not covered in other courses in the curriculum. May be repeated once with a different topic. Prereq.: ENGL 690 or 665 or permission of the department chair. 4 q.h.

871. *The Black Experience in American Literature.* Literature by and about blacks in America. Prereq.: ENGL 690 or permission of department chair. 4 q.h.

881. *Shakespeare and the Elizabethan World.* Drama of the period, with emphasis on the plays of Shakespeare. Prereq.: ENGL 690 or permission of department chair. 4 q.h.

882. *The English Renaissance.* Literature of the age of Spenser, Donne, and Herrick, with emphasis on poetry. Prereq.: ENGL 690 or permission of department chair. 4 q.h.

883. *Milton and the Renaissance Legacy.* Poetry and selected prose, with emphasis on *Paradise Lost.* Prereq.: ENGL 690 or permission of department chair. 4 q.h.

884. *The Restoration and Early Eighteenth Century.* Literature of the age of Dryden, Pope, and Swift presented in literary and social context. Prereq.: ENGL 690 or permission of department chair. 4 q.h.

886. *The Eighteenth Century.* British literature presented and read in the context of the period's culture and history, with emphasis on the novel. Prereq.: ENGL 690 or permission of department chair. 4 q.h.

887. *The Romantic Period.* British literature presented and read in the context of the period's culture and history. Prereq.: ENGL 690 or permission of department chair. 4 q.h.

890. *Seminar in Literary Study.* A study in depth of a literary figure, group, or aspect of literary theory. Prereq.: 12 hours in upper-division literature courses. 4 q.h.

891. *The Victorian Period.* British literature presented and read in the context of the period's culture and history, with emphasis on poetry and nonfiction prose. Prereq.: ENGL 690 or permission of department chair. 4 q.h.

892. *Nineteenth-Century British Studies.* Nineteenth-century writers, works, or themes in cultural context, focusing on but not limited to the novel. Prereq.: ENGL 690 or permission of department chair. 4 q.h.

895. *Early Twentieth-Century British Studies.* Literature presented and read in the context of the period's literary movements, culture, and history. Prereq.: ENGL 690 or permission of department chair. 4 q.h.

896. *British Literature from World War II to the Present.* Literature presented and read in the context of the period's literary movements, culture, and history. Prereq.: ENGL 690 or permission of department chair. 4 q.h.

898. *Professional Writing Internship.* Supervised work-and-learning experience in professional communication under the direction of a University faculty member and an employee of a participating firm. Ten to twenty hours a week of student time are expected. Enrollment is contingent upon the availability of internships. Students are selected on the basis of personal qualifications, including GPA, courses taken, recommendations, and an interview. May be repeated with the approval of department chair. Prereq.: 16 q.h. in Journalism and/or Technical Writing. 2-4 q.h.

899. *Professional Writing Senior Project.* Individualized research, analysis, and development of a project that incorporates audience-appropriate writing, design, and/or editing in a useable high-quality product. Taken in successive quarters during the student's final undergraduate year. Prereq.: senior standing and permission of a Professional Writing and Editing advisor. 1+1 q.h.

## PROFESSIONAL WRITING AND EDITING

*Professor Bowers, Martindale; Associate Professors Gergits, Mullen, Nelson, Schramer, Stephan (Chair); Assistant Professor Kelvin.*

A major in Professional Writing and Editing requires 89-90 hours, distributed as follows:

| **English Courses (28 hours)** | **Cr. Hrs.** |
|---|---|
| ENGL 690 | 4 |
| LING 755 | 4 |
| American Literary Studies 770, 780, 862, 864 or 871 | 4 |

British Literary Studies 860, 881, 882, 883, 884, or 886 ..... each worth 4 q.h.
4 q.h. are required from the following group:
British Literary Studies 887, 891, 892, 895 or 896.
World Literature 610, 620, 631, 638, 710 or 738 ..... 4

Literature Elective (any course 600-level or above offered by the English department) ..... 4

**Professional Communication Core Courses (23 hrs)**

ENGL 743 Technical Communication ..... 5
ENGL 744 Proposal and Report Writing ..... 4
ENGL 849 Prof. and Technical Editing ..... 4
ENGL 622 Basic Journalism ..... 4
ENGL 723 Makeup and Design ..... 4
ENGL 899 Professional Writing Senior Project ..... 1 + 1

**Support Courses (19-20 hours)**

Choose **7-8 hours** from:
ENGL 716 Feature Writing ..... 4
ENGL 721L Journalism Workshop ..... 3
ENGL 740 Advanced Writing ..... 4
ENGL 746 or 747 Fiction or Poetry Writing Workshops ..... 3
ENGL 898 Prof. Communication Internship .... 2-8

Choose **12 hours** from:
ENGL 745L Videotext Workshop ..... 2
COMM 550 Public Speaking ..... 4
COMM 652 Business & Professional Speaking ... 4
COMM 756 Interviewing ..... 4
COMM 657 Organizational Communication 1 ... 4
COMM 757 Organizational Communication 2 ... 4
ART 502 Design 1 ..... 4
ART 503 Design 2 ..... 4
ART 655 Graphic Design 1 ..... 4
ART 780 Photography 1 ..... 4
CSCI 530 Computer Systems Literacy ..... 4
CSCI 525 Survey of Modern Operating Systems . 4
CSCI 540 Survey of Computer and Information Systems ..... 4
CSCI 550 Survey of Language Topics ..... 4
MATH 714 Probability and Statistics (Prereq. high school Algebra 2 or Math 512) ..... 5
MECH 500 Drawing Fundamentals ..... 4
MECH 501 Engineering Communication with CAD ..... 3
MKTG 730 Fundamentals of Marketing ..... 5
PREL 710 Basic Public Relations ..... 4
PREL 750 Public Relations Communications .... 4
ADVER 704 Principles of Advertising ..... 5

**Professional Area (21 hours)**

Students seeking a major in Professional Writing and Editing must also take 21 hours in a professional area such as computer science, chemistry, engineering, journalism, graphics, or advertising/public relations. Courses and degrees in the College of Health and Human Services may also meet this requirement.

Students should choose a professional writing area early in their degree work since this preparation will provide the content for much of the writing in the professional communication courses or will provide ancillary professional writing expertise to be used in projects assigned. Each professional area sequence must be approved by an English department advisor working with the Professional Writing and Editing major.

In addition to the course requirements, students must successfully complete one extensive writing and/or editing project, to be approved and evaluated by a Professional Writing and Editing advisor.

For course descriptions, see ENGLISH catalog listing or that of the appropriate department.

## Journalism

*Professor Martindale (Program Director); Associate Professors Stephan (Chair), Mullen; Assistant Professor Kelvin; English Faculty.*

The University offers a journalism minor; a Professional Writing and Editing major with a concentration in journalism; an Individualized Curriculum Program major that combines journalism with non-writing skills such as graphic design, desktop publishing or photography; a 30-hour program leading to certification in journalism for secondary school teaching; or a 14-hour program that satisfies the journalism distribution for teaching certification in communications on the secondary level. All five programs include practical experience with the University's student newspaper, *The Jambar*.

### Lower-Division Courses

622. *Basic Journalism.* A study of news reporting and writing, with emphasis on journalistic style, development of news judgment, interviewing, and coverage of special story types. Prereq.: ENGL 551. Listed also as ENGL 622. 4 q.h.

626. *American Journalism.* The development of newspaper and magazine journalism in America, journalism as a literary tradition, the contributions of important journalists, and the role of the press in American society. Prereq.: ENGL 551. Listed also as ENGL 626. 4 q.h.

### Upper-Division Courses

716. *Feature Writing.* Development of techniques of writing feature stories, including generating feature ideas, gathering information, and polishing feature style. Practice in writing various types of features. Prereq.: JOURN 622. Listed also as ENGL 716. 4 q.h.

717. *Editorial and Opinion Writing.* Techniques, approaches and practice in writing reviews, editorials, and opinion columns. Exercises in criticism of the arts, editorial research, and editorial style are included. Prereq.: JOURN 622. Listed also as ENGL 717. 4 q.h.

721L. *Journalism Workshop.* Application through student publications of the principles of Journalism 622. May be repeated once. Prereq. or concurrent: JOURN 622. Listed also as ENGL 721L. 3 q.h.

723. *Make-up and Design.* The practice of copy editing, headline writing, layout and design, photo editing, and caption writing. Prereq.: JOURN 622. Listed also as ENGL 723. 4 q.h.

820. *Advising Student Publications.* A study of the role and responsibilities of the publication advisor in high school and college. Topics include the relationship of the student press to academic administration, legal rights of the student press, personnel management, location and utilization of equipment, and budget. *Does not count toward a major in English. Enrollment limited to students seeking certification to teach Journalism.* Prereq.: JOURN 622 or permission of department chair. Listed also as ENGL 820. 4 q.h.

824. *Press Law and Ethics.* A study of First Amendment rights of the press; examination of laws concerning libel, privacy, copyright, obscenity, censorship, open meetings and open records in Ohio; and a discussion of press responsibilities. Prereq.: JOURN 622. Listed also as ENGL 824. 4 q.h.

825. *Selected Topics in Journalism.* Study of approaches to and special aspects of journalism not covered in depth in other journalism courses. May be repeated once with change in topic. Prereq.: JOURN 622 or any 600-level English literature course. Also listed as ENGL 825. 4 q.h.

## LINGUISTICS

*Attardo (Program Director), English; Becerra, Masagara, Foreign Languages; Rippberger, Foundation of Education; Smith, Philosophy.*

The University offers an interdisciplinary minor in Linguistics with the advice and approval of the chair of the department the student is majoring in and of an advisor from the Linguistics faculty.

The minor requires completion of a minimum of 21 hours including ENGL 755 and at least two courses from group 1. Students may take variable topic classes twice if the topic is different.

ENGL 755. *Principles of Linguistic Study.* Survey of elements of linguistic structure, methods of analysis and description, theoretical models, and the role of language in human affairs.

**Group 1**

ENGL 651. *Introduction of Language.* An introduction to language principally for prospective teachers, with emphasis on the nature and function of language and its history, variations and acquisition.

ENGL 750. *Language and Culture.* Language structure as an instrument in human behavior and social institutions. Cross-listed as ANTHR 750.

ENGL 757. *Development of the English Language.* Sounds, vocabulary, grammar, and usage-from old to contemporary English. Prereq.: ENGL 755.

ENGL 758. *English Grammar.* Descriptions and anlaysis of English language structure.

FRNCH 710. *Applied French Phonetics.* A systematic study of French phonetics to correct defects in pronunciation and intonation and gives students a better understanding of the differences between the French and English sound systems.

RUSSN 765. *Practical Russian Phonetics.* Theory and practice of Russian speech, pronunciation, stress, rhythm, and intonation. Phonemic and morphemic analysis.

SPAN 724. *Spanish Pronunciation.* Theory and practice of Spanish pronunciation. Description of production of Spanish speech sounds and general characteristics of Spanish pronunciation. Topics on intonation will be included. Audio-lingual practice in class and in language laboratory. Prereq.: SPAN 602 or equivalent or permission of instructor. 4 q.h.

SPAN 735. *Spanish Grammar 1.* A review of Spanish grammar through written and oral exercises, description and analysis of morphological topics, with emphasis on noun and verb systems. Discussion of contrasts with English and effective use of grammatical rules. Prereq.: SPAN 615 or equivalent or permission of instructor. 4 q.h.

SPAN 736. *Spanish Grammar 2.* A review of Spanish grammar through written and oral exercises, description and analysis of syntactical topics, with emphasis on pronoun system, word order, as well as sentence formation and combination. Discussion of contrasts with English and effective use of grammatical rules. Prereq.: SPAN 735 or equivalent or permission of the instructor. 4 q.h.

SPAN 855. *Topics in Spanish Language and Linguistics.* An introduction to the terminology, concepts, bibliography and current issues in Spanish language and linguistics. Major topics include phonology, morphology, semantics, syntax, applied linguistics, transformational grammar, and other topics related to language variation and society.

ANTHR 750. (See ENGL 750).

**Group 2**

ENGL 859. *Selected Topics in Discourse.* Study in depth of a specific topic such as stylistics, semantics or rhetoric. Prereq.: ENGL 740, 741, or 755.

PHIL 619. *Introduction to Logic.* Introduction to syllogistic or classical logic, symbolic and inductive logic.

PHIL 703. *Symbolic Logic.* The structure and properties of axiomatic systems; the theory of propositional and relational logic; the algebra of classes; related topics.

PHIL 814. *Philosophy of Language.* An introduction to modern philosophical investigation of such topics as semantics and language analysis, the functions of language, modes of meaning, and the relation of linguistic structures to metaphysics.

CSCI 835. *Artificial Intelligence.* Study of the theory an application of intelligent systems. Topics may include general problem-solving techniques, knowledge representation and expert systems, vision and perception, concept formation and learning, natural language processing, AI systems and languages.

PSYCH 761. *Cognition.* Experimental methods, research findings, and current theories concerned with human cognitive processes. The information-processing approach, focusing on how information is transformed, stored, manipulated and retrieved will be emphasized. Topics include attention, pattern recognition and categorization, memory and language.

PSYCH 762. *Verbal Learning and Memory.* This course provides and overview of the problems, methods, experimental findings and current classical theories stemming from research on verbal learning and the temporary and long-range retention of that learning.

PSYCH 850. *Seminar.* (When topic is psycholinguistics)

ANTRH 753. *Anthropological Linguistics.* An introduction to elementary linguistic theory from an anthropological viewpoint with practical work in phonetics, phonology, morphology, syntax, and transformational grammar.

# ENVIRONMENTAL SCIENCE MINOR

*Professors Mincey, Schroeder; Associate Professor Martin (Coordinators).*

The Environmental Science minor program is designed to provide students majoring in Biology, Chemistry, Civil Engineering, or other related area, with the background necessary for a successful career in the field of environmental science or engineering. The program was developed in anticipation of a long-term demand for qualified graduates in this field. As the world population continues to grow and become more technologically advanced, environmental professionals will be called upon increasingly to develop and implement innovative programs for environmental protection and pollution control. The leaders of the future in the environmental field wil be individuals with expertise in a wide variety of disciplines. Course offerings in the Environmental Science minor program address this need, providing students with strong backgrounds in analytical chemistry, aquatic ecology, water and wastewater treatment, microbiology, chemical toxicology, and management of solid and hazardous wastes.

**PROGRAM REQUIREMENTS:**

**Required Background Courses:**

The following background coursework (or knowledge) is required by all students planning to obtain a minor in Environmental Science:

1. General Chemistry I, II, and III (CHEM 515, 516, 517)
2. Physics (PHYS 502 & 503, OR PHYS 510 & 610)
3. Calculus (MATH 550 or 571)
4. Knowledge of microcomputer operation and BASIC programming language
5. Principles of Biology III (BIOL 508); OR GPA of 3.3 or above; OR score of 3.85 or above on PEP test.

Students may fulfill these requirements in any order that is convenient, provided the specified prerequisites are satisfied before entering each course applicable toward the minor. It is **not** necessary to complete all of the courses listed prior to entering the minor program. It should be noted, however, that all of the above requirements must eventually be met in order to complete the Environmental Science minor.

**Minor Courses:**

The Environmental Science minor courses consist mainly of selected offerings by the Biological Sciences, Chemistry, and Civil Engineering Departments. A listing of designated minor courses is shown below. To complete the minor program, students must obtain a grade of C or better in at least 21 quarter hours of **out-of-department** courses from this list. The course selections must include:

Water Quality Analysis I and II;

At least one course each in Biological Sciences, Chemistry, and Civil Engineering (excluding BIOL 850,
CHEM 850 and CE 800), or an approved out-of-department substitute;

At least one undergraduate research project (2 q.h. or more);

Environmental Science Seminar.

The following courses have been designated as applicable oward the Environmental Science minor:

| Courses | Cr. Hrs. |
|---|---|
| BIOL 702 Microbiology | 4 |
| BIOL 780 Intro to Ecology | 4 |
| BIOL 804 Aquatic Ecology | 4 |
| BIOL 850 Problems in Biology | 2-4 |
| CHEM 603 Quantitative Analysis I | 5 |
| CHEM 604 Quantitative Analysis II | 5 |
| CHEM 719 Organic Chemistry I | 4 |
| CHEM 720 Organic Chemistry II | 4 |
| CHEM 721 Organic Chemistry III | 4 |
| CHEM 807 Chem. Instr. Interfacing | 4 |
| CHEM 864 Chemical Toxicology | 3 |
| CHEM 850 Undergraduate Research | 2-4 |
| CEEGR 736 Environmental Engineering I | 4 |
| CEEGR 837 Environmental Engineering II | 4 |
| CEEGR 884 Solid & Hazardous Waste Mgt. | 4 |
| CEEGR 800 Special Topics | 2-4 |
| CHEGR 820 Industrial Pollution Control | 4 |
| GEOL 804 Ground Water | |
| GEOG 603 Conservation of Natural Resources | 4 |
| GEOG 737 Soils and Land Use | 4 |
| CEEGR 751* Water Quality Analysis I | 4 |
| CEEGR 752* Water Quality Analysis II | 4 |
| Environmental Seminar (to be developed) | |

*CEEGR 751 and 752 are also cross-listed as CHEM 751 and 752, asn as BIOL 751 and 752.

**Other Policies:**

1. Chemistry and Biology students will require a memo from a program coordinator to the Dean Of Engineering in order to obtain permits for the Engineering courses.

2. It is the policy of the Biological Sciences Department to permit students with a stated interest in this minor program to enroll in BIOL 780 provided prerequisite no. 5 (previous page) is met.

3. Course selections for the minor program are subject to the approval of the program coordinators.

4. Courses taken within the student's major department cannot be counted toward the 21 q.h. minor requirement.

# ENVIRONMENTAL STUDIES

*Lauren Schroeder (Coordinator), Department of Biological Studies.*

The Environmental Studies program will prepare students to enter the job market as environmental specialists or to continue in their education in a graduate program. Students in Environmental Studies will complete a core sequence of 68 q.h., providing a broad background in science and environmental science and one of four areas of specialization: Science, Technology, Health, or Environment Affairs. All students will complete an internship, a cooperative project, or a research project. Students will be encouraged to develop teamwork, communication, computer and problem solving skills.

501. *Profession of Environmental Studies.* Students will learn the knowledge, skills and experiences required for environmental careers. Academic and industrial environmental specialists will present lectures about specific environmental problems and current environmental research programs. Required of all Environmental Studies majors. 1 q.h.

510. *Field Trips in Environmental Studies.* Field trips to relevant environmental sites, including nuclear power plants, hazardous waste incinerators, etc. Students will learn the basic problems, fundamental science, risks assessment and economics associated with each site. Some classes will meet at, and be hosted by, cooperating two-year colleges. Class meets on selected Saturdays from 9:00 a.m. to 4:00 p.m. 1 q.h.

601, 602. *Fundamentals of Environmental Studies 1, 2.* A two-term, team-taught survey of fundamental issues in environmental studies including basic ecology; biodiversity; global warming; acid precipitation; toxins; energy production; air, water, and soil pollution; etc. Four hours per week. Prereq.: for ENST 601: BIOL 509, or CHEM 501, or GEOL 505. ENST 601 concurrent with ENST 601L; ENST 602 concurrent with ENST 602L. Prereq. for ENST 602 is ENST 601. 4 + 4 q.h.

601L, 602L. *Fundamentals of Environmental Studies Laboratory 1, 2.* A laboratory investigating problems identified in ENST 601 and 602. The laboratory will emphasize the scientific method, problem solving, and critical-thinking skills. The class meets three hours per week. 601L concurrent with ENST 601; followed by 602L concurrent with ENST 602. 1 + 1 q.h.

700. *Environmental Chemistry.* Study of the fundamental chemical principles underlying common environmental problems, including hazardous wastes, acid precipitation, eutrophication, global warming, smog formation and ozone depletion. Chemistry of common pesticides and other hazardous chemicals will be studied. Prereq.: ENST 601 and CHEM 506. 4 q.h.

750. *Seminar.* Guest lecturers will examine current topics in environmental issues, including current research, application of technology, management strategies to reduce environmental impact, environmental ethics, policy, etc. Prereq.: ENST 601. 1 q.h.

760. *Environmental Regulations.* A survey of Federal and Ohio State regulations, to execute legal mandates. Prereq.: ENST 601. 4 q.h.

780. *Environmental Research.* A research project that involves problem identification, hypothesis formulation, experimentation, data analysis and interpretation. The research may be either basic or applied. A maximum of 6 q.h. of 780 and 790 will be credited toward the ENST major. Prereq.: Junior standing in Environmental Studies or permission of program director. 2-6 q.h.

790. *Internship/Cooperative.* Students will work under the direction of a faculty supervisor in a governmental agency or in the private sector as environmental specialists. An activities log and summary report are required. The course may be repeated. A maximum of 6 q.h. of 780 and 790 will be credited toward the ENST major. Prereq.: Junior standing in Environmental Studies. 2-6 q.h.

800. *Environmental Impact Assessment.* Analysis of the potential environmental effects resulting from the construction of buildings, highways, parking lots, mines, reservoirs, and waste disposal facilities. Standard procedures will be taught for evaluating and reporting the environmental impact of these activities. Prereq.: ENST 760 and senior standing. 4 q.h.

810. *Environmental Sampling Methods.* Sampling design, including number and type of samples and procedures for taking representative samples of air, water, soil and contents of storage and shipping containers. Three hours of lecture and four hours of laboratory. Prereq.: ENST 601 and MATH 714 (or equivalent). 4 q.h.

840. *Topics.* Independent study of special topics not included in available courses. Student will do extensive reading in, and write a formal report on, a specific area of Environmental Studies. Prereq.: Junior or senior standing, or consent of instructor. 2-4 q.h.

850. *Problems in Environmental Studies.* Student-initiated problem-solving projects in Environmental Studies. Prereq.: Junior or senior standing, or consent of supervising instructor. Permit required. 2-4 q.h.

**REQUIRED ENVIRONMENTAL STUDIES CORE COURSES**

| Courses | Cr. Hrs. |
|---|---|
| ENST 501 Professional Development in ENST | 1 |
| ENST 510 Field Trips in ENST | 1 |
| ENST 601 Fundamentals of ENST 1 | 4 |
| ENST 601L Fundamentals of ENST 1 Lab | 1 |
| ENST 602 Fundamentals of ENST 2 | 4 |
| ENST 602L Fundamentals of ENST 2 Lab | 1 |
| ENST 700 Fundamentals of Environmental Chem. | 4 |
| ENST 750 Seminar in ENST | 1 |
| ENST 760 Environmental Regulations | 4 |
| ENST 790 Environmental Internship/Cooperative | 2-6 |
| ENST 800 Environmental Impact Assessment | 4 |
| Math 714 Statistics | 5 |
| BIOL 508 Principles of Biology 1 | 4 |
| BIOL 612 Principles of Biology 4 | 4 |
| GEOL 505 Physical Geology | 4 |
| BIS 613 Microcomputer Applications or CSCI/CIS 520 Computer Systems Literacy | 4 |
| CIS 540 for the Science and Technology tracks CIS 520 or 540 for the Affairs and Health tracks only | |
| CHEM 505 Introduction to Chemistry 1 | 4 |
| CHEM 506 Introduction to Chemistry 2 | 4 |
| PHYS 501 Fundamentals 1 | 4 |

**REQUIRED COURSES FOR THE TRACK:**

***ENVIRONMENTAL SCIENCE TRACK***

| *Courses* | *Cr. Hrs.* |
|---|---|
| BIOL 780 Introduction to Ecology | 5 |
| ENST 780 Environmental Research | 2-6 |
| CEEGR 736 Environmental Engineering 1 | 4 |
| CHEM 515 General 1 | 4 |
| CHEM 516 General 2 | 4 |
| CHEM 517 General 3 | 4 |
| CHEM 603 Quantitative Analysis 1 | 5 |
| GEOG 603 Conservation of Natural Res. | 4 |
| GEOL 513 Phys. Evolution | 4 |
| GEOL 608 Geology Lab | 4 |
| GEOL 615 Geology and the Environment 1 | 4 |
| GEOL 815 Geology and the Environment 2 | 2 |
| PHYS 502 Fundamentals 2 | 3 |
| PHYS 503 Fundamentals 3 | 3 |
| MATH 550 Calculus | 5 |

***ENVIRONMENTAL HEALTH TRACK***

| Courses | Cr. Hrs. |
|---|---|
| AHLTH 807 Epidemiology | 4 |
| AHLTH 808 Environmental Concerns | 4 |
| AHLTH 708 Preventive Public Health Care | 4 |
| BIOL 551 Physiology and Anatomy | 4 |
| BIOL 552 Physiology and Anatomy | 4 |
| BIOL 604 Food Micro. | 4 |
| BIOL 801 Environmental Micro. | 4 |
| BIOL, CEEGR, CHEM 751 Water Quality Anal. 1 | 4 |
| BUTEC 502 Fund. Occup. Safety | 4 |
| CHEM 515 General 1 | 4 |
| CHEM 516 General 2 | 4 |
| CHEM 517 General 3 | 4 |
| CHEM 603 Quant. Anal. 1 | 5 |
| CHEM 864 Chem. Toxicology | 4 |
| GEOG 737 Soils and Land Use | 4 |
| PHYS 502 Fundamentals 2 | 3 |

***ENVIRONMENTAL AFFAIRS TRACK***

| Courses | Description |
|---|---|
| **Select 4 to 6 Q.H. from the following:** | |
| ANTHR 717 | Cultural Resource Mgmt. |
| ECON 510 | Economic Theory & the Indiv. |
| ECON 520 | Principles of Economics 1 |
| ECON 621 | Principles of Economics 2 |
| ECON 622 | Principles of Economics 3 |
| GEOG 650 | Economic Geography |
| SOCIO 789 | Humans & the Technological Society |
| PSYCH 704 | Conflict Resolution |
| **Select two of the following:** | |
| POLIT 601 | American National Movements |
| POLIT 701 | American Legislative Process |
| POLIT 707 | Interest Group Politics |
| POLIT 714 | Public Opinion |
| POLIT 718 | American Public Policy & Policy Anal. |
| POLIT 720 | Public Administration |
| POLIT 722 | State and Local Government |
| POLIT 742 | Politics & the Econ. of Devel. Areas |
| **Required Environmental Affairs Track Courses** | |
| GEOL 608 | Geology Lab |
| GEOL 615 | Geology and the Environment |
| GEOG 603 | Human Impact on Global Environ. |
| **Select one of the following:** | |
| GEOG 737 | Soils and Land Use |
| BIOl 686 | Introductory Soil Science |
| **Select two of the following:** | |
| ENGL/JOURN 622 | Basic Journalism |
| ENGL/JOURN 716 | Feature Writing |
| ENGL/JOURN 717 | Editorial & Opinion Writing |
| ENGL/JOURN 723 | Make-Up and Design |
| ENGL 743/743L | Tech. Comm./Text Processing |
| ENGL 744 | Proposal and Report Writing |
| ENGL 849 | Professional and Technical Writing |
| **Select one of the following:** | |
| SPCH 550 | Public Speaking |
| SPCH 651 | Comm. for Business & the Professional |
| SPCH 652 | Business & Professional Speaking |
| SPCH 657 | Organizational Communication |
| SPCH 750 | Advanced Public Speaking |
| SPCH 754 | Argumentation |
| **Select one of the following:** | |
| PREL 710 | Basic Public Relations |
| PREL 750 | Public Relations Communications |
| MGT 727 | Fundamentals of Management |
| MGT 735 | Comm. for Management and Business |
| Select 8 q.h. of approved electives at the 700 or 800 level. | |

***ENVIRONMENTAL TECHNOLOGY TRACK***

| Courses | Cr. Hrs. |
|---|---|
| BIOL/CEEGR/CHEM 751 Water Qual. Anal. 1 | 4 |
| BIOL/CEEGR/CHEM 752 Water Qual. Anal. 2 | 4 |
| CHEM 603 Quant. Anal. 1 | 5 |

CHEM 864 Chem. Toxicology .....4
GEOL 608 Geology Lab .....4
PHYS 502 Fundamentals 2 .....3
PHYS 503 Fundamentals 3 .....3
MATH 550 Calculus .....5
CEEGR 884 Solid and Haz. Waste Mgmt. .....4
GEOL 615 Geol. and the Environment 1 .....4

Electives

In addition to all of the above courses the following may also be taken as electives in Environmental Studies.

| Courses | Cr. Hrs. |
|---|---|
| ANTHR 717 Cultural Resource Mgmt. | 4 |
| BIOL 702 Microbiology | 4 |
| BIOL 804 Aquatic Ecology | 4 |
| BIOL 804L Aquatic Ecology Lab | 4 |
| BIOL 805 Ichthyology | 4 |
| BIOL 700 Non-Vascular Plants | 5 |
| BIOL 771 Entomology | 4 |
| BIOL 806 Field Biology | 5 |
| BIOL 762 Field Botany | 5 |
| BIOL 719 Environmental Micro. | 4 |
| CHEM 719 Organic Chem. 1 | 4 |
| CHEM 720 Organic Chem. 2 | 4 |
| CHEM 721 Organic Chem. 3 | 4 |
| CEEGR 820 Industrial Pollution Control | 4 |
| CEEGR 884 Solid & Haz. Waste Mgmt. | 4 |
| CEEGR 736 Environmental Engineering 1 | 4 |
| CEEGR 775 Hydrology | 4 |
| CEEGR 837 Environmental Engineering 2 | 4 |
| CHEM 803 Instrumentation 1 | 4 |
| CHEM 804 Instrumentation 2 | 4 |
| CHEM 807 Instrumentation Interfacing | 4 |
| ENGL 743 Prof./Tech. Comm | 4 |
| ENGL 744 Prop. & Report Writing | 4 |
| ENGL 622 Basic Journalism | 4 |
| ENGL 716 Feature Writing | 4 |
| ENGL 849 Prof. & Tech. | 4 |
| ENGL 723 Make Up & Design | 4 |
| ENGL 717 Edit. & Opinion | 4 |
| GEOG 630 Weather | 4 |
| GEOG 660 Cartography | 4 |
| GEOG 760 Analysis of Geographic Data | 4 |
| GEOG 732 Adv. Cartography | 4 |
| GEOL 765 GIS | 4 |
| GEOG 813 Field Methods | 4 |
| GEOL 615 Environ. 1 | 4 |
| GEOL 701 Geomorphology | 6 |
| GEOL 707 Applied Geophysics | 4 |
| GEOL 709 Subsurface Investigation | 2 |
| GEOL 804 Ground Water | 4 |
| GEOL 805 Sp. Problems | 1-5 |
| GEOL 807 Engr. Geology | 4 |
| MGT 725 Fundamentals of Management | 4 |
| MGT 735 Comm. for Mgmt. and Business | 4 |
| SOCIO 789 Humans & Tech. Society | 4 |
| PHYS 507 Physics of Energy | 4 |
| PSYCH 704 Conflict Resol. | 4 |
| POLIT 601 Am. Nat. Gov. | 4 |
| POLIT 701 Am. Legis. Proc. | 4 |
| POLIT 707 Interst Grp. Pol. | 4 |
| POLIT 714 Pub. Opinion | 4 |
| POLIT 718 Am. Public Pol. | 4 |
| POLIT 720 Public Admin. | 4 |
| POLIT 721 Urban Gov. | 4 |
| POLIT 722 State and Local Government | 4 |
| POLIT 742 Politics & Econ. of Develop. Areas | 4 |
| SPCH 550 Public Speaking | 4 |
| SPCH 651 Comm. Bus. & Prof. | 4 |
| SPCH 652 Bus. & Prof. Speaking | 4 |
| SPCH 657 Organizational Communication | 4 |
| SPCH 750 Adv. Public Speaking | 4 |
| SPCH 754 Argumentation | 4 |
| PREL 710 Basic Pub. Rel. | 4 |
| PREL 750 Pub. Rel. Comm. | 4 |
| ECON 813 Resource and Environmental Econ. | 4 |

## FOREIGN LANGUAGES

*Professors Aliberti, Viehmeyer (Chair); Associate Professors Becerra, del Pozo, Loud, Sarkissian, Smith; Assistant Professors Corbé, Masagara.*

**501, *502, *503. Elementary Foreign Language Topic 1, 2, 3.* Basic study of a foreign language stressing the fundamental skills of speaking, reading, writing, and understanding the spoken language as well as an introduction to the culture of its speakers. Language to be announced each time the course is offered. May be repeated if language is different. The prerequisite for 502 is 501 or equivalent; the prerequisite for 503 is 502 or equivalent. 4+4+4.

## AMERICAN SIGN LANGUAGE

*501, *502, *503. *Elementary American Sign Language 1, 2, 3.* Introduction to the language most often used by the deaf adult community of North America. Development of visual discrimination and memory skills through visual, gestural exercises. Basic sentence structure and vocabulary will be covered along with cultural information regarding the deaf community. The prerequisite for 502 is ASL 501 or equivalent; the prerequisite for 503 is ASL 502 or equivalent. 4+4+4 q.h.

*601, *602. *Intermediate American Sign Language 1, 2.* Additional vocabulary and grammatical features with emphasis placed on continued development of receptive and expressive skills. Discussions of American Sign Language from both a historical and a cultural perspective will be included. The prerequisite for 601 is ASL 503 or equivalent; the prerequisite for 602 is ASL 601 or equivalent. 4+4 q.h.

## FRENCH

*Assistant Professors Corbé, Masagara.*

A major in French comprises 45 quarter hours above the elementary level, including French 710, 750, 755, and at least one 800-level literature course. See Administration and Secondary Education for certification requirements.

No native speaker who has completed high school in a French-speaking country may receive credit for French 501, 502, 503, 504, 510, 601, or 602.

*Additional fee required.

Courses in French literature and culture (615, 705, 706, 750, 820, 830, 845, 850, 873) and 885 (if the topic deals with literature) satisfy the humanities requirement.

See General Requirements and Regulations for foreign language requirements for admission and degrees.

See Proficiency in a Foreign Language at the beginning of the College of Arts and Sciences section for foreign language requirements for A.B. and B.S. degrees.

## Lower Division Courses

*501, *502, *503. *Elementary French 1, 2, 3.* Fundamental principles of grammar taught through oral and written exercises and the reading of simple prose. The stress is on aural-oral facility. The prerequisite for 502 is FRNCH 501 or equivalent; the prerequisite for 503 is FRNCH 502 or equivalent. 4+4+4 q.h.

*504. *Intensive Elementary French.* A review course covering the material of FRNCH 501, 502 and 503 in one quarter. Students who have received credit for FRNCH 503 cannot receive credit for FRNCH 504. Prereq.: 2 years of high school French. 4 q.h.

*510. *Functional Approach to French.* Basic French for travel and everyday situations. Development of speaking ability and listening comprehension through practice, with a minimum of grammar. *Students with 3 years of high school French or credit for French 601 or higher receive no credit for French 510.* 5 q.h.

*601. *Intermediate French 1.* Grammar reviewed through oral and written exercises. Reading of modern prose and poetry. Prereq.: FRNCH 503 or equivalent. 4 q.h.

*602. *Intermediate French 2.* Continuation of French 601. Prereq.: FRNCH 601 or equivalent. 4 q.h.

615. *Intermediate French Readings.* Intensive reading of modern authors, intended primarily to prepare students for the survey courses. Prereq.: FRNCH 602 or equivalent. 4 q.h.

640. *Selected Topics.* Development of language skills through study of a topic that has practical applications to some area such as business, social studies, cultural trends, etc. May be taken three times for credit if topics are different, for a maximum of 8 q.h. A maximum of 4 q.h. may be applied to the major. Prereq.: FRNCH 602 or equivalent, or permission of instructor. 2-4 q.h.

655. *Conversational French 1.* Facility in oral expression through exercises on, and discussion of, assigned topics, and through prepared and extemporaneous situational dialogs. Prereq.: FRNCH 602 or equivalent. 4 q.h.

675. *French Composition.* Skill in writing developed through directed composition, starting at the intermediate level. Prereq.: FRNCH 602 or equivalent. 4 q.h.

## Upper Division Courses

705. *Survey of French Literature 1.* Middle Ages to 1800. Prereq.: FRNCH 615 or permission of instructor. 4 q.h.

706. *Survey of French Literature 2.* 1800 to the Present. Prereq.: FRNCH 615 or permission of instructor. 4 q.h.

*710. *Applied French Phonetics.* A systematic study of French phonetics to correct defects in pronunciation and intonation and give students a better understanding of the differences between the French and English sound systems. Prereq.: FRNCH 602. 4 q.h.

740. *Introduction to Business French.* A survey of business practices specific to French-speaking countries, with emphasis on France and Canada; development of oral communication in business situations; principles of effective letter and report writing. Prereq.: FRNCH 675 or equivalent. 4 q.h.

750. *French Civilization and Culture.* A study of contemporary French civilization and culture, focusing on what the French consider typical of their character, as exemplified by their traditions, magazines, films, and heroes. Readings and class work in French. Prereq.: FRNCH 602, or consent of instructor. 4 q.h.

755. *Conversational French 2.* Development of auditory comprehension through the use of taped materials featuring a variety of native voices; development of speaking ability through discussion of preassigned topics of current interest. Prereq.: FRNCH 655, or consent of instructor. 4 q.h.

771, 772. *Advanced French Grammar 1, 2.* A review in depth of French grammar through analysis of the stylistic devices of literary works, and through exercises, translation, and original composition. Prereq. for 771: FRNCH 675 or consent of instructor; for 772, FRNCH 771. 4+4 q.h.

820. *Selected Topics in 18th Century French Literature.* The study of major works from the "Age of Enlightenment," focusing on one of the following: one or more genres; themes; literary movements; specific authors; or some other areas of interest. Topic announced each time course is offered. May be taken twice if topics are different. Prereq.: FRNCH 615, and one of the following: FRNCH 675, 705, 706, 750, 771, 772. 4 q.h.

830. *Selected Topics in 19th Century French Literature.* The study of major works of the 19th century, focusing on one of the following: one or more genres; themes; literary movements; specific authors; or some other area of interest. Topic announced each time course is offered. May be taken twice if topics are different. Prereq.: FRNCH 615 and one of the following: FRNCH 675, 705, 706, 750, 771, 772. 4 q.h.

*Additional fee required.

845. *Selected Topics in 20th Century French Literature.* The study of major 20th century works, focusing on one of the following: one or more genres; themes; literary movements; specific authors; or other areas of interest. Topic announced each time course is offered. May be taken three times if topics are different. Prereq.: FRNCH 615 and one of the following: FRNCH 675, 705, 706, 750, 771, 772. 4 q.h.

850. *Selected Topics in French Literature Outside of France.* The study of major works written in the 20th century (or late 19th century) by French-speaking authors from one or more of these geographical areas: Africa, Belgium, Canada, The Caribbean, Lebanon, Louisiana, Luxembourg, Southeast Asia, Switzerland, and including such genres as novels, short stories, poetry, essays, the theatre. Topic announced each time course is offered. May be taken twice if topics are different. Prereq.: FRNCH 615 and one of the following: FRNCH 675, 705, 706, 750, 771, 772. 4 q.h.

873. *Textual Analysis.* Detailed study of excerpts from prose, drama, poetry, and non-literary texts, focusing on stylistic devices, structures, and vocabulary. Development of skills in various critical methods and techniques. Prereq.: FRNCH 615 and one of the following: FRNCH 705, 706, 771, 772. 4 q.h.

874. *Advanced French Composition.* A course designed to develop skills in free composition on assigned topics. Prereq.: FRNCH 772 or consent of instructor. 4 q.h.

885. *Special Topics.* Studies in French language, literature, or civilization ranging from medieval to modern times. Topic announced each time course is offered. May be taken three times for credit if content is not repeated. Prereq.: A 700-level French course appropriate to the current topic, or consent of instructor. 2-4 q.h.

# GERMAN

*Professor Viehmeyer (Chair).*

A major in German comprises 45 quarter hours above the elementary level. See Administration and Secondary Education for certification requirements.

No native speaker who has completed high school in a German-speaking country may receive credit for German 501, 502, 503, 505, 506, 510, 601 or 602.

Courses in German literature and culture (615, 750, 751, 860, 861, 875) and 885 (if the topic deals with literature) satisfy the humanities requirement.

See General Requirements and Regulations for foreign language requirements for admission and degrees.

See Proficiency in a Foreign Language at the beginning of the College of Arts and Sciences section for foreign language requirements for A.B. and B.S. degrees.

## Lower Division Courses

*501, *502, *503. *Elementary German 1, 2, 3.* A basic study of the German language stressing the fundamental skills of speaking, reading, writing, and understanding the spoken language as well as an introduction to German culture. The prerequisite for GERMN 502 is GERMN 501 or equivalent; the prerequisite for GERMN 503 is GERMN 502 or equivalent. 4+4+4 q.h.

505, 506. *German Reading for Translation 1, 2.* An introduction to German grammar stressing techniques of translation into English, including general, technical, and scientific texts, vocabulary and word formation to facilitate reading skills. The prerequisite for GERMN 506 is GERMN 505 or equivalent. 4+4 q.h.

*510. *Functional Approach to German.* Basic German for travel and everyday situations. Development of speaking ability and listening comprehension through practice, with a minimum of grammar. *Students with 3 years of high school German or credit for German 601 or higher receive no credit for German 510.* 4 q.h.

*601, *602. *Intermediate German 1, 2.* A review of fundamental grammatical principles with further development of abilities in sentence structure, reading, writing, speaking and understanding the spoken language. The prerequisite for GERMN 601 is GERMN 503 or 2 years of high school German or equivalent; prerequisite for GERMN 602 is GERMN 601 or 3 years of high school German or equivalent. 4+4 q.h.

610. *German Translation.* Techniques of translating complex sentence structures into English from general, business, technical, and scientific materials. Prereq.: GERMN 503 or GERMN 506, or equivalent. 4 q.h.

615. *Intermediate German Readings.* Designed to improve reading ability in German. The readings are from a wide range of interest areas. Prereq.: GERMN 602 or equivalent. 4 q.h.

618. *Intermediate German Conversation.* Practice in speaking German based upon directed conversation. Listening comprehension, pronunciation and vocabulary building are emphasized. Prereq.: GERMN 602 or equivalent. 4 q.h.

620. *Intermediate German Composition.* Designed to develop skill in writing German through directed composition. Prereq.: GERMN 602 or equivalent. 4 q.h.

640. *Selected Topics.* Development of language skills through the study of a topic, with practical applications to some area such as business, social studies, cultural trends, etc. May be taken three times for credit if the topics are different. Total credit in GERMN 640 may not exceed 8 q.h. A maximum of 4 q.h. may be applied to the major. Prereq.: GERMN 602 or equivalent, or permission of instructor. 2-4 q.h.

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*Additional fee required.

### Upper Division Courses

730. *Advanced German Grammar.* An intensive study and practice of selected problems in German grammar. Prereq.: GERMN 620. 4 q.h.

750. *German Cultural Heritage 1.* A survey of German civilization from the beginnings to 1949, including such topics as literature, history, music, and art. Prereq.: GERMN 615. 4 q.h.

751. *German Cultural Heritage 2.* A survey of German civilization since 1949, including such topics as literature, history, music, and art. Prereq.: GERMN 615. 4 q.h.

755. *Advanced German Conversation.* Continued practice in oral expression and listening comprehension through prepared and spontaneous exercises, discussions and situational dialogues. Prereq.: GERMN 618, or GERMN 615 and permission of instructor. 4 q.h.

860. *Selected Masterpieces of German Literature.* A critical study of an author, a genre, or a period of German literature from the 9th century to World War II. Topic will be announced each time the course is offered. May be taken twice for credit if content is not repeated. Prereq.: GERMN 615 or permission of instructor. 4 q.h.

861. *Contemporary German Literature.* A critical study of an author, a genre, or a literary trend since World War II. Topic will be announced each time course is offered. May be taken twice for credit if content is not repeated. Prereq.: GERMN 615 or permission of instructor. 4 q.h.

874. *Advanced German Composition.* Practice in original German composition with emphasis on appropriate stylistics. Prereq.: GERMN 730, or GERMN 620 and permission of instructor. 4 q.h.

875. *German-American Studies.* A survey of Germans in America since the colonial period, including Pennsylvania German language, literature and culture. Prereq.: GERMN 615 or permission of instructor. 4 q.h.

885. *Special Topics.* Studies in German language, literature, or civilization ranging from medieval to modern times. Topic announced each time course is offered. May be taken for a maximum of 12 hours credit, if content is not repeated. Prereq.: GERMN 615 or permission of instructor. 2-4 q.h.

## GREEK (ANCIENT)

*Associate Professor Sarkissian.*

*A major in Greek is not offered, but credit in Greek may be counted toward a major in Latin.*

See General Requirements and Regulations for foreign language requirements for admisssion and degrees.

See Proficiency in a Foreign Language at the beginning of the College of Arts and Sciences section for foreign language requirements for A.B. and B.S. degrees.

### Lower Division Courses

*501, *502, *503. *Elementary Greek 1, 2, 3.* Grammar, syntax, and simple composition; readings from various Greek writers and the New Testament. The prerequisite for GREEK 502 is GREEK 501 or equivalent; the prerequisite for GREEK 503 is GREEK 502 or equivalent. 4+4+4 q.h.

*601. *Intermediate Greek 1.* Readings in one or more authors; some review of elementary Greek if needed. Prereq.: GREEK 503 or equivalent, or consent of instructor. 4 q.h.

*602. *Intermediate Greek 2.* Continuation of Greek 601. Prereq.: GREEK 601 or equivalent, or consent of instructor. 4 q.h.

640. *Selected Topics.* Development of reading skills through the study of a selected work of literature. May be taken three times for credit if the topics are different. Total credit in GREEK 640 may not exceed 8 q.h. A maximum of 4 q.h. may be applied to the minor. Prereq.: GREEK 602 or equivalent, or permission of instructor. 2-4 q.h.

## ITALIAN

*Professor Aliberti.*

A major in Italian comprises 45 quarter hours above the elementary level. See Administration and Secondary Education for certification requirements.

No native speaker who has completed high school in an Italian-speaking country may receive credit for Italian 501, 502, 503, 504, 510, 601 or 602.

Courses in Italian literature and culture (708, 709, 801, 802, 830, 840) and 885 (if the topic deals with literature) satisfy the humanities requirement.

See General Requirements and Regulations for foreign language requirements for admission and degrees.

See Proficiency in a Foreign Language at the beginning of the College of Arts and Sciences section for foreign language requirements for A.B. and B.S. degrees.

### Lower Division Courses

*501, *502, *503. *Elementary Italian 1, 2, 3.* Fundamental principles of grammar taught through oral and written exercises and the reading of simple prose. The stress is on aural-oral facility. The prerequisite for ITALN 502 is ITALN 501 or equivalent; the prerequisite for ITALN 503 is ITALN 502 or equivalent. 4+4+4 q.h.

*504. *Intensive Elementary Italian.* A review course covering the material of ITALN 501, 502 and 503 in one quarter. Students who have received credit for ITALN 503 cannot receive credit for ITALN 504. Prereq.: 2 years of high school Italian. 4 q.h.

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*Additional fee required.

*510. *Functional Approach to Italian.* Basic Italian for travel and everyday situations. Development of speaking ability and listening comprehension through practice, with a minimum of grammar. *Students with 3 years of high school Italian or credit for Italian 601 or higher receive no credit for Italian 510.* 5 q.h.

*601. *Intermediate Italian 1.* Elementary composition and conversation based on grammar review. Reading material is chosen both to furnish a basis for study of Italian literature and to provide a working knowledge of the modern language. Prereq.: ITALN 503 or equivalent. 4 q.h.

*602. *Intermediate Italian 2.* A continuation of ITALN 601. Prereq.: ITALN 601 or equivalent. 4 q.h.

640. *Selected Topics.* Development of language skills through the study of a topic with practical applications to some area such as business, social studies, cultural trends, etc. May be taken three times for credit if topics are different. Total credit in ITALN 640 may not exceed 8 q.h. A maximum of 4 q.h. may be applied to the major. Prereq.: ITALN 602 or equivalent, or permission of instructor. 2-4 q.h.

### Upper Division Courses

708. *Italian Civilization 1.* A condensed study of the geography, history, literature, and social heritage of Italy, from the fall of the Roman Empire to the end of the 16th century. The course is taught in Italian; includes class discussion for improvement of oral facility. Prereq.: ITALN 602 or equivalent. 4 q.h.

709. *Italian Civilization 2.* A condensed study of the geography, history, literature, and social heritage of Italy, from the beginning of the 17th century to the present. The course is taught in Italian and includes class discussion. Prereq.: ITALN 602 or equivalent. 4 q.h.

720, 721. *Advanced Italian Grammar and Composition.* Study in depth of Italian grammar through exercises and original composition. Need not be taken in sequence. Prereq.: ITALN 602 or equivalent. 4+4 q.h.

730, 731. *Conversational Italian.* Designed to develop oral facility through exercises and discussion of assigned topics, and through prepared and extemporaneous situational dialogues. Need not be taken in sequence. Prereq.: ITALN 602 or equivalent. 4+4 q.h.

801. *Italian Literature of the 14th Century.* A study of the Italian literature of the 14th century with concentration on Dante's *Divine Comedy.* Prereq.: One 700-level Italian course. 4 q.h.

802. *Italian Literature of the 16th Century.* A course dealing with the literature of the Renaissance and concentrating on Ariosto, Bandello, Machiavelli, and Tasso. Prereq.: One 700-level Italian course. 4 q.h.

830. *Italian Literature of the 19th Century.* A study of the literature of the 19th century with concentration on Leopardi, Manzoni, Pascoli, and Carducci. Prereq.: One 700-level Italian course. 4 q.h.

840. *Italian Literature of the 20th Century.* A study of the literature of the 20th century and its movements and innovations, with concentration on D'Annunzio, Ungaretti, Quasimodo, Montale, Moravia, and Pirandello. Prereq.: One 700-level Italian course. 4 q.h.

885. *Special Topics.* Studies in Italian language, literature, or civilization ranging from medieval to modern times. Topic announced each time course is offered. May be taken three times for credit if content is not repeated. Prereq.: One 700-level Italian course. 2-4 q.h.

## LATIN

*Associate Professor Sarkissian.*

A major in Latin comprises 45 quarter hours of Latin above the elementary level. With the consent of the department chair, some of these hours may be taken in relevant courses other than Latin. Ancient Greek is recommended. See Administration and Secondary Education for certification requirements.

Courses in Latin Literature (650, 660, 707, 708, 709, 717, 718, 719, 727, 729, 809, 829) and Latin 885 (if the topic deals with literature) satisfy the humanities requirement.

See General Requirements and Regulations for foreign language requirements for admission and degrees.

See Proficiency in a Foreign Language at the beginning of the College of Arts and Sciences section for foreign language requirements for A.B. and B.S. degrees.

### Lower Division Courses

*501, *502, *503. *Elementary Latin 1, 2, 3.* Essentials of Latin grammar and some reading of connected prose. Designed for pre-law students and English and modern language majors as well as for students planning to continue in Latin. The prerequisite for LATIN 502 is LATIN 501 or equivalent; the prerequisite for LATIN 503 is LATIN 502 or equivalent. 4+4+4 q.h.

540. *Latin and Greek Elements in English.* A systematic study of English vocabulary derived directly and indirectly (e.g., through French) from Latin and Greek. 4 q.h.

*601. *Intermediate Latin 1.* A rapid review and expanded study of Latin grammar, with prose exercises, accompanied or followed by careful reading of selections from Catullus, Ovid, and other writers. Prereq.: LATIN 503 or equivalent. 4 q.h.

*Additional fee required.

*602. *Intermediate Latin 2.* Reading of selections from Cicero and other writers. Prereq.: LATIN 601 or equivalent. 4 q.h.

650. *The Augustan Age.* A study of the art, architecture, and literature of Rome from the assassination of Julius Caesar (44 B.C.) to the death of Augustus (14 A.D.), with emphasis on Augustus' exploitation of these media to enhance his image and to promote his consolidation of power and reorganization of the government. All readings will be in English. 4 q.h.

660. *Women in the Ancient World.* Study of various aspects of the lives of women in Ancient Greece and Rome. Emphasis will be on examination and evaluation of primary sources. All readings will be in English. 4 q.h.

### Upper Division Courses

707. *Cicero's Orations.* Selections from one or more of Cicero's orations with attention to style and content. Grammatical review and composition. Prereq.: LATIN 602 or equivalent. 4 q.h.

708. *Prose Epistle.* Selections from the letters of a Roman epistolographer (e.g., Cicero, Seneca, Pliny) with attention to style and content. Grammatical review and composition. Prereq.: LATIN 602 or equivalent. 4 q.h.

709. *Lyric Poetry.* Selections from Catullus' *Carmina,* and Horace's *Odes* with attention to style, meter, and content. Grammatical review and composition. Prereq.: LATIN 602 or equivalent. 4 q.h.

717. *Readings from Roman Philosophy.* Selections from the works of a Roman philosophical writer (e.g., Cicero, Seneca) with attention to style and content. Grammatical review and composition. Prereq.: LATIN 602 or equivalent. 4 q.h.

718. *Readings from Roman Drama.* Selections from one or more of the plays of Plautus and Terence with attention to style, content, and practical considerations of dramatic production in Rome. Grammatical review and composition. Prereq.: LATIN 602 or equivalent. 4 q.h.

719. *Readings from Roman History.* Selections from the works of a Roman historian (e.g., Sallust, Livy, Tacitus) with attention to style and content. Grammatical review and composition. Prereq.: LATIN 602 or equivalent. 4 q.h.

727. *Readings from Epic Poetry.* Selections from a Roman epic other than Virgil's *Aeneid* (e.g., Ovid's *Metamorphoses,* Lucan's *Civil War*) with attention to style, meter, and content. Grammatical review and composition. Prereq.: LATIN 602 or equivalent. 4 q.h.

729. *Vergil's Aeneid 1.* An introduction to the *Aeneid* based on a reading of the whole poem in English and of significant passages from Books 1-6 in Latin, with attention to style and content. Prereq.: LATIN 602. 4 q.h.

804. *Advanced Composition and Syntax.* A synthesizing review of the principles of Latin syntax and practice in writing Latin, with special attention to differences in idiom, structure, and style between English and classical Latin. Prereq.: Any 700-level Latin course. 4 q.h.

829. *Vergil's Aeneid 2.* A continuation of Latin 729 concentrating on reading significant passages of Books 7-12 in Latin and examination of relevant scholarly studies of the poem. Prereq.: Latin 729. 4 q.h.

885. *Special Topics.* Studies in Latin language, literature, or Roman civilization. Topic is announced each time course is offered. May be taken three times for credit, if content is not repeated. Prereq.: Any 700-level Latin course. 4 q.h.

## RUSSIAN

*Associate Professor Smith.*

A major in Russian comprises 45 quarter hours above the elementary level. With the consent of the department chair, some of these hours may be taken in Russian area studies. See Administration and Secondary Education for certification requirements.

No native speaker who has completed high school in a Russian-speaking country may receive credit for Russian 501, 502, 503, 505, 506, 510, 601 or 602.

Courses in Russian Literature (615, 620, 715, 716, 808, 809) and 885 (if the topic deals with literature) satisfy the humanities requirement.

See General Requirements and Regulations for foreign language requirements for admission and degrees.

See Proficiency in a Foreign Language at the beginning of the College of Arts and Sciences section for foreign language requirements for A.B. and B.S degrees.

### Lower Division Courses

*501, *502, *503. *Elementary Russian 1, 2, 3.* Fundamental principles of grammar taught through oral and written exercises and the reading of simple prose. The stress is on aural-oral facility. The prerequisite for RUSSN 502 is RUSSN 501 or equivalent; the prerequisite for RUSSN 503 is RUSSN 502 or equivalent. 4+4+4 q.h.

505, 506. *Russian Reading for Translation 1, 2.* An introduction to Russian grammar stressing techniques of translation into English, including general, technical, and scientific texts, vocabulary, word formation, and dictionary usage to facilitate reading skills. The prerequisite for RUSSN 506 is RUSSN 505 or equivalent. 4+4 q.h.

*510. *Functional Approach to Russian.* Basic Russian for travel and everyday situations. Development of speaking ability and listening comprehension

*Additional fee required.

through practice, with a minimum of grammar. *Students with 3 years of high school Russian or credit for Russian 601 or higher receive no credit for Russian 510.* 4 q.h.

*601. *Intermediate Russian 1.* Continuation of inductive grammar; readings in prose and poetry; oral and written practice based on readings. Prereq.: RUSSN 503 or equivalent. 4 q.h.

*602. *Intermediate Russian 2.* A continuation of RUSSN 601. Prereq.: RUSSN 601 or equivalent. 4 q.h.

604. *Intermediate Russian Conversation.* Intensive practice in common patterns of speech. Emphasis on construction, control, and use of idiomatic expressions. A student who has credit for RUSSN 763 may not receive credit for RUSSN 604. Prereq.: RUSSN 602 or equivalent. 4 q.h.

615. *Intermediate Russian Readings.* Reading and structural analysis of unsimplified selections from literature, journals, and newspapers. A student who has credit for RUSSN 762 may not receive credit for RUSSN 615. Prereq.: RUSSN 602 or equivalent. 4 q.h.

620. *Contemporary Soviet Culture.* An introduction to life in the Soviet Union during the last 20 years. Examination of recent Soviet literature, films, and journalistic media. Taught in English, with supplemental readings in Russian for language majors. 4 q.h.

640. *Selected Topics.* Development of language skills through study of a topic that has practical applications to some area such as business, social studies, cultural trends, etc. May be taken three times for credit if the topic is not repeated. Total credit in RUSSN 640 may not exceed 8 q.h. A maximum of 4 q.h. may be applied to the major. Prereq.: RUSSN 602 or equivalent, or permission of instructor. 2-4 q.h.

660. *Russian Literature in Translation.* Studies in selected authors, genres, or themes in Russian literature, read in English translation. Topic is announced each time course is offered. May be repeated once for credit if topic is different. 4 q.h.

### Upper Division Courses

700. *Third-year Russian Practicum.* Individualized development of language skills for students who have completed one course beyond Russian 602. Concurrent enrollment in another Russian area course is expected. May be taken up to three time for credit for a maximum of 6 q.h. 2 q.h.

715. *The Russian Cultural Heritage 1.* Themes and variations in Russian folklore, literary, religious, and philosophical writings, arts, and architecture, from Kievan Rus' to Imperial Petersburg. Readings, lectures, and discussion in English. Prereq.: Any Russian area course, or sophomore standing, or permission of the instructor. Satisfies the university area requirement in the humanities. 4 q.h.

716. *The Russian Cultural Heritage 2.* Decembrists through Octobrists: a survey of Russian literature, philosophy, and the arts in the Nineteenth and Twentieth Centuries, as they reflect changing views of a distinct national culture. Readings, lectures, and discussions in English. Prereq.: Any Russian area course, or sophomore standing, or permission of the instructor. Satisfies the university area requirement in the humanities. 4 q.h.

*765. *Practical Russian Phonetics.* Theory and practice of Russian speech, pronunciation, stress, rhythm, and intonation. Phonemic and morphemic analysis. Prereq.: RUSSN 602 or permission of the instructor. 4 q.h.

770. *Advanced Russian Grammar and Composition.* A review in depth of Russian grammar through exercises, translation, original composition, and analysis of stylistic devices of literary works. Prereq.: RUSSN 602 or permission of the instructor. 4 q.h.

800. *Fourth-year Russian Practicum.* Individualized development of language skills for students who have completed 12 or more q.h. beyond Russian 602. Concurrent enrollment in another Russian area course is expected. May be taken up to three times for credit, for a maximum of 6 q.h. 2 q.h.

808. *Russian Literature of the 19th Century.* Reading and interpretation of works by Pushkin, Lermontov, Gogol, Turgenev, Dostoevsky, Tolstoy, Chekhov, and Goncharov. Prereq.: Any 700-level Russian course. 4 q.h.

809. *Russian Literature of the 20th Century.* Reading and interpretation of works by Gorky, Blok, Mayakovsky, Fedin, Sholokhov, Fadeyev, Pasternak, and others. Prereq.: Any 700-level Russian course. 4 q.h.

885. *Special Topics.* Studies in Russian language, literature, or civilization ranging from medieval to modern times. Topic is announced each time course is offered. May be taken three times for credit if content is not repeated. Prereq.: Any 700-level Russian course. 2-4 q.h.

## SPANISH

*Associate Professors Becerra, del Pozo, Loud.*

A major in Spanish comprises 45 quarter hours above the elementary level. Required courses are Spanish 615, 735, 736, and one 800-level course, plus any two of the Spanish Civilization courses (752, 753, 754) and any two of the Latin American Civilization courses (756, 757, 758). See Administration and Secondary Education for certification requirements.

No native speaker who has completed high school in a Spanish-speaking country may receive credit for SPAN 500A, 500B, 500C, 501, 502, 503, 504, 507, 510, 601, 602.

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*Additional fee required.

Courses in Spanish Literature and culture (615, 752, 753, 754, 756, 757, 758, 838, 870, 890) and 885 (if the topic deals with literature) satisfy the humanities requirement.

See General Requirements and Regulations for foreign language requirements for admission and degrees.

See Proficiency in a Foreign Language at the beginning of the College of Arts and Sciences section for foreign langauge requirements for A.B. and B.S. degrees.

## Lower Division Courses

500A, 500B, 500C. *Elementary Spanish 1, 2, 3.* A competency-based course identical in content to SPAN 501, 502, 503. Each segment is divided into four units, each unit equivalent to one credit. Students sign up for the number of credits they feel they can complete each quarter. A total of four credits can be accumulated in each segment. Prereq. or concurrent: for SPAN 500B: SPAN 500A or 501 or equivalent; for SPAN 500C: SPAN 500B or 502 or equivalent, or SPAN 500A and 500B. 1-4 +1-4 +1-4 q.h.

*501, *502, *503. *Elementary Spanish 1, 2, 3.* Fundamental principles of grammar taught through oral and written exercises and the reading of simple prose. The stress is on aural-oral facility. The prerequisite for SPAN 502 is SPAN 501 or equivalent; the prerequisite for SPAN 503 is SPAN 502 or equivalent. 4+4+4 q.h.

*504. *Intensive Elementary Spanish.* A review course covering the material of SPAN 501, 502 and 503 in one quarter. Students who have received credit for SPAN 503 cannot receive credit for SPAN 504. Prereq.: 2 years of high school Spanish. 4 q.h.

507. *Spanish for the Spanish-Speaking.* A course conducted entirely in Spanish. Development of writing, reading and speaking ability through oral and written exercises. A student who has received credit for SPAN 501, 502, 503 may not receive credit for this class. No native Spanish speaker who has completed high school in a Spanish-speaking country may receive credit for this course. Does not count for major or minor. No prerequisite. 4 q.h.

*510. *Functional Approach to Spanish.* Basic Spanish for travel and everyday situations. Development of speaking ability and listening comprehension through practice, with a minimum of grammar. *Students with 3 years of high school Spanish or credit for Spanish 601 or higher receive no credit for Spanish 510.* 5 q.h.

*601. *Intermediate Spanish 1.* Review of grammar through oral and written exercises. Reading of modern prose and poetry. Prereq.: SPAN 503 or equivalent. 4 q.h.

601Y. *Intermediate Special Topics 1.* Material in Spanish at the 601 level in some specialized area. May be taken three times for credit if content is not repeated. Prereq.: SPAN 503 or equivalent. 2 q.h.

*602. *Intermediate Spanish 2.* Continuation of SPAN 601. Prereq.: SPAN 601 or equivalent. 4 q.h.

602Y. *Intermediate Special Topics 2.* Material in Spanish at the 602 level in some specialized area. May be taken three times for credit if content is not repeated. Prereq.: SPAN 601 or equivalent. 2 q.h.

615. *Intermediate Spanish Readings.* Intensive reading of a wide variety of 20th century texts including literature, essays, film scripts, journalistic and scholarly writing, designed to improve students' reading and interpretive skills in Spanish. Prereq.: SPAN 602 or equivalent or permission of instructor. 4 q.h.

640. *Selected Topics.* Development of language skills through study of a topic that has practical applications to some area such as business, social studies, cultural trends, etc. May be taken three times for credit if topics are different. Total credit in SPAN 640 may not exceed 8 q.h. A maximum of 4 q.h. may be applied to the major. Prereq.: SPAN 602 or equivalent, or permission of instructor. 2-4 q.h.

645. *Commercial Spanish.* Principles of effective commercial letter and report writing and oral communication in business in the Spanish-speaking world. Prereq.: SPAN 602 or permission of instructor. 4 q.h.

655. *Spanish Conversation 1.* Techniques of oral expression to develop fluency and accuracy. Practical strategies to help students communicate effectively in a variety of social contexts. Listening comprehension, pronunciation drills, functional vocabulary. Laboratory practice. Prereq.: SPAN 602 or equivalent or permission of instructor. 4 q.h.

## Upper Division Courses

724. *Spanish Pronunciation.* Theory and practice of Spanish pronunciation. Description of production of Spanish speech sounds and general characteristics of Spanish pronunciation. Topics on intonation will be included. Audio-lingual practice in class and in language laboratory. Prereq.: SPAN 602 or equivalent or permission of instructor. 4 q.h.

735. *Spanish Grammar 1.* A review of Spanish grammar through written and oral exercises, description and analysis of morphological topics, with emphasis on noun and verb systems. Discussion of contrasts with English and effective use of grammatical rules. Prereq.: SPAN 615 or equivalent or permission of instructor. 4 q.h.

736. *Spanish Grammar 2.* A review of Spanish grammar through written and oral exercises, description and analysis of syntactical topics, with emphasis on pronoun system, word order, as well as sentence formation and combination. Discussion of contrasts with English and effective use of grammatical rules. Prereq.: SPAN 735 or equivalent or permission of the instructor. 4 q.h.

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*Additional fee required.

737. *Spanish Composition.* Development of techniques of writing Spanish prose through composition exercises, summaries, letters, essays, reports, papers. Prereq.: SPAN 736 or equivalent or permission of instructor. 4 q.h.

752. *Spanish Civilization and Culture 1: Origins to 1700.* The development of the civilization of Spain (including Basque, Catalan, and Galician culture) from its origins to the end of the Golden Age as revealed in the literature, art, social and economic organization, folklore, crafts, and music characteristic of the period. Prereq.: SPAN 615 or equivalent or permission of instructor. 4 q.h.

753. *Spanish Civilization and Culture 2: 1700-1931.* The development of the civilization of Spain (including Basque, Catalan, and Galician culture) from the beginning of the Bourbon dynasty to the Second Republic as revealed in the literature, art, social and economic organization, folklore, crafts, and music characteristic of the period. Prereq.: SPAN 615 or equivalent or permission of instructor. 4 q.h.

754. *Spanish Civilization and Culture 3: 1931 to Present.* The contemporary civilization of Spain (including Basque, Catalan, and Galician culture) with emphasis on the period since 1975. Includes an examination of the literature, art, social and economic organization, music, and popular culture of the era. Prereq.: SPAN 615 or equivalent or permission of the instructor. 4 q.h.

755. *Spanish Conversation 2.* Development of oral expression through discussion of current topics in the context of world-wide Hispanic culture, politics, and economics. Expansion of vocabulary. Laboratory work according to individual needs. Prereq.: SPAN 655 or equivalent or permission of the instructor. 4 q.h.

756. *Latin America Civilization and Culture 1: From 1492 to 1820.* The cultural development of Latin America from the Discovery to the Wars of Independence as displayed in the literature, art, social and economic organization of the period. Prereq.: SPAN 615 or equivalent or permission of the instructor. 4 q.h.

757. *Latin America Civilization and Culture 2: From 1820 to 1910.* The development of Latin American culture from independence to 1910, and the role played by movements, such as Romanticism, Realism and modernism, in the development of the culture. Prereq.: SPAN 615 or equivalent or permission of the instructor. 4 q.h.

758. *Latin America Civilization and Culture 3: From 1910 to the Present.* The contemporary civilization and culture of Latin America. Processes and problems of modernization. The development of a distinctive Latin American culture from native as well as foreign literary and cultural movements. Prereq.: SPAN 615 or equivalent or permission of the instructor. 4 q.h.

838. *Topics in Modern Spanish-American Literature.* The study of major works from Spanish-American prose, poetry, and drama since modernism, focusing on one of the following: literary movements, themes, specific authors and countries, or other comparable areas of interest. May be taken three times if topic is different. Prereq.: SPAN 615 and one 700-level Spanish course, or permission of instructor. 4 q.h.

855. *Topics in Spanish Language and Linguistics.* An introduction to the terminology, concepts, bibliography and current issues in Spanish language and linguistics. Major topics include phonology, morphology, semantics, syntax, applied linguistics, transformational grammar, and other topics related to language variation and society. May be repeated once when topic varies. Prereq.: SPAN 735 and 736. 4 q.h.

870. *Topics in Spanish Literature.* Study of an author, a genre, or a movement in Spanish literature from 1492 to the present. The topic will be announced each time the course is offered. May be taken three times if content is not repeated. Prereq.: SPAN 615 plus one 700-level course or equivalent or permission of the instructor. 4 q.h.

885. *Special Topics.* Studies in Spanish language, literature, or civilization ranging from medieval to modern times. Topic is announced each time course is offered. May be taken three times for credit, if content is not repeated. Prereq.: SPAN 615 plus one 700-level Spanish course. 2-4 q.h.

890. *Topics in Latin America Literature.* Study of a movement, a genre or an author in Latin America from 1492 to the present. The topic will be announced each time the course is offered. May be taken three times if content is not repeated. Prereq.: SPAN 615 plus one 700-level Spanish course or equivalent or permission of the instructor. 4 q.h.

## GEOGRAPHY

*Professor Stephens; Associate Professors Humbertson, Maraffa (Chair), Shaklee; Assistant Professors Buckler, Campbell.*

Students majoring in geography earn the Bachelor of Arts degree. In addition to the usual university requirements, a student must complete a minimum of 48 hours in geography following the distribution listed below. At least 30 quarter hours must be earned in upper division geography courses.

Required of all geography majors: GEOG 503, GEOG 640, GEOG 650, GEOG 660, GEOG 750, and One course from: GEOG 603, 630, 730, 735, or 737. One course from GEOG 722, 726, 740, 741 or 830. Two courses from: GEOG 661, 732, 760, 765 or 813.

The department offers specialized areas of study that provide information and skills needed by students planning to enter the fields of Cartography, Climatology and Meteorology, City and Regional Planning, Elementary and Secondary Education, Earth Sciences, Environmental Studies, Retail Location, and to prepare for Graduate Studies in either Geography or a variety of professional fields.

## Physical Geography

The University's Science/Mathematics requirements are satisfied by the following geography courses.

### Lower Division Courses

503. *Introduction to Physical Geography.* An introductory analysis of selected elements of man's natural habitat and their distributions. The course examines topography, soil, vegetative cover and the hydrographic components of the natural landscape. 4 q.h.

603. *Human Impacts on the Environment.* The interactions between natural systems and human activities that result in environmental change or degradation of the earth's atmosphere, waters, soil, vegetation and animal life. Conservation, mitigation, and sustainable resource strategies are discussed. 4 q.h.

610. *Map Use and Interpretation.* A survey of how maps are used to depict physical and cultural landscapes. Topics include map elements and how to read different map types. 4 q.h.

630. *Weather.* An examination of basic weather elements, their interrelationships and the natural laws that govern them. Focus is on both global-scale atmospheric processes and localized factors that influence weather conditions and patterns. 4 q.h.

### Upper Division Courses

730. *Global Climates.* An examination of the earth's climates and the processes and controls responsible for their occurrence, distribution and change. Prereq.: GEOG 630. 4 q.h.

735. *Severe Weather.* General weather principles applied to the causes and distributions of droughts, floods, tornados, thunderstorms, hurricanes, blizzards and electrical storms. Prereq.: GEOG 630. 4 q.h.

*737. *Soils and Land Use.* Examination of soil characteristics influencing land use planning and development. Topics include the basic physical and chemical properties of soil, soil water, the soil-forming factors, the use and interpretation of county soil reports, and soil characteristics beneficial and detrimental to selected land use practices. Participation in field trips is required. Prereq.: GEOG 503 or GEOL 505; High school chemistry or CHEM 501 recommended. 4 q.h.

820. *Special Problems in Physical Geography.* An in-depth study of a specific problem in physical geography. The problem is dependent upon the student's interest and competence, availability of faculty supervision and departmental equipment. Maximum credit four hours. Prereq.: Thirty hours of Geography. 1-4 q.h.

823. *Special Problems in Atmospheric Studies.* An in-depth study of a specific problem related to atmospheric studies. The problem is dependent upon the student's interest and competence, availability of faculty supervision and departmental equipment. Maximum credit four hours. Prereq.: Thirty hours of Geography. 1-4 q.h.

## Human and Regional Geography

The University's Social Science requirements are satisfied by the following courses.

### Lower Division Courses

626. *World Geography.* A comparative study of representative regions of the world. Attention is focused on an examination of the physical, cultural, social and political attributes of selected regions. 4 q.h.

640. *Human Geography.* An examination of the place to place variation in people's utilization of the earth. Topics examined include the distribution of people, spatial variations in culture, urbanization and politization of space. 4 q.h.

650. *Economic Geography.* A study of the place to place variation in economic activities. Particular emphasis is placed on the spatial attributes of industrial, wholesale and retail activities. 4 q.h.

*660. *Cartography.* An introduction to map use, the principles of map compilation and design, including the production of thematic maps on microcomputers. Prereq.: Four hours of geography. 4 q.h.

*661. *Introduction to Remote Sensing.* An introduction to the interpretation of physical and cultural phenomena as recorded by remote sensing systems. Emphasis is placed upon conventional aerial photography. Prerequisite: Four hours of Geography. 4 q.h.

### Upper Division Courses

722. *Historical Geography.* A study of the methodologies used in historical geography and applied to selected regions. Prereq.: GEOG 640. 4 q.h.

726. *Urban Geography.* A study of the changing spatial patterns associated with the rise of urbanism, comparative urban developments and cities as a part of the urban system. Prereq.: GEOG 640. 4 q.h.

*732. *Advanced Cartography.* A course emphasizing map production, data manipulation, and an examination of the problems and techniques of using computers to create maps. Prereq.: GEOG 660. 4 q.h.

740. *Marketing Geography.* An investigation of the spatial manifestations of marketing. Particular stress is placed on the delimiting and measurement of markets. Both industrial and retail marketing are examined. Prereq.: GEOG 650. 4 q.h.

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*Additional fee required.

741. *Transportation Geography.* Spatial properties of interregional and intraurban transportation. Topics covered include network development, movement patterns of people and commodities and the impact of transportation on other activities. Prereq.: GEOG 650. 4 q.h.

750. *Topics in Regional Geography.* Application of the regional method to selected areas of the world. Topic is announced each time the course is offered. May be repeated three times for credit, if content is not repeated. Maximum credit twelve hours. Prereq.: GEOG 626 or GEOG 640. 4 q.h.

755. *Tourism Geography.* Spatial components of leisure travel and the travel industry. Topics include travelers' origins and destinations; transportation modes and routing; impacts on communities, regions and nations and the role of the government and professional organizations. Prereq.: GEOG 626. 4 q.h.

756. *Tourism Planning.* Examination of the resources, site characteristics, analysis techniques and marketing for potential tourist development. Emphasis is placed on the planning process. Prereq.: GEOG 755. 4 q.h.

*760. *Analysis of Geographic Data.* Techniques of data description; introduction to statistical methods, with emphasis on problems unique to geographic data. Prereq.: 8 credit hours of Geography or permission of instructor. 4 q.h.

*765. *Geographic Information Systems.* The components of a GIS, the characteristics of spatial data and exploration of GIS applications. Prereq.: one of the following: GEOG 661, GEOG 732 or GEOG 760. 4 q.h.

*813. *Field Methods.* Practical experiences in geographic data collection. Emphasis is on applying the techniques of observation, sampling, interviewing and mapping to both physical and human phenomena having geographical dimensions. Students will apply these techniques at several scales: The local campus, the Youngstown-Warren SMSA, a larger metropolitan region, and other nearby regions. Participation in field trips is mandatory. Prereq.: junior standing, eight hours of geography, and consent of instructor. 4 q.h.

821. *Special Problems in Human Geography.* An in-depth study of a specific problem in Human Geography. The problem is dependent upon the student's interest and competence, availability of faculty supervision and departmental equipment. Maximum credit four hours. Prereq.: Thirty hours of Geography. 1-4 q.h.

822. *Special Problems in Cartography.* An in-depth study of a specific problem in cartography. The problem is dependent upon the student's interest and competence, availability of faculty supervision and departmental equipment. Maximum credit four hours. Prereq.: Thirty hours of Geography. 1-4 q.h.

830. *Topics in City and Regional Planning.* Selected issues related to planning. Topics are announced each time the course is offered. May be taken up to three times for credit, if topics are not repeated. Replaces GEOG 805 and GEOG 809. Prereq.: GEOG 726 recommended or consent of the instructor. 4 q.h.

840. *Seminar in Geography.* Selected aspect of geography not covered in existing courses. Topic to be announced each time the course is offered. May be taken up to two times for credit, if topic is not repeated. Prereq.: Twelve hours of Geography. 1-4 q.h.

850. *International Area Study.* A course in the geography and history of a selected international area with emphasis on cultural development by traveling in the selected region. The class *and travel* is supervised by the Geography and/or History faculty. The course grade is based upon a term paper which must be submitted within 60 days after the end of the course. Prereq.: By permit only. 4-12 q.h.

## GEOLOGY

*Professors Khawaja (Chair), A. Harris, Singler; Assistant Professors Beiersdorfer, Dick.*

Geology may be the major for the degree of Bachelor of Science or Bachelor of Arts.

The major in Geology provides the student with a background for professional work in geology, for teaching geology, for graduate work in geology, and for work in related fields.

For the Bachelor of Science degree, students majoring in Geology must complete, in addition to the general University requirements, a minimum of 58 quarter hours of courses in geology, of which 35 are specified and 23 are elective. The specified courses are Geology 505, 513, 514, 608, 700, 704, 704L, 708, and a course in Field Geology. The latter must carry a minimum of four quarter hours of transferable credit. An additional 32 quarter hours of courses in the sciences area are required from Biology, Chemistry, Physics, Mathematics and Computer Sciences. Students should consult with the geology chair for details in the B.S. program.

The Field Camp and the specific courses for the minor are chosen in consultation with the advisor and the department curriculum committee.

For the Bachelor of Arts degree, students majoring in Geology must complete, in addition to the general University requirements, 36 quarter hours in Geology and other science courses, and 40 quarter hours of elective courses in Geology, Biology, Chemistry, Civil Engineering, and Geogrpahy. The required courses are Geology 505, 513, 514, 608, 615, CHEM 515, 516, BIOL 508 and CSCI 530. Students should consult with the Geology Chair for details of the B.A. program and for the elective course options. Electives may be chosen from the following: Geology 602, 700, 701, 702, 704, 704L, 706, 708, 709, 802, 803, 804, 805, 807, 815.

*Additional fee required.

The students may choose any minor desired. An additional 12 q.h. are required from Biology, Chemistry, Geography, and Civil Engineering. Students should consult the Geology chair for details concerning the B.A. program. Required courses outside the department are: Chemistry 515, 516; Biology 508; Computer Science 530.

Geology 505, 510, 513, 514 and 602 are recommended to satisfy the University science requirement.

All Geology courses apply towards a science requirement.

## Lower Division Courses

505. *Physical Geology.* A study of the various physical and chemical processes acting on and within the earth and their products. Credit for this course may be applied towards the University science requirements. 4 q.h.

505H. *Honors Physical Geology.* Concepts of the earth as a dynamic planet, investigated through a variety of lectures, text and journal readings, and independent library-research assignments. Prereq.: Eligibility for the Honors Program or consent of instructor. 4 q.h.

508. *Geology of Gem Stones and Allied Materials.* Formation, occurrence, and distribution of gem materials. Properties and identification of gem stones; factors affecting their value. Introduction to synthetic/artificial gem materials. Not applicable toward a Geology major. 4 q.h.

510. *Geology of National Parks.* Geologic history of national parks; geologic processes observed in North American parks and Hawaii. Simulated field trips to several major parks. Not applicable toward a Geology major. 4 q.h.

513. *Physical Evolution of North America.* Origin and evolution of the continent of North America; focus on the geologic evidences and physical changes through geologic time; global role of plate tectonics. 4 q.h.

*514. *Life of the Geologic Past.* Origin, classification, and evolution of plants, invertebrates and vertebrates through geologic time as evidenced by the fossil record; contemporary understanding of the extinction of various life forms, such as the dinosaurs. Three hours lecture, two hours lab. 4 q.h.

602. *Introduction to Oceanography.* Survey in geological, physical, chemical, and biological oceanography; description and distribution of properties and their relationship to circulation, shorelines, ocean features, sediments, organisms, and environments. 4 q.h.

*608. *Geology Laboratory.* Identification of minerals and rocks, the interpretation of topographic and geologic maps and outside work as a practicum for geologic problem solving. Four hours lab, two hours lecture. One full-day field trip is required. Prereq.: GEOL 505 or 611. 4 q.h.

*611. *Geology for Engineers.* Study of geologic principles, processes, and materials; focus on recognition geologic factors as they apply to engineering operations and projects. Laboratory work includes examination of minerals, rocks, maps, and case histories. Three hours of lecture and three hours of laboratory a week. 4 q.h.

615. *Geology and the Environment I.* A study of the interrelationship of human activity and the geologic environment. An examination of geologic hazards, geological considerations in waste disposal, resource utilization, and land use. Prereq.: GEOL 505 or 611. 4 q.h.

699. *Individual Study.* The introductory study of problems or issues in geology, or a review of literature relating to a specific geologic topic. A maximum of 4 quarter hours may be taken. Prereq.: 12 q.h. in geology in appropriate courses, consent of Geology Department Chair and Instructor. 1-4 q.h.

## Upper Division Courses

*700. *Mineralogy.* The occurrence, composition, and crystallography of common and economically important minerals. Identification of minerals using physical properties, chemical tests, and X-ray diffraction. Four hours of laboratory and two hours of lecture per week. Prereq.: GEOL 608 and CHEM 501 or equivalent. Students who have completed GEOL 801 may not take this course for degree credit. 4 q.h.

*701. *Geomorphology.* A detailed study of various landforms and their origins. The laboratory work consists of use of aerial photographs and topographic maps in recognizing and interpreting landforms. Five hours of lecture and four hours of laboratory a week. Prereq.: GEOL 608. 6 q.h.

702. *Glacial Geology.* A study of glacier types: their origin, movement, erosional/depositional contributions, and their relationship to various non-glacial features. Emphasis is on the Pleistocene glacial succession in North America. Field trips are an integral part of the course. Prereq.: GEOL 505. 4 q.h.

*703. *Physiography of the United States.* A study of the physiographic regions of the United States. Maps, diagrams, and aerial photographs are used in laboratory work. Five hours of lecture and four hours of laboratory a week. Prereq.: GEOL 608. 6 q.h.

704. *Structural Geology.* Description and interpretation of geologic structures, mechanical properties; stress-strain relationships, regional structure of North America, and major tectonic theories. Prereq.: GEOL 608. Geology majors must take 704L concurrently with 704. 3 q.h.

*704L. *Structural Geology Laboratory.* Structural geology techniques and analyses, including orthographic solutions, stereographic projections, and interpretation of maps. One hour lecture, two hours of lab per week. Prereq. or concurrent: GEOL 704 and MATH 520, or consent of instructor. 2 q.h.

*Additional fee required.

706. *Geology of Economic Mineral Deposits.* A study of the occurrence, origin, and distribution of mineral deposits; with special attention to their economic use. Field trips are mandatory. Prereq.: GEOL 608. 5 q.h.

707. *Applied Geophysics.* Applications of geophysics to geological problems; geophysical exploration for mineral and fuel resources. The study will include fundamentals of terrestrial electricity, seismology, geomagnetism, terrestrial heat, and terrestrial gravity in addition to the structure and composition of the earth as determined by geophysical methods. Prereq.: GEOL 505, PHYS 503; MATH 571 recommended. 4 q.h.

*708. *Megascopic Petrography.* An in-depth study of the origin, mode of occurence and classification of igneous, sedimentary and metamorphic rocks based upon their megascopic characteristics and mineral constituents. Five hours of lecture and four hours of laboratory a week. Prereq.: "C" or better in GEOL 608. 6 q.h.

*709. *Subsurface Investigations.* An introduction to subsurface investigative methods. Instruction provided in a combined lecture, laboratory, and field setting. Students are presented with the task of solving an actual subsurface geological problem, using rock, soil, and water samples, maps, reports, well logs, and geophysical data. Two field trips required. Three hours lecture and two hour lab per week. Prereq.: GEOL 608 or 611; MATH 571 recommended. 4 q.h.

*714. *Principles of Paleontology.* A detailed study of fossil invertebrates, including their origin, classification, paleoecology and stratigraphic utilization. Three hours of lecture and three hours of laboratory per week. Prereq.: GEOL 514 or consent of instructor. 4 q.h.

717. *Geochemistry.* An examination of chemical principles that are applicable to the study of geologic processes and materials. Topics include geochemical cycles, stable and radioactive isotopes and phase equilibria. Prereq.: GEOL 700 and CHEM 517 or consent of instructor. 4 q.h.

720. *Field Investigations in Geology.* A field-based approach to the study of geological concepts and problems. Class and travel supervised by Geology faculty; location, duration of stay, hours, credit, and grading criteria dependent on the site and nature of the geological concepts and problems investigated. The course may be repeated. A maximum of 5 quarter hours may be applied toward Geology major requirements. Prereq.: By permit only. 1-5 q.h.

*802. *Stratigraphy and Sedimentation.* The formation and physical characteristics of stratified rocks; principles of correlation; criteria for classification of sedimentary rocks, depositional environments, and paleogeographic reconstructions. Three hours of lecture and two hours of laboratory a week. Prereq.: GEOL 513 and 608. 4 q.h.

*803. *Optical Mineralogy.* The theory and use of the polarizing microscope and its application to the study of crystalline material, including asbestos materials. Two hours of lecture and four hours of laboratory a week. Prereq.: GEOL 700. 4 q.h.

804. *Ground Water.* A study of the geologic and hydrologic factors controlling the occurrence and behavior of water beneath the earth's surface. Three hours lecture and two hours lab per week. Prereq.: GEOL 608 or 611; MATH 571 recommended. 4 q.h.

805. *Special Problems in Geology.* A study in depth of a specific problem in one of the branches of geology. The problem will depend on the student's interest and qualifications and the equipment available. A maximum of 10 quarter hours may be taken. Prereq.: Consent of the department chair and the consent of the instructor. 1-5 q.h.

*806. *Introduction to X-Ray Diffraction.* An introduction to the theory of X-ray diffraction and spectroscopy with respect to crystalline substances and the use and application of the Debye-Scherrer Powder Camera, the back-reflection single-crystal laue camera, X-ray diffraction, X-ray spectroscopy (fluorescence) in the determination of the crystalline structure, composition and identification of inorganic and organic materials. Two hours of lecture and three hours of laboratory a week. Prereq.: GEOL 700 or consent of the department chair. 3 q.h.

*807. *Engineering Geology.* An introduction to the principles and applications of geology in the solution of geotechnical problems. Topics include: soil and rock mass classification; project site selection considerations; slope stability analysis; runoff control; and erosion control. Three hours of lecture and two hours of laboratory per week. Prereq.: GEOL 708 or consent of instructor; MATH 525. 4 q.h.

*812. *Sedimentology.* Study of the geology of sedimentary deposits, including sedimentary tectonics, petrology, and environments; emphasis on clastic and carbonate rocks. Two hours of lecture and one hour of laboratory a week. Prereq. or concurrent: GEOL 802 or permission of instructor. 2 q.h.

815. *Geology and the Environment II.* In-depth examination of earth processes, earth resources and properties of earth materials as they relate to human activities and their geologic consequences. Prereq.: GEOL 615 or consent of instructor and junior standing. 4 q.h.

817. *Environmental Geochemistry.* An application of low-temperature aqueous geochemistry and geochemical computer modeling to environmental problems such as acid mine drainage, geochemical cycling of trace elements and nutrients, hazardous waste remediation, nuclear waste disposal, and surface and ground-water contamination. Prereq.: GEOL 717 and CIS/CSCI 520 (or equivalent) or consent of instructor. 4 q.h.

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*Additional fee required.

# GERMAN

*See Foreign Languages.*

# GREEK

*See Foreign Languages.*

# HISTORY

*Professors Beelen, Berger, Blue, Domonkos, Earnhart, Friedman, Huang, Jenkins (Chair), Kulchytsky, Satre; Associate Professor Viehe; Assistant Professors Pallante, York.*

The student majoring in History must complete, in addition to the general University requirements (see *Requirements for the Degree,* at the beginning of the College of Arts and Sciences Section), the group requirements listed below. It is recommended that the student select courses with assistance from an advisor, since certain courses are preferable to others according to whether one contemplates graduate study, secondary school teaching, or some other career.

Group A — History 511, 512, 513, 605, 606 or 511H, 512H, 513H, 605H, 606H.

Group B — Select three courses from the following courses:
601, 630, 701, 702, 704, 706, 708, 710, 712, 713, 714, 715, 717, 718, 720, 721, 723, 724, 725, 726, 732, 733, 734, 736, 737, 738, 739, 740, 741, 742, 743, 744, 747, 748, 762, 801, 808, 809, 810, 811, 812.

Group C — Select three courses from the following courses:
699, 752, 753, 754, 755, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 777, 778, 779, 780, 781, 782, 785, 788, 790, 791, 792, 793, 794, 850, 851.

Group D — Select three courses from the following courses:
611, 661, 662, 663, 727, 728, 729, 740, 749, 750, 770, 771, 772, 776, 789, 796, 797, 798, 799, 850, 860.

NOTE: No course can be counted in more than one group.

Students transferring 30 or more quarter hours in history to YSU from another institution must meet the group requirements listed above to obtain a major in History for graduation. At least five of the courses in groups B, C, and D must be taken at YSU.

It is recommended that the student in choosing electives should acquire as broad a background as possible in the social sciences and the humanities. Particular attention is called to courses offered by the Departments of English, Economics, Political Science, Philosophy, Art, Music, Geography, and Sociology, and to the Humanities courses. Students contemplating graduate work in history should consider taking more foreign language courses than the minimum necessary to meet the general degree requirement. Finally, the student is reminded that the Department of History takes seriously the University's emphasis on the importance of adequate competence in the English language (See *Proficiency in English,* in the General Requirements and Regulations section); when there is need, students majoring in History should include in their programs advanced composition courses and courses in speech.

## Lower Division Courses

502. *History of the Labor Movement.* Identical with Labor Studies 502. Not applicable to the History major. 4 q.h.

511. *Introduction to World History 1.* Origins and growth of the major civilizations of the world from earliest times to about 1300. 4 q.h.

511H. *Introduction to World History 1.* An honors course in the origins and growth of the major civilizations of the world from earliest times to about 1300 with emphasis on the analysis and critical evaluation of historical developments. Prereq.: Eligibility for admission to University Honors Program, or recommendation of a history instructor. 4 q.h.

512. *Introduction to World History 2.* Development of the major civilizations of the world from about 1300 through 1800. 4 q.h.

512H. *Introduction to World History 2.* An honors course in the origins and growth of the major civilizations of the world from about 1300 to 1800 with emphasis on the analysis and critical evaluation of historical developments. Prereq.: Eligibility for admission to University Honors Program, or recommendation of a history instructor. 4 q.h.

513. *Introduction to World History 3.* Transformation of major civilizations of the modern world from 1800 to the present. 4 q.h.

513H. *Introduction to World History 3.* An honors course in the origins and growth of the major civilizations of the world from 1800 to the present with emphasis on the analysis and critical evaluation of historical developments. Prereq.: Eligibility for admission to University Honors Program, or recommendation of a history instructor. 4 q.h.

590. *Introduction to Women's Studies.* Introduces students to key concepts, theoretical frameworks, and inter-disciplinary research drawn from current scholarship about women. The course includes cross-cultural and historical analyses but concentrates on major issues relevant to the status and roles of contemporary American women including an examination of the effects of sexism, racism, ethnicity, and class distinction. *Does not count toward the history major:* does not fulfill the *Social Studies* requirement. Prereq.: ENGL 550. 4 q.h.

601. *American Military History.* A survey of American military history from the origin of the United States Army to the present, with emphasis on how military policies and strategies have been influenced by the domestic and foreign affairs of the United States. Identical with MILSC 601. 4 q.h.

605. *History of the United States 1.* A general survey of the political, social, and economic development of the United States to 1877. 4 q.h.

605H. *History of the United States 1.* An honors course concerning the political, social, and economic development of the United States to 1877 with emphasis on the analysis and critical evaluation of historical developments. Prereq.: Eligibility for admission to University Honors Program, or recommendation of a history instructor. 4 q.h.

606. *History of the United States 2.* A general survey of the political, social, and economic development of the United States from 1877 to the present. HIST 605 is not a prerequisite. 4 q.h.

606H. *History of the United States 2.* An honors course concerning the political, social, and economic development of the United States from 1877 to the present with emphasis on the analysis and critical evaluation of historical developments. Prereq.: Eligibility for admission to University Honors Program, or recommendation of a history instructor. 4 q.h.

611. *Latin America.* A survey of Latin America from its beginnings to the present. Emphasis is on late 19th and 20th century developments. 4 q.h.

630. *The Black Experience in American History.* A historical study of black people's roles in and contribution to the political, social, and economic development of American society. Credit for 630 will not be given to students who have taken either 730 or 731. 4 q.h.

655H. *History of Western Civilization 1.* An honors course in Western Civilization to 1715 with emphasis on analysis of historical developments. Prereq.: high ACT or SAT verbal scores and/or A or B in high school World History, and/or recommendation of instructor in History 512, 513, or 656H. 4 q.h.

656H. *History of Western Civilization 2.* An honors course in Western Civilization from 1715 to present with emphasis on analysis of historical developments. Prereq.: high ACT or SAT verbal scores and/or A or B in high school World History, and/or recommendation of instructor in History 511, 512 or 655H. 4 q.h.

661. *Middle Eastern Civilization.* A survey of North Africa, the Middle East, and the Indian Subcontinent from ancient times to the present, with special emphasis on nationalist movements in these regions in the past two centuries. 4 q.h.

662. *History of Asian Civilization.* Institutions and cultures of East Asia from ancient times to date. Emphasis on modern times. 4 q.h.

663. *African Civilization.* A survey of the cultural, political, social, and economic development of Africa from antiquity to the present, viewed in the context of world history. 4 q.h.

699. *History of Medicine.* Practices and theories of healing, and their relation to social and intellectual context, from ancient times to the present. 4 q.h.

## Upper Division Courses

701. *Colonial America.* A thorough examination of the origins and development of English colonization in America to the middle of the 18th century, with special emphasis on colonial social structure, economic patterns, and political behavior. Prereq.: HIST 605. 4 q.h.

702. *The Revolution and the Constitution.* The causes of the American Revolution, both British and Colonial, and its consequences; the origins of the Constitution and the creation of the American Republic. Prereq.: HIST 605. 4 q.h.

704. *The Age of Jefferson and Jackson.* An intensive study of the age of Jefferson and Jackson, covering the period 1789 to 1840. Prereq.: HIST 605. 4 q.h.

706. *America Before the Civil War, 1840-1860.* An intensive study of the deepening sectionalism of the country culminating in the outbreak of the Civil War. Prereq.: HIST 605. 4 q.h.

708. *The Civil War and Reconstruction.* An intensive study of the war's military aspects; problems of the confederacy: the effects of the war on American society; and problems of reconstruction in both North and South. Prereq.: HIST 605. 4 q.h.

710. *Emergence of Modern America.* The United States from reconstruction to the Treaty of Versailles: the transformation of this nation from a rural to an urban society and the role played by immigrant-ethnic-minority groups in early 20th century political development. Emphasis will be placed on historical interpretation. Prereq.: HIST 606. 4 q.h.

712. *Recent America.* Domestic and international affairs from World War I through World War II, with emphasis on historical interpretation of the twenties and thirties. Prereq.: HIST 606. 4 q.h.

713. *Contemporary America.* The United States in contemporary times. Emphasis will be placed on economic, social, political, and cultural issues of historical significance dividing and uniting the nation in the period from World War II to the present. Prereq.: HIST 606. 4 q.h.

714. *Economic History of the United States.* A historical examination of the economy of the United States from colonial times to the present. Special emphasis is placed on the impact of the Industrial Revolution upon both individuals and the society in general. Prereq.: HIST 605 or 606 or consent of instructor. 4 q.h.

715. *Introduction to Historical Preservation.* Introduction to the field of historical preservation. Provides historical context for the discipline as well as a basic grounding in the concepts and opportunities of the field. Prereq.: HIST 605 and 606. 4 q.h.

717, 718. *Constitutional History of the United States 1, 2.* The development of the American Constitutional system from the beginning of the republic to 1900, and from 1900 to the present: the formation and evolution of the constitution by judicial decisions and the influence of political change. Prereq.: HIST 605 for 717; 606 for 718. 4+4 q.h.

720, 721. *Social and Cultural History of the United States 1, 2.* An examination of the social and cultural development of the United States through the Civil War, and since the Civil War, with emphasis on the relationship between ideas and society. Attention is given to such areas as immigration, religion, education, family and social structure, painting, architecture, literature, and music. Prereq.: HIST 605 for 720; 606 for 721. 4+4 q.h.

723. *History of American Sports.* An examination of sports within America from earliest times to the present. Special emphasis will be placed upon the manner in which sports and society have influenced each other, such as racial and class relationships, social mobility, politics, religion, and foreign policy. Prereq.: HIST 605 or 606. 4 q.h.

724. *American Environmental History.* The interaction of humans and nature within the broader development of America, from colonial origins to the present. Emphasis is on the relationship between environmental change and social change. Prereq.: HIST 605 or 606 or permission of instructor. 4 q.h.

725. *Lyrics in American Folk Music.* A historical survey of the content, development, and significance of American folk music lyrics within a historical framework by means of the historical method. Types of folk music, such as ballads, blues, country, protest, and contemporary, are the tools for a historical examination of the stabilizing and divisive elements that are a part of the American heritage. Prereq.: HIST 605 or 606, or consent of instructor. 4 q.h.

726. *History of Women in the United States.* Analysis of the various roles and contributions of women in American history. Prereq.: HIST 590 or 605 or 606. 4 q.h.

727. *Mexico and the Caribbean.* Includes Mexico, Colombia, Venezuela, and the Central American Republics. Special consideration is given to 20th-century Mexico. Prereq.: HIST 611 or consent of instructor. 4 q.h.

728. *History of South America.* The Spanish-American Republics and Brazil. Prereq.: HIST 611 or consent of instructor. 4 q.h.

729. *History of Latin American-United States Relations.* Survey of Latin American-U.S. relations from the founding of the New World to the present, with greatest emphasis on the 20th century. Prereq.: HIST 611 or consent of instructor. 4 q.h.

732. *The West in American History 1.* The American frontier from the colonial period to 1800, with emphasis on the role of the Indians; the social, political, and economic currents in frontier life. Prereq.: HIST 605. 4 q.h.

733. *The West in American History 2.* The advancing 19th-century frontier in the United States and its effect on the political, economic, and social conditions of the country with emphasis on the role of the Indian. Prereq.: HIST 605. 4 q.h.

734. *History of Organized Crime in the United States.* The history of organized crime emphasizes the organization of the criminal underworld, the ethnic, racial, and religious composition of criminal groups and the impact of organized crime on prostitution, gambling, prohibition and drugs. Prereq.: HIST 605 or 606. 4 q.h.

736. *History of American Cities.* City politics, social change, ethnic and racial issues, industrialization and city planning during the nineteenth and twentieth centuries. Other issues such as the provision of city services, the rivalry between cities, and the development of the federal-urban relationship are addressed. Prereq.: HIST 605 or 606. 4 q.h.

737. *Public History.* This course applies historical methodology to contemporary policy problems from either the public or the private sector. Topics include public policy, social policy, environmental problems and historical preservation. Prereq.: HIST 605 or 606 or consent of instructor. 4 q.h.

738, 739. *The South in American History 1, 2.* Origins and development of local institutions, ideology, culture, economics, politics, and racial difficulties (I) through the Civil War, and (II) since then. Emphasis is on the period 1800-1865 and on the problems faced by the southern regional attitude following reconstruction. Special attention is given, in 739, to the difficulty the South faced in the 20th century. Prereq.: HIST 605 for 738; 606 for 739. 4+4 q.h.

740. *The Vietnam War.* American involvement in Southeast Asia from the days of French rule to the fall of the Saigon government and beyond. Includes the war debate at home, and other consequences of the war. Prereq.: HIST 513, 606 or 662. 4 q.h.

741, 742. *Diplomatic History of the United States 1, 2.* A study of American foreign relations as determined by interaction between domestic and international pressures (I) to 1900 and (II) since 1900. Prereq.: HIST 605 for 741; 606 for 742. 4+4 q.h.

743. *Labor in American History.* The impact of labor and the labor movement upon American history, with emphasis on the historical context surrounding labor conditions and on the political and social implications of the labor movement. Prereq.: HIST 606. 4 q.h.

744. *The History of American Business.* Business enterprise and its historical setting from 1800 to the present: the interaction of economic and political forces as a factor in the position occupied by business enterprise in American society today. Prereq.: HIST 605 or 606. 4 q.h.

747. *History of the United States and Pennsylvania.* The History of Pennsylvania and its position in American history. Prereq.: HIST 605 or 606. Open to those seeking a Pennsylvania Teaching Certificate. 3 q.h.

748. *History of Ohio.* The important events and movements that have shaped Ohio history in the social, economic, religious and political areas. Prereq.: HIST 605 or 606. 4 q.h.

749. *History of African-United States Relations.* Survey of African-U.S. relations from the transatlantic slave trade to the present with emphasis on the 20th century. Prereq.: HIST 663 or consent of instructor. 4 q.h.

750. *History of Modern Africa South of the Sahara.* The impact of colonialism on the people of Africa south of the Sahara, especially in the 20th century: colonial administration, rise of nationalism, Pan-Africanism, decolonization, and problems of modern Africa. Prereq.: HIST 663 or consent of instructor. 4 q.h.

752. *History of Greece.* Aegean civilization from the third millennium to 275 B.C. Prereq.: HIST 511. 4 q.h.

753. *History of Rome.* The Roman world from its mythological foundations in the 8th century B.C.E. through the Principate. Prereq.: HIST 511. 4 q.h.

754. *Early Middle Ages.* History of the Mediterranean world from the fourth to the tenth century. The course will examine the causes of the decline of the Roman Empire as well as the rise of Christianity and Islam, the Germanic invasions, the development and decline of the Carolingian Empire and the emergence of a Western European culture following the disintegration of the Mediterranean world. Prereq.: HIST 511. 4 q.h.

755. *High Middle Ages.* History of western and eastern Europe from the tenth to the fourteenth century. The course will emphasize the following developments: the rise of the feudal monarchies and of the Papacy, the growth of urbanization and trade, the Renaissance of the Twelfth Century, the flowering of Romanesque and Gothic architecture and the appearance of vernacular literature. Prereq.: HIST 511. 4 q.h.

758. *Renaissance Europe.* A survey of European history from the end of the High Middle Ages to the sixteenth century. Emphasis will be on the rise of humanism and of Renaissance culture in Italy, its dissemination beyond the Alps as well as the development of national states and the flowering of the Late Medieval tradition in western and eastern Europe. Prereq.: HIST 512. 4 q.h.

759. *The Reformation Era.* The history of Europe from the Lutheran Revolt to the Peace of Westphalia in 1648. The major themes of study will be the causes of the Reformation, the impact of Luther, Calvin and of the Radical Reformation, the Catholic Reform movement, the Wars of Religion and the rise of the modern secular states. Prereq.: HIST 512. 4 q.h.

760. *The Making of Modern Europe, 1648-1789.* The history of Europe from the Peace of Westphalia (1648) to the outbreak of the French Revolution in 1789. The emphasis is on France under Louis XIV and Louis XV, Old Regime society, and the intellectual creativity of the Eighteenth-Century Enlightenment. The course also focuses on the widening confrontation between science and religion, the growth of Europe's overseas empires, and the emergence of the modern nation-state. Prereq.: HIST 512. 4 q.h.

761. *The French Revolution and Napoleon (1789-1815).* The French Revolution is examined in detail, especially from its outbreak to the fall of Robespierre. The last portion deals with the rise of Napoleon, his political role, his military campaigns, the reconstruction of Europe, and his fall at Waterloo. Prereq.: HIST 512. 4 q.h.

762. *The Second World War.* An examination of the war's diplomatic and ideological origins; social, economic, and political factors; and strategic, tactical, and technological dimensions of the conflict in all major theaters. Prereq.: HIST 606 or 513. 4 q.h.

763. *Modern France, 1815-1914.* The history of France from the fall of Napoleon to the outbreak of World War I. Emphasizes the unique pace of nineteenth-century economic and social development, the ideologies of royalism, liberalism, and socialism, and the political instability which gave rise to the revolutionary crises of 1830, 1848, and 1871. Prereq.: HIST 513. 4 q.h.

764. *Contemporary France, 1914-present.* The history of France from the outbreak of World War I to the present. Examines the relative decline of France in the twentieth century with special emphasis on the impact of the two World Wars, the social and political crisis of the 1930s, France's postwar revival, the student riots of 1968, and the changes which have transformed French politics and society in the 1980s. Prereq.: HIST 513. 4 q.h.

765. *Europe From the Congress of Vienna to the Franco-Prussian War (1815-1871).* Such movements as Nationalism, the impact of the Industrial Revolution, Marxism, the growth of Democracy, Liberalism, and Conservatism, Romanticism and Realism, Reform and Revolution, form the main themes of this period. The course is divided into two historic periods, from 1815 to the Revolutions of 1848 and from 1848 to 1871 with the emphasis on the unification of Italy and of Germany and the New Europe that arose as a consequence. Prereq.: HIST 513. 4 q.h.

766. *Europe from the Franco-Prussian War to World War I.* The impact of the Paris Commune; revolutionary movements and their contradictions; imperialism, political anti-semitism, and the images of war; the Bismarckian international order and its suicide. Prereq.: HIST 513. 4 q.h.

767. *Europe From World War 1 to the Present.* War, revolutions, and the European Order; Versailles and its contradictions; the Fascist response to Communism and Depression; the interaction of Democracies, Fascism, and Stalinism in the making of the Cold War and World War II. Prereq.: HIST 513. 4 q.h.

768, 769. *History of Germany 1, 2.* The struggle for supremacy in Germany; the Prussianization of Germany; Weimar and Hitler. Emphasis on the relationship of domestic to foreign policy, civil to military power, and political institutions to social developments. Prereq.: HIST 513. 4+4 q.h.

770. *The Far East.* Arts and philosophy, economic development, social and political institutions, and international relations from ancient times to the beginning of modernization, including China, Japan, and Korea. Prereq.: HIST 662 or consent of instructor. 4 q.h.

771. *China in Traditional Times.* China's history, arts, philosophy, religion, political and social institutions, and international relations from beginnings to the mid-19th century. Prereq.: HIST 662, ANTHR 772, or consent of instructor. 4 q.h.

772. *History of Modern China.* China from the mid-19th century to date, with emphasis on Western impact, industrialization, intellectual trends, the Revolution of 1911, national reconstruction, student movements, the rise of Communism, and the contemporary scene. Prereq.: HIST 662 or consent of instructor. 4 q.h.

776. *History of Modern Japan.* Japan's History from the Meiji Restoration to date, including industrialization, the party movement, intellectual development, the rise and fall of militarism, postwar reconstruction, and current problems. Prereq.: HIST 662 or consent of instructor. 4 q.h.

777, 778. *History of the Russian Empire 1, 2.* A concise study of the history of Russia from the rise of Muscovy to 1825, and from 1825 to the dissolution of the empire, with special attention to the Russian Revolution. Prereq.: HIST 512 for 777; 513 for 778 or consent of instructor. 4+4 q.h.

779. *History of the Soviet Union.* Soviet history, diplomacy, and tactics from the Bolshevik Revolution to the present; the achievements and shortcomings of Communism in Russia, its satellites, and non-Russian Soviet nations. Prereq.: HIST 513 or consent of instructor. 4 q.h.

780, 781. *History of Eastern Europe 1, 2.* The histories of the varying nations that have made up Eastern Europe from earliest times to 1600 and from 1600 to the present, and their contributions to world civilization. Prereq.: HIST 512 for 780; 513 for 781. 4+4 q.h.

782. *History of the Balkans.* Southeastern Europe from the fourth century to the present, including the Byzantine and Ottoman influence on this area, with stress on developments prior to and since World War I. Prereq.: HIST 512 or 513 or consent of instructor. 4 q.h.

785. *History of Modern Italy, 1815-present.* A survey of Italian history from the Risorgimento to the present. Emphasis will be placed on the reasons for the late emergence of Italian nationhood, the rise of Italian nationalism, unification, the weakness of Italian democracy, the rise of Fascism, and the political instability Italians have experienced since 1945. Prereq.: HIST 513. 4 q.h.

788. *The Holocaust.* Study of the attempted genocide against the Jews in World War II. Special emphasis on racial theories that gave rise to Nazism, politics of collaboration, various forms of resistance, and ethical problems associated with the concentration camps. Prereq.: HIST 513. 4 q.h.

789. *Jewish History.* An overview of Jewish history in the past twenty centuries, with emphasis on achievements in the arts, sciences, and politics, and on precedents for the Holocaust. Prereq.: HIST 511 and 513. 4 q.h.

790. *English History 1.* England from the earliest times to 1714. Emphasis is on the early political and cultural evolution of the English people, the expansion of interests in the Elizabethan Age, and the establishment of parliamentary government in the Stuart era. Prereq.: HIST 511 or 512. 4 q.h.

791. *English History 2.* Great Britain from the accession of the Hanovers to the present. Emphasis is on domestic affairs of Great Britain and Ireland — the intellectual impact of Newton and Darwin, commercial and industrial developments, and the attendant social and political problems. Prereq.: HIST 513. 4 q.h.

792, 793. *The British Empire and Commonwealth 1, 2.* British Empire from the collapse of the old empire in 1783 to 1867, and from 1867 to the present. Colonial institutions, colonial policy, suppression of slave trade, expansion of empire, growth of colonial nationalism, and evolution of the Commonwealth. Prereq.: HIST 513. 4+4 q.h.

794. *The First World War.* An examination of the origins of the war, the social, economic, intellectual and political repercussions, and the technical and military developments. Prereq.: HIST 513. 4 q.h.

796. *The Ancient Near East.* Civilizations in Mesopotamia and Egypt from the fourth millennium B.C. to the Graeco-Persian Wars, with emphasis on literary materials from Sumer, Babylon, and Egypt. Prereq.: HIST 661 or 511. 4 q.h.

797. *Early Islamic Civilization.* The Middle East from the Jahiliyah Period to the Mongol invasions, with special emphasis on the religious reformation of Muhammad and Islamic culture under the Abbasids. Prereq.: HIST 661 or 511. 4 q.h.

798. *The Ottoman Empire.* History of the Ottoman Turkish Empire from its origins to its decline in the nineteenth century. Emphasis on Crusades of South Slavs, the conquest of Constantinople, the regime of Suleiman, wars with Russia, failed reforms of Tanzimat, and the Armenian tragedy. Prereq.: HIST 661. 4 q.h.

799. *The Middle East in Modern Times.* An intensive study of this region since World War I. Special emphasis upon the clash of Arab nationalism, Zionism, oil, diplomacy, and colonialism. Prereq.: HIST 661 or 513. 4 q.h.

801. *Select Problems in American History.* Specific problems in American History in such areas as economics, political theory, and cultural and intellectual history. May be repeated with different content. Prereq.: Consent of instructor. 4 q.h.

808. *American Architectural History.* Development of structural style and trends within the United States. Includes formal and vernacular developments. The community serves as a basic laboratory. Prereq.: HIST 605 and 606. 4 q.h.

809. *Documentation and Interpretation of Historic Sites.* Methods of documenting historic properties especially as related to the National Register of Historic Places. Includes interpretation of historic sites for public exhibit. Prereq.: HIST 715. 4 q.h.

810 *Conservation of the Historic Built Environment.* The theory and practice of preserving and rehabilitating all aspects of the historic built environment. Provides broad exposure through field experience. Prereq.: HIST 715. 4 q.h.

811. *Practicum in Historic Preservation.* Experience in historic preservation through student participation in a wide variety of historic preservation projects. Prepares students for internships outside the university. Prereq.: HIST 715 and permission of historic preservation committee. 4 q.h.

812. *Historic Preservation Internship.* Practical application of principles and methods in the field of historic preservation with the goal of producing a completed project. Internship to be selected by student in conjunction with prgram director. May be repeated once. Prereq.: HIST 715, senior standing, and approval of internship committee. 4-8 q.h.

850. *International Area Study.* A course in the geography and history of a selected international area with emphasis on cultural development by traveling in the selected region. The class *and travel* is supervised by the Geography and/or History faculty. The course grade is based upon a term paper which must be submitted within 60 days after the end of the course. Prereq.: *By permit only.* 4-12 q.h.

851. *Select Problems in European History.* Specific problems in European history in such areas as economics, political theory, and cultural and intellectual history. May be repeated with different content. Prereq.: Consent of instructor. 4 q.h.

860. *Select Problems in Third World History.* Specific issues in African, Asian, Latin American, or Middle Eastern History in such areas as economics, political theory, and cultural and intellectual history. May be repeated once, with different content. Prereq.: Consent of instructor. 4 q.h.

## ITALIAN

*See Foreign Languages.*

## LABOR RELATIONS

See *Economics.*

## LATIN

*See Foreign Languages.*

## MATHEMATICS

*Professors Altinger, Barger, Brown, Buoni (Chair), Burden, Faires, Kent, Piotrowski, Rodabaugh; Associate Professors Mattingly, Poggione, Pollack, Ritchey, Stanek, Wingler; Assistant Professors Arlinghaus, Burris, Chang, Goldthwait.*

Mathematics may be the major subject for the following degree programs: Bachelor of Science (B.S.), Bachelor of Arts (A.B.), and Bachelor of Science in Education (B.S. in Ed.).

In addition to satisfying the general University requirements (see Requirements for the Degree, at the beginning of the College of Arts and Sciences section of this Bulletin), all students majoring in Mathematics must complete the following courses: Mathematics 571, 572, 673, 674, 683, 721, 722, 725, 743, 751, 752, 896; also Computer Science 610.

Additional requirements, specified for the individual degree programs include:

**BS Degree Program**: 12 additional quarter hours of coursework applicable to the mathematics major with at least 8 q.h. at the 800-level; the remaining 4 q.h. may be selected from 800-level courses or 700-level courses with a 700-level prerequisite. The total number of hours of credits in Mathematics is 54. The minor field of study must be selected from one of the following disciplines: Biology, Chemistry, Computer Science, Economics, Geology, Physics, Psychology, or one Engineering specialty (from Chemical, Civil, Electrical, Industrial, Materials, Mechanical).

**AB Degree Program**: 12 additional quarter hours of Mathematics at the upper division, with at least two courses at the 800 level. The total number of hours of credits in Mathematics is 54. The minor field of study may be any discipline.

In selecting the elective Mathematics courses, the student should consult a departmental advisor, since certain courses are to be preferred according to whether the student contemplates graduate study, secondary school teaching, or a career in business, industry, or government. Further, in selecting elective courses in Mathematics, the student should note that certain courses are not applicable towards the major in Mathematics. Students seeking secondary certification in Mathematics must complete MATH 730 or 830.

Students who plan to go on to graduate work in Mathematics should study at least one of the languages: French, German or Russian.

Students receiving transfer credit from another institution for courses in Mathematics should consult the department chair to determine how this credit will apply toward the major requirements.

*Statistics.* Students with a major in Mathematics can elect to concentrate in statistics by taking the following courses: MATH 743, 841, 843, 845. MATH 815 is also recommended but does not count toward the minimum requirements for a Mathematics major. Non-Mathematics majors, including students under the individualized curriculum program , may obtain counseling in statistics from the Department of Mathematics.

*Actuarial Science.* Students with a major in mathematics can elect to concentrate in actuarial science by taking the following courses: MATH 760, 841, 842, 843 and 845. Any student may obtain counseling in actuarial science from the Department of Mathematics.

*Mathematics Minors.* Recommended Mathematics courses for students who minor in Mathematics are as follows:

For scientific applications: MATH 571, 572, 673; and two or more of 674, 705, 725, 743, 841, 760, 861.

For business applications: MATH 642, 714, and calculus (550 or 571-572); electives to complete 21 q.h.

For mathematical theory: MATH 571, 572, 673, 683, 725 and one sequence 751-752 or 721-722.

**SUGGESTED MAJOR CURRICULUM**

**FIRST YEAR**

| Courses | Cr.Hrs. |
|---|---|
| Fall Quarter | |
| MATH 571 Calculus 1 | 5 |
| Winter Quarter | |
| MATH 572 Calculus 2 | 4 |
| Spring Quarter | |
| MATH 673 Calculus 3 | 5 |
| MATH 683 Transition to Advanced Math | 2 |

Computer Science 610 should also be taken in the first year.

**SECOND YEAR**

| Course | Cr.Hrs. |
|---|---|
| Fall Quarter | |
| MATH 674 Calculus 4 | 4 |
| MATH 725 Matrix Theory & Linear Algebra | 4 |
| Winter Quarter | |
| MATH 743 Mathematical Statistics 1 | 4 |
| MATH 721 Abstract Algebra 1 | 3 |
| Spring Quarter | |
| MATH 722 Abstract Algebra 2 | 3 |
| MATH Elective | |

**THIRD YEAR**

| Course | Cr.Hrs. |
|---|---|
| Fall Quarter | |
| MATH 751 Intermediate Real Analysis 1 | 3 |
| MATH Elective | |
| Winter Quarter | |
| MATH 752 Intermediate Real Analysis 2 | 3 |
| MATH Elective | |

Spring of the third year and the entire fourth year are available to take more electives and complete the senior project. The sequences 751-52 and 721-22 should be taken in consecutive quarters.

## Lower Division Courses

500, 501. *Elementary Algebra 1, 2.* Arithmetic of integers and of rational numbers; linear equations and inequalities in one variable; polynomials, factoring, algebraic fractions, radicals and quadratic equations; linear systems in two variables; graphs. Credit will not be given for both 502 and 501 or for both 502 and 500. Grading will be CR/NC. MATH 500 is prerequisite for MATH 501. Students taking both of these courses must take an additional 8 quarter hours to complete the requirements for graduation. 4 + 4 q.h.

502. *Elementary Algebra.* A faster-paced version of 500/501. Intended for people who have passed algebra recently and want a review. Credit will not be given for both 500 and 502 or for both 501 and 502. Grading will be CR/NC. A student taking this course must take an additonal 5 quarter hours to complete the requirements for graduation. 5 q.h.

503, 504. *Intermediate Algebra 1, 2.* Relations and functions with graphing by algebraic techniques; relations of graphs to solutions of equations and inequalities; exponential and logarithmic functions with graphs and applications; conics and introduction to non-linear systems. Credit will not be given for both 504 and 505 or for both 503 and 505. A student taking this course must take an additional 4 hours to complete the requirements for graduation. The prerequisite for 503 is one unit of high school algebra or MATH 501, or MATH 502. MATH 503 is the prerequisite for MATH 504. Grading for 503 (but not 504) is CR/NC. 4 + 4 q.h.

505. *Intermediate Algebra.* A faster-paced version of MATH 503/504. Intended for people who have passed ntermediate algebra recently and want a review.

Credit will not be given for both 503 and 505 or for both 504 and 505. Prereq.: one unit of high school algebra or MATH 501, or MATH 502. 5 q.h.

506. *Mathematics of Business.* A general study of business mathematics embracing number and algebraic concepts. Percentage, discounts, simple and compound interest, present values, polynomials, exponents, first degree equations, logarithms, and progressions with business applications are studied. Prereq.: One year of high school mathematics. 5 q.h.

511. *Geometry.* A first course in geometry. Grading will be CR/NC. Prereq.: one unit of high school algebra or MATH 501 or MATH 502. A student taking this course must take an additional 5 quarter hours to complete the requirements for graduation. 5 q.h.

513. *Intensive Intermediate Algebra.* A faster paced version of MATH 512. This course is intended primarily for students of Engineering Technology. Credit will not be given for both MATH 512 and 513. Prereq.: One unit of high school algebra or MATH 508 or 510 and one unit of high school geometry or MATH 511. 4 q.h.

515, 516. *Mathematics for Elementary Teachers 1, 2.* Concepts needed in understanding mathematics taught in elementary schools. The number system, its structure and algorithms, using concepts of set, operation, relation, and proof. Informal geometry; selected topics from Euclidean, non-Euclidean, coordinate, finite, and projective geometries. Additional topics may include algebra, number theory, probability and statistics. Prereq.: MATH 511 and 512 or equivalent for 515. 515 is required for 516. 5+4 q.h.

520. *Trigonometry.* An analytical study of trigonometric functions and their inverses, identities, equations, and applications. Prereq.: MATH 512 or equivalent. 4 q.h.

523. *Survey of Mathematics.* Mathematics course for non-science majors emphasizing some of the basic ideas in mathematics. The stress is on concepts rather than on manipulatory skills. Prereq.: MATH 512 or equivalent. 4 q.h.

525. *Precalculus Mathematics.* Concepts and techniques required for the calculus sequence. Topics to be covered include solution of inequalities, graphing of algebraic and transcendental functions, and a brief review of other subjects from algebra, trigonometry and analytic geometry which will be needed for the study of calculus. Prereq.: High school trigonometry or MATH 520. 4 q.h.

550. *Calculus for Social, Managerial, and Life Sciences 1.* A short course in calculus of algebraic functions of one variable with applications. Topics include the concepts of limits, derivatives, integrals, and applications. Intended for students in business, the social and biological sciences, and others who desire an introduction to the subject. Prereq.: MATH 504 or equivalent. 5 q.h.

570, 670, 770. *Calculus for Engineering Technology 1, 2, 3.* The elements of differential and integral calculus, with emphasis on applications. Analytical geometry, differentiation and integration techniques, series representations, and numerical methods. Introduction to differential equations, transform calculus, and to Fourier analysis. This is a basic methods course particularly adapted for those who require applied topics in mathematics. It is not applicable toward the Mathematics major. Prereq.: MATH 520 is required for 570. 570 is required for 670 and 670 is required for 770. 5+4+4 q.h.

571, 572, 673, 674. *Calculus 1, 2, 3, 4.* A sequence of integrated courses in analytic geometry and calculus. A detailed study of limits, derivatives, and integrals of functions of one and several variables with applications. Prereq.: Four high school units of mathematics (including trigonometry) with an average of "C" or better and satisfactory score on ACT or CEEB examination, or MATH 525 is required for MATH 571. 571 is required for 572; 572 for 673; and 673 for 674. The 525 prerequisite may be waived by the Mathematics Department Chair. 5+4+5+4 q.h.

*580H, 581H, 681H. *Biomathematics 1, 2, 3.* An integrated course in mathematics and computer science having as a central theme the role of mathematical models in explaining and predicting phenomena in the life sciences. Specific topics include: computer programming, differential and integral calculus, matrix operations, linear programming, differential and difference equations, probability, Markov chains, and applications to the biological sciences. Prereq.: Admission to NEOUCOM-YSU program or equivalent qualifications with consent of instructor and department chair is required for MATH 580H. 580H or CSCI 600 is required for 581H, and 581H is required for 681H. 2+4+4 q.h.

585H, 586H, 687H. *Calculus 1, 2, 3 Honors.* A sequence of honors courses in analytical geometry and calculus which will cover essentially the same material as MATH 571, 572, 673, and 674, in three quarters instead of four. A detailed study of limits, derivatives, and integrals of functions of one and several variables and their applications. Prereq.: Four high school units of mathematics (including trigonometry) with and 'A' or a high 'B' average and a high score on the ACT or CEEB examination are required for MATH 585H. 585H is required for 586H and 586H is required for 687H. This sequence will be offered at most once during each academic year. 5+5+5 q.h.

617. *Algebra for Elementary Teachers.* Basic ideas and structure of algebra including various strategies of problem solving. Prereq.: MATH 516 or permission of instructor. 5 q.h.

*Additional fee required.

618. *Geometry for Elementary Teachers.* A study of space, plane, and line as sets of points, considering separation properties and simple closed curves; the triangle, rectangle, circle, sphere, and other figures considered as sets of points with their properties developed intuitively; concept of measurement. Prereq.: MATH 617 or permission of instructor. 4 q.h.

642. *Applied Finite Mathematics.* Designed for business majors but open to others. Topics include matrix algebra, an introduction to linear programming, probability, and mathematics of finance. Prereq.: MATH 504 and 511 or equivalent. 5 q.h.

645. *Mathematics for Operations Research.* Matrices and linear systems; linear programming, simplex method; other optimization models, comparison with calculus, introduction to probability and probabilistic models. Credit for 645 will not be given to students with 642 or 725. Prereq.: MATH 550 or 572 or 670. 5 q.h.

683. *Transition to Advanced Mathematics.* A course to prepare mathematics majors for their later theoretical courses. Topics will include logic, sets, and methods of proof including mathematical induction. Recommended to be taken concurrently with MATH 673. Prereq.: MATH 572. 2 q.h.

## Upper Division Courses

705, 706. *Differential Equations 1, 2.* Introduction to theory and solution of ordinary differential equations with applications; partial differential equations; Fourier series; boundary value problems; Laplace transform; vector analysis. Prereq.: MATH 673 for 705, MATH 674 and 705 for 706. 4+4 q.h.

714. *Probability and Statistics.* A course in probability and statistics with applications. Topics include description of sample data, probability, frequency distributions, sampling estimation, testing hypotheses, correlation and regression. Intended for students in liberal arts, business, health sciences, and education who desire an introduction to the subject. Not applicable towards the Mathematics major. Prereq.: MATH 504 or equivalent. 5 q.h.

717. *Statistical Methods.* Probability and statistics designed for students majoring in the natural sciences. Topics include descriptive statistics, probability, estimation, testing hypotheses, analysis of variance and regression. Use of personal computers with computer software will be required. Not applicable towards the Mathematics major. Credit will not be given for both MATH 717 and MATH 714. Prereq.: MATH 550 or equivalent. 5 q.h.

721, 722. *Abstract Algebra 1, 2.* Algebra of sets, relations and functions; elementary group theory; rings, domains; and supportive material from number theory. Prereq.: MATH 683 and 725 for 721, 721 for 722. 3+3 q.h.

725. *Matrix Theory and Linear Algebra.* Matrices; matrix operations; linear transformations; applications. Prereq.: MATH 673. 4 q.h.

730. *Foundations of Geometry.* The development of Euclidean and Non-Euclidean geometries from postulate systems. Prereq.: MATH 673. 4 q.h.

743, 841. *Mathematical Statistics 1, 2.* An introduction to the theory of probability and statistics using the concept and methods of calculus. Topics include discrete and continuous probability models, random variables and their distributions, estimations, tests of hypotheses and regression. Prereq.: MATH 673 is required for 743 and MATH 674 and 743 are required for 841. 4+4 q.h.

750. *History of Mathematics.* A survey of the historical development of mathematics. Prereq.: MATH 673. 4 q.h.

751, 752. *Intermediate Real Analysis 1, 2.* Elementary logic, properties of the real number system, critical analysis of limits and continuity, fundamental concepts underlying the calculus. Prereq.: MATH 673 and 683 for 751, 751 for 752. 3+3 q.h.

755. *Ordinary Differential Equations 1.* A first course in differential equations with emphasis on the mathematical structure of the subject. Substantial use of the concepts and techniques of linear algebra will be made. Topics include: first order nonlinear equations with discussion of fundamental existence theorems, higher order linear equations, linear systems, and additional topics selected by the instructor. Prereq.: MATH 674 and MATH 725. 4 q.h.

760. *Numerical Analysis 1.* The theory and techniques of numerical computation. The solution of a single equation, interpolation methods, numerical differentiation and integration, direct methods for solving linear systems. Prereq.: MATH 725 and CSCI 610 or permission of instructor. 4 q.h.

781H. *Biostatistics.* A course in statistics with applications relating to biological sciences. Specific topics include: descriptive statistics, testing hypotheses, analysis of count data, correlation, regression, nonparametric statistics and analysis of variance. Prereq.: MATH 681H or permission of instructor. 4 q.h.

785. *Matrix Algebra and Numerical Methods.* Matrices, matrix operations, and the application of numerical methods. This course is not applicable toward the Mathematics major. Prereq.: MATH 770 and ENTEC 505, or equivalent. 4 q.h.

795. *Topics in Mathematics.* The study of a mathematical topic or the development of a special area of mathematics. May be repeated. Prereq.: Permission of instructor and department chair. 2-5 q.h.

815. *Applied Statistics.* A course in application of correlation, regression, analysis of variance and related topics. Does not count toward the Mathematics major. Prereq.: MATH 714 or equivalent, or permission of instructor. 4 q.h.

825. *Linear Algebra 2.* A continuation of MATH 725 including abstract vector spaces and linear transformations, eigenvalues and canonical forms, and selected applications. Prereq.: MATH 725 and 722. 4 q.h.

827. *Abstract Algebra 3.* A continuation of 722 with special emphasis on fields. Additional topics in pure or applied algebra. Prereq.: MATH 722 and 725. 4 q.h.

828. *Number Theory.* A study of congruences, Diophantine equations, quadratic residues, special number theory functions, and selected applications. Prereq.: MATH 722 and MATH 725. 4 q.h.

830. *Projective Geometry.* A study of projective planes using both synthetic and analytical methods; axiomatic foundations; connection to Euclidean geometry. Prereq.: MATH 725 and 721. 4 q.h.

838. *Graph Theory and Algorithms.* Basic concepts in graph theory including application to discrete optimization, emphasis on graph algorithms. Prereq.: MATH 725 and either MATH 721 or CSCI 710. 4 q.h.

842. *Statistical Decision Theory.* A study of statistical inference from the decision theory point of view. Topics selected from utility theory, no-data decision problems, using data in decision problems, estimation, testing hypotheses, sequential procedure, and related areas. Prereq.: MATH 743. 4 q.h.

843. *Theory of Probability* . An introduction to the mathematical foundation of probability theory including the study of discrete and continuous distributions. Other topics selected from limit theorems, generating functions, stochastic processes, applications. Prereq.: MATH 743 or permission of instructor. 4 q.h.

845. *Operations Research 1.* An introduction to operations research with emphasis on mathematical methods. Topics may include: linear programming, sensitivity analysis, duality theory, transportation problems, assignment problems, trans-shipment problems, and network problems. Prereq.: MATH 725 or permission of instructor. 4 q.h.

846. *Operations Research 2.* A continuation of MATH 845. Topics may include integer programming, advanced linear programming, nonlinear programming, dynamic programming, queuing theory, Markov analysis, game theory, and forecasting models. Prereq.: MATH 743 and MATH 845 or permission of instructor. 4 q.h.

848. *Regression Analysis.* Introduction to the theory and applications of regression analysis. Topics include simple linear regression, multiple regression, polynomial regression, correlation analysis and logistic regression. Prereq.: MATH 725 and 841. 4 q.h.

855. *Ordinary Differential Equations 2.* A second course in differential equations with emphasis on nonlinear problems and qualitative methods or on boundary value problems. Topics will be chosen from: proofs of fundamental theorems, phase plane analysis, limit cycles and the Poincare-Bendixon theorem, biological models, stability via linearization, stability via Liapunov functions, asymptotic methods, and boundary value problems. Prereq.: MATH 752 and 755. 4 q.h.

860. *Mathematical Logic.* An introduction to the study of theories in formalized languages and to the theory of models. Prereq.: PHIL 619 or MATH 721 or permission of instructor. 4 q.h.

861. *Numerical Analysis 2.* Numerical methods of initial-value problems, eigenvalue problems, iterative methods for linear and nonlinear systems of equations, and methods involving least squares, orthogonal polynomials, and fast Fourier transforms. Prereq.: MATH 674 and 760 or permission of instructor. 4 q.h.

872. *Intermediate Real Analysis 3.* A continuation of 752 with special emphasis on uniform convergence. Additional topics in the theory of functions of one or several variables. Prereq.: MATH 674, 725, 752. 4 q.h.

875. *Introduction to Complex Variables.* Complex numbers and their geometrical representation, analytic functions of a complex variable, contour integration, Taylor and Laurent series, residues and poles, conformal mapping. Prereq.: MATH 674 and MATH 752, or consent of instructor. 4 q.h.

880. *Introduction to Topology.* An introduction to the basic concepts of general topology. Compactness, connectedness, and continuity in topological spaces. Prereq.: MATH 722 and 752. 4 q.h.

890. *Mathematics Seminar.* Report and discussion of each student's in-depth study on a specific topic. Prereq.: Permission of instructor. 2 q.h.

895. *Selected Topics in Mathematics.* The study of a standard mathematical topic in depth or the development of a special area of mathematics. May be repeated. Prereq.: Permission of instructor and department chair. 2-5 q.h.

896. *Mathematics Projects.* Individualized study of a topic in mathematics culminating in a written report and an oral presentation. May be repeated once with the approval of the department chairperson. Prereq.: 36 q.h. of mathematics applicable to the mathematics major including either MATH 722 or 752. 2 q.h.

## PEACE AND CONFLICT STUDIES

*Professor Alice Budge, English (Coordinator).*

The University offers a minor in Peace and Conflict Studies with the advice and approval of the chair of the department the student is majoring in. The following is a list of approved recommended courses.

History 513. *Introduction to World History 3.* 4 q.h.

Religious Studies 617. *Introduction to Eastern Religions.* 4 q.h.

Geography 626. *World Geography.* 4 q.h.

English 633. *Peace and War in Literature.* Prereq.: ENGL 551. 4 q.h.

Political Science 660. *Elements of International Relations.* Prereq.: POLIT 601 or SOCSC 511. 4 q.h.

Psychology 704. *Conflict Resolution.* Prereq.: PSYCH 700 or consent of instructor. 4 q.h.

Sociology 708. *Political Sociology.* Prereq.: SOCIO 600. 4 q.h.

The interdisciplinary minor focuses on the study of conflict and conflict resolution, and promotes global awareness.

# PHILOSOPHY AND RELIGIOUS STUDIES

*Professors Bache, Minogue, Shipka (Chair); Associate Professors Smith, Tessier, Waller, Wan-Tatah; Assistant Professors Brincat, Palmer-Fernandez.*

# PHILOSOPHY

A major in philosophy is available for students who plan to enter the field of philosophy, law, professional or medical ethics, the ministry, or other fields requiring a liberal arts background.

The major consists of 45 quarter hours, including PHIL 600, 619, 700, 702, either 701 or 812; 711; and either 820 or 821.

The department also offers minors in philosophy, religious studies and professional ethics, as well as a graduate certificate in bioethics. Contact the department for details.

## Lower Division Courses

530. *Critical Thinking.* An examination of the logical skills needed to evaluate arguments in real-life practical situations. Topics include the uses of language and the impact of the mass media on thinking; strategies and procedures for identifying arguments; evaluation of arguments with emphasis on informal fallacies; and strategies and guidelines for writing argumentative essays. 4 q.h.

600. *Introduction to Philosophy.* The nature of philosophy and its relation to science, religion, and art; study of the philosophical approach and attitude, the basic problem areas in philosophy, and some typical philosophical viewpoints. 4 q.h.

619. *Introduction to Logic.* Introduction to syllogistic or classical logic, symbolic, and inductive logic. Emphasis will be placed on the rules of the syllogism, immediate inference, propositional functions, classes, truth tables, Venn diagrams; the use of analogy, generalization, the verification of hypotheses and scientific method. 4 q.h.

625. *Introduction to Professional Ethics.* An examination of the ideals and virtues central to professionalism; study of selected codes of professional ethics and their roots in classical ethical traditions; and analysis of selected ethical issues and problems in a variety of professions. 4 q.h.

## Upper Division Courses

700. *History of Ancient Philosophy.* The development of philosophical thought in Western civilization from the pre-Socratics through the cosmologies of Plato, Aristotle and the Atomists; its ethical expression by Epicurus and the Stoics; and its religious involvement in the systems of Philo, Plotinus and Augustine. Prereq.: PHIL 600 or junior or senior standing. 4 q.h.

701. *History of Medieval Philosophy.* An examination of the medieval synthesis, with attention to its aims, methods, development and decline. Erigena, Roscellinus, Realism and Nominalism. Anselm and the Ontological Argument. Peter Abelard and Conceptualism. The Crusades and the new economics. The Grail legend and its influence on nationalism. Albertus Magnus, Thomas Aquinas and the return of Aristotle. Pantheism, mysticism and the rise of science. Duns Scotus and William of Ockham. Prereq.: PHIL 600 or junior or senior standing. 4 q.h.

702. *History of Modern Philosophy.* Development of philosophic thought from the Renaissance through the 19th century, with stress upon British empiricism, continental rationalism, and the critical philosophy of Kant and post-Kantian idealism. Prereq.: PHIL 600 or junior or senior standing. 4 q.h.

703. *Symbolic Logic.* The structure and properties of axiomatic systems; the theory of propositional and relational logic; the algebra of classes; related topics. Prereq.: PHIL 619. 4 q.h.

704. *Woman: A Philosophical Study.* Examination of the writings of prominent women philosophers; inquiry into philosophical issues related to the concept of "woman", including concerns related to women's rights. Prereq.: PHIL 600, or junior or senior standing. 4 q.h.

710. *Aesthetics.* Classical and modern philosophies of beauty, especially as they apply in criticism of the fine arts; the problem of the relative and the absolute in judgments of taste. Readings from representative writers in the field. Prereq.: PHIL 600 or junior or senior standing. 4 q.h.

711. *Ethical Theories.* Examination and evaluation of the major ethical theories in classical, dialectic, pragmatic and naturalistic, analytic and positivist, and existentialist thought. Prereq.: PHIL 600 or junior or senior standing. 4 q.h.

712. *Philosophy of Religion.* The philosophical investigation of religious questions such as existence and nature of the divine, the problem of evil, death and immortality, religion and science, and religious experience. Prereq.: 4 hours in philosophy or religious studies and Junior standing. 4 q.h.

714. *Philosophy of Mind.* Study of the traditional mind/body problem in philosophy: investigation of philosophical theories of intentionality, mental representation and causation, the contrast of minds and machines, and the relation of philosophy to psychology. Prereq.: PHIL 600 or junior standing. 4 q.h.

715. *Philosophy of Science.* A philosophical consideration of some of the fundamental concepts and assumptions of the sciences: the nature of scientific knowledge; the relation of scientific to other kinds of knowledge and experience. Prereq.: PHIL 600 or junior or senior standing. 4 q.h.

730. *Metaphysics.* An examination of the major metaphysical issues in Western philosophy: problems of freedom and determinism, idealism versus materialism, personal identity, space-time problems, concepts of Being and Reality and other representative issues. Prereq.: PHIL 600 or junior standing. 4 q.h.

740. *Philosophy in Africa.* Study of major African world views: An exploration of problems involved in establishing Afro-centric ethical and religious belief systems through writings of African philosophers. Prereq.: Any 600-level course in Philosophy or Religious Studies or Junior standing. 4 q.h.

800. *Theories of Knowledge.* The epistemological problem; position of the skeptic, pragmatist, empiricist, idealist, moderate realist, existentialist, and phenomenologist. Prereq.: PHIL 600 or junior or senior standing. 4 q.h.

807. *Social Philosophy.* Philosophical analysis of the social concepts of freedom, power, authority, conflict, equality, alienation, and others. Emphasis on the extra-political dimensions of these concepts. Prereq.: PHIL 600 or junior or senior standing. 4 q.h.

808. *Political Philosophy.* Analysis of the philosophical presuppositions of selected political theories. Prereq.: 4 hours of philosophy or religious studies, or consent of instructor and junior standing. 4 q.h.

810. *Philosophical Classics.* Reading and discussion of some of the great documents of philosophy: Plato's *Republic,* Aristotle's *Nichomachean Ethics,* Descartes' *Meditations,* Kant's *Critique of Pure Reason,* and James' *Essays* or alternative selections of comparable significance. Prereq.: PHIL 600 or junior or senior standing. 4 q.h.

811. *Philosophy in America.* History of philosophic ideas in this country and introduction to its intellectual history; relations of American intellectual currents to their background in the history of philosophy. Prereq.: PHIL 600 or junior or senior standing. 4 q.h.

812. *20th Century Philosophy.* A survey of the philosophical scene in the early and mid-20th century: the pragmatism of Peirce, James, and Dewey; the analytic schools, from Moore and Russell to early Wittgenstein and the logical positivists; later conventionalism and ordinary language philosophy; and the various continental movements, including modern phenomenology and hermeneutics. Prereq.: PHIL 600 or junior standing. 4 q.h.

813. *Philosophy of Human Nature.* The various conceptions of human nature that are relevant to the contemporary American scene: classical and scholastic thought, dialectic thought, naturalist and pragmatic thought, analytic and positivist thought, and existentialist and phenomenological thought. Prereq.: PHIL 600 or junior standing. 4 q.h.

814. *Philosophy of Language.* An introduction to modern philosophical investigation of such topics as semantics and language analysis, the functions of language, modes of meaning, and the relation of linguistic structures to metaphysics. Prereq.: PHIL 600 or junior standing. 4 q.h.

815. *Existentialism.* A study of the background and teachings of existentialism; and an analysis of the methodological principles of existentialism as seen in the writings of Kierkegaard, Husserl, Heidegger, Jaspers, Sartre, Marcel, and Merleau-Ponty. Prereq.: PHIL 600 or consent of instructor. 4 q.h.

820. *Seminar: Contemporary Philosophical Problems.* Various assigned topics to be discussed by students after adequate research in fields where philosophical problems arise, e.g., the biological, physical, and behavioral sciences, medicine; religion; art; education. Prereq.: PHIL 600 and eight quarter hours of upper division philosophy courses or approval of the department chair. 1-4 q.h.

821. *Seminar: Areas of Philosophy.* The student will be allowed to consider in depth a particular philosophical interest. The subjects for the seminar may include ethics, logic, aesthetics, value theory, epistemology, metaphysics and language analysis. Prereq.: PHIL 600 and eight quarter hours of upper division philosophy courses or approval of the department chair. 1-4 q.h.

822. *Selected Topics in Philosophy.* The study of a philosophical problem or philosopher in depth or the relationship of philosophy to problems in another discipline. May be repeated once for a different topic. Prereq.: PHIL 600 and eight quarter hours of upper division philosophy courses or approval of the department chair. 1-4 q.h.

823. *Philosophy of Justice.* The major classical and contemporary philosophical theories regarding the types of justice and their interrelations, the concepts of legal and moral responsibility, the rationales of reward and punishment, with some attention to the concept of equality. Prereq.: PHIL 711 or 808 or senior standing in criminal justice. 4 q.h.

825. *Biomedical Ethics.* An examination of ethical issues posed by the impact of biomedical research and technology on health care; selected issues in the philosophy of medicine; issues of patients' rights, including the right to health care; experiments on human subjects and problems of informed consent; genetic research and intervention; moral issues in death and dying, organ transplants and the allocation of scarce health resources. Prereq.: Four hours of philosophy or SOCIO 745 or PSYCH 780 or admission to NEOUCOM-YSU program. 4 q.h.

827. *Environmental Ethics.* Application of ethical theories in the evaluation of human interaction with the natural environment: selected cases addressing rights and duties in regard to other species and future generations, principles and ideals guiding industrial utilization of natural resources, responsibilities of environmental activism in prescribed social and political philosophy, and the relation of philosophy to ecology. Prereq.: Four hours of philosophy and junior standing or consent of instructor. 4 q.h.

828. *Engineering Ethics.* An examination of ethical problems in the major fields of engineering and an explanation of the methodology needed to address them; an analysis of the rights and duties of engineers in their relations to clients, employers, the public, and the engineering profession. Prereq.: PHIL 530, 600, 619 or 625 and junior standing or consent of instructor. 4 q.h.

829. *Ethical Issues in Business.* A study of ethical dilemmas in the business world. Focus on rights and duties of business executives, stockholders and employees, as well as their relations with consumers, clients, consultants, government officials, and the public; emphasis on case studies. Prereq.: Four hours of philosophy and junior standing or consent of instructor. 4 q.h.

835. *Ethics and Scientific Research.* An examination of the ethical problems surrounding scientific research. Topics include definition of scientific misconduct; issues related to fabrication, falsification, and plagiarism of scientific data; human subject research; including informed consent, double-blind studies, and access to research protocols. Prereq.: Junior standing or permission of instructor. 4 q.h.

860. *Mathematical Logic.* Identical with MATH 860. 4 q.h.

# RELIGIOUS STUDIES

A major in Religious Studies is available for students who desire to prepare for a career in the ministry, counseling, religious education, social work or any field requiring a liberal arts background. The major consists of 45 quarter hours, no more than 8 of which can be taken at or below the 600-level. Majors must take RELIG 850 and *at least one* upper level course in each of the following areas: (1) History of Religion: 708, 713, 720, 722, 724; (2) Methodologies in the Study of Religion: 751, 752, 756, 758, 816, 818, PHIL 712; (3) Biblical Studies: 731, 732; (4) Non-Western Religions: 726, 814, PHIL 740, ANTHRO 815. **Remaining Hours:** It is assumed that the remaining hours will be selected in Religious Studies. In some cases, courses outside Religious Studies may be accepted as part of the Religious Studies major if they deepen the student's understanding of religion. All such courses must have the approval of the chair.

The department also offers minors in religious studies, philosophy, and professional ethics, as well as a graduate certificate in bioethics. Contact the department for details.

## Lower Division Courses

501. *Contemporary Religion and Society.* A study of the essential components and characteristics of religion; the role religion plays in the life of the individual and contemporary society. Intended for first year students. 4 q.h.

601. *Introduction to World Religions.* A survey of the major world religions exploring their distinctive features and common threads. A study of their founders, systems of thought, symbols, and sacred literatures. 4 q.h.

605. *Myth, Symbol and Ritual.* An introduction to the nature and function of myth, symbol, and ritual in various religious and spiritual contexts. 4 q.h.

617. *Introduction to Eastern Religions.* An introductory survey of several Eastern religions and their systems of thought, institutions, practices for realization of goals, ritual forms, and symbolism. 4 q.h.

621. *Religion and Moral Issues.* The relation of specific religious and moral issues to questions of personal conduct and social policy. 4 q.h.

## Upper Division Courses

708. *African-American Religion.* The development of African-American religion from the days of slavery to the present. Topics include black theology, contemporary religious expressions, and the role of religion in social change. Prereq.: Any 600-level Religious Studies course, or Black Studies 600 or 601, or consent of instructor. 4 q.h.

713. *Religion and American Public Life.* A critical and historical study of the role of religion in American public life. Topics include the separation of church and state, American civil religion, and debates on slavery, war and peace, sex and marriage, and foreign policy. Prereq.: Four hours in religious studies or philosophy, or consent of instructor. 4 q.h.

720. *Islam.* The origin and development of Islam with attention to the Koran, the prophetic writings, and Islamic theology; topics include the Islamic world view, mysticism, sects, contemporary revivalist movements, and Black Muslims in America. Prereq.: Four hours of religious studies of philosophy, or consent of instructor. 4 q.h.

722. *Christianity.* The origin and development of Christianity; examination of the life and teachings of Jesus; Christian theology, liturgy and symbolism; discussion of divisions of contemporary Christianity. Prereq.: Four hours of religious studies or philosophy, or consent of instructor. 4 q.h.

724. *Judaism.* The origin and development of Judaism including the biblical legacy, the Talmud, medieval Judaic philosophy, mysticism, the symbolic and mythic structure of classical Judaism, and transformations of the classical tradition in modern times. Prereq.: Four hours of religious studies or philosophy, or consent of instructor. 4 q.h.

726. *Buddhism.* The origin and development of Buddhism from Theravada Buddhism to India to Zen Buddhism in Japan. Its systems of thought, institutions, and meditational practices. Prereq.: Four hours of philosophy or religious studies, or consent of instructor. 4 q.h.

731. *Old Testament Literature.* A critical analysis of Old Testament literature in terms of historical background, textual development, and religious and ethical themes. Prereq.: Four hours in religious studies or philosophy, or consent of instructor. 4 q.h.

732. *Jesus and the Gospels.* The life and teachings of Jesus in their historical context. An examination of the ways in which Jesus is interpreted within the synoptic gospels. Prereq.: Four hours of philosophy or religious studies or consent of instructor. 4 q.h.

751. *Liberation Theologies and Revolutionary Change.* The origin and development of Third World theologies in Africa, Latin America, and the Caribbean, and of Black and Hispanic theologies in America. The study of theology will be related to questions of underdevelopment, poverty and oppression. Prereq.: Four hours in religious studies or philosophy, or consent of instructor. 4 q.h.

752. *Feminist Theology and Spirituality.* A consideration of the history, development, and major theories of feminist theology, including the role of women in religions. Prereq.: Four hours in religious studies or philosophy, or consent of instructor. 4 q.h.

756. *Psychology of Religion.* An introductory review of the more prominent types of personal religious experience, including elementary consideration of conscious and unconscious factors bringing them about. Prereq.: PSYCH 560 (replaces PSYCH 601). Listed also as PSYCH 703. 4 q.h.

758. *Transpersonal Studies.* A critical study of contemporary developments in consciousness research including such topics as near-death episodes, reincarnation, nonordinary states of consciousness, and the implications of quantum theory. Prereq.: Four hours in religious studies or philosophy, or consent of instructor. 4 q.h.

814. *Mysticism and Meditation.* A critical exploration of the mystical traditions of Eastern and Western religions. Description and classification of meditative experiences; the stages of the mystical path; the resulting world view. Prereq.: Four hours at the 700-level in religious studies, or consent of instructor. 4 q.h.

816. *The Shaping of Modern Religious Thought.* A selective consideration of critical issues that have shaped modern religious thought including such topics as evolution, existentialism, and psychoanalysis. Prereq.: Four hours at the 700-level in religious studies or philosophy, or consent of instructor. 4 q.h.

818. *Contemporary Theological Figures.* A survey of contemporary theology and the formative influences in the lives of prominent theologians such as Barth, Rahner, Niebuhr, Cox, Cobb, Cone, Gutierrez, and Reuther. Prereq.: Four hours at the 700-level in religious studies or philosophy, or consent of instructor. 4 q.h.

850. *Seminar in Religious Studies.* An in-depth study of a particular topic not covered in listed courses. Prereq.: Any 2 upper division courses in either Philosophy or Religious Studies, or consent of instructor. 1-4 q.h.

851. *Directed Readings in Religion.* An in-depth study of a religious problem, movement, thinker, or the relation of religion to problems in other disciplines. Intended to be an independent study course with subject matter dependent upon approval of the faculty member and student. May be repeated once with a different topic. Total credit in Religious Studies 851 cannot exceed eight hours. Prereq.: Any upper division course in either Religious Studies or Philosophy, or consent of instructor. 1-4 q.h.

870. *On-Site Studies in Religion.* An on-site investigation of the beliefs and practices of a particular religion or sect through readings, lectures, interviews, and travel to locations vital to its origin or development. Prereq.: Junior standing or consent of department chair. 2-12 q.h.

## PHYSICAL EDUCATION

See *Human Performance and Exercise Science.*

## PHYSICS AND ASTRONOMY

*Professors Bishop, Cochran, Dalbec, Hanzely, Mooney, Tabak, Young (Chair); Assistant Professors Fisher, Sturrus.*

Courses are organized with the following aims: (1) To provide well-rounded training in physics and astronomy for those needing it for graduate study, industry, or for secondary school teaching; (2) To provide basic training for engineering and pre-professional students; (3) To acquaint the non-specializing student with scientific methods and with the place of physics and astronomy in the modern world.

Following the course descriptions below are the curricula and minimum requirements for the degrees of Bachelor of Arts and Bachelor of Science with a major in Physics and a Bachelor of Science degree with a combined major in Physics and Astronomy.

The A.B. degree program in physics is designed for students who are interested in fields that benefit from a strong background in physics or for students planning to terminate their education at the bachelor's degree level. The B.S. degree program in physics is designed for students who plan to pursue graduate studies in physics. The B.S. degree program with a combined Physics-Astronomy major is designed for students who plan to pursue graduate studies in astronomy or space science.

A student desiring to teach physics or astronomy in secondary schools should consult the Dean of the School of Education.

## Lower Division Courses

500. *Physics and Man.* A breadth-of-experience approach and largely non-mathematical presentation of selected theories and laws of classical and modern physics. These are presented in a historical context of some of the successes and failures of physicists in their efforts to describe our universe in terms of functional relationships. Not applicable to the major in Physics or to the combined major in Physics and Astronomy. 4 q.h.

*500L. *Conceptual Physics Laboratory.* Experimental work designed to supplement PHYS 500. Two hours per week. Prereq. or concurrent: PHYS 500. 1 q.h.

501. *Fundamentals of Physics 1.* A study of the methods of analyzing motion of mechanical systems. The topics treated are kinematics, forces, energy and momentum, rotational kinematics, torque and angular momentum. Not recommended for mathematics, chemistry or physics majors or engineering students. Prereq.: MATH 512 and 520, or equivalent high school algebra and trigonometry. 4 q.h.

502. *Fundamentals of Physics 2.* A study of electricity and magnetism. The topics treated are electric charge, electric forces and fields, electric potential and potential energy, capacitance and resistance in direct current circuits, magnetic forces and fields, induced emf, inductance, alternating current circuits. Prereq.: PHYS 501 or equivalent. 3 q.h.

503. *Fundamentals of Physics 3.* A study of simple harmonic motion, wave motion, sound, light, and modern physics. This includes reflection, refraction, geometric optics as applied to lenses and mirrors, interference and diffraction. Modern physics is introduced through the study of the atom and the nucleus. Prereq.: PHYS 501 or equivalent. 3 q.h.

*501L, *502L, *503L. *Fundamentals of Physics Laboratory 1, 2, 3.* Experimental work designed to supplement the Fundamentals of Physics sequence. Two hours per week. Prereq. or concurrent: 501 for 501L; 502 for 502L; 503 for 503L. 1+1+1 q.h.

505. *Physics in Science Fiction.* A largely non-mathematical survey of the principles of physics which serve as the background for science fiction literature; two hours of lecture-discussion per week, based on reading assignments from selected works of well-known science fiction authors. Not applicable to the major in Physics or to the combined major in Physics and Astronomy. 2 q.h.

506. *Physics for the Health Sciences.* The basic laws of physics will be applied to various biological and physiological problems. Designed for majors in the allied health fields, e.g., Respiratory Care. Not applicable to the major in Physics or to the combined major in Physics & Astronomy. 4 q.h.

*Additional fee required.

507. *The Physics of Energy.* A basic non-mathematical explanation of the origin, form, uses, and distribution of energy. Topics include electrical energy, mechanical energy, nuclear fission, nuclear fusion, solar energy. This course is designed for the non-science student who is not particularly interested in a broad survey of physics. Not applicable to the major in Physics or to the combined major in Physics and Astronomy. 4 q.h.

509. *Contemporary Physics.* An introductory survey of the current areas of physics research, based primarily on reading assignments from *Scientific American.* Topics will include gravity waves, anti-matter, nuclear structure, the nature of solids, electro-optics, and coherent radiation. 2 q.h.

510. *General Physics 1.* A course in mechanics; the kinematics and dynamics of masses in translation; Newton's Laws; the conservation laws of energy and momentum. Prereq.: High school physics or PHYS 501. Prereq. or concurrent: MATH 571. 4 q.h.

520H. *Perspectives in Physics.* An introduction to past and recent ideas in physics with specific emphasis on their impact on historical and contemporary thought. The treatment, largely non-mathematical, is enhanced by selected readings suitable for the beginning honors student of any field. Not applicable to the major in Physics or to the combined major in Physics and Astronomy. Prereq.: Admission to the Honors Degree Program or permission of instructor and Director of Honors. 4 q.h.

550. *Physics and the Parasciences.* A critical examination of the scientific method, with special emphasis on physics and astronomy. These sciences will be compared and contrasted with such pseudosciences as astrology, UFOlogy, ancient astronauts, etc. Not applicable to the major in Physics or to the combined major in Physics and Astronomy. Prereq.: Any course in Physics or Astronomy or consent of instructor. 4 q.h.

601. *General Physics for Applied Medical Studies 1.* Kinematics and dynamics of translation and rotation; energy, momentum, equilibrium; elasticity and bulk properties of solids. This course is designed primarily for students enrolled in the NEOUCOM-YSU program, and for students enrolled in the pre-medical curricula. Prereq.: MATH 520, or equivalent high school trigonometry. Prereq. or concurrent: MATH 550 or 581H or 572. 4 q.h.

602. *General Physics for Applied Medical Studies 2.* Electricity and magnetism, fluids, heat and thermodynamics. This course is designed primarily for students enrolled in the NEOUCOM-YSU program, and for students enrolled in pre-medical curricula. Prereq.: PHYS 601. 4 q.h.

603. *General Physics for Applied Medical Studies 3.* Waves, sound, optics, atomic physics, quantum mechanics, nuclear structure and radiation. This course is designed primarily for students enrolled in the NEOUCOM-YSU program, and for students enrolled in pre-medical curricula. Prereq.: PHYS 602. 4 q.h.

608. *Sound.* The production of sound by means of vibrating strings, vibrating air columns, and vibrating membranes. Simple harmonic motion, and the representation of complex sound waves as a summation of pure sine waves. The principles of reflection, refraction, in terference, and resonance applied to sound waves. Sound and hearing. Application of the principles of sound to musical instruments. The reproduction and recording of sound waves with a study of room acoustics. This course is designed for Music majors. Not applicable to the major in Physics or to the combined major in Physics and Astronomy. 4 q.h.

610. *General Physics 2.* Kinematics and dynamics of masses in rotation; wave phenomena; transmission, reflection, refraction, diffraction, and interference of sound and light. Prereq.: PHYS 510. Prereq. or concurrent: MATH 572. 4 q.h.

611. *General Physics 3.* A study of static electric and magnetic fields; direct current circuits; induced currents and electromagnetic forces; inductance and capacitance and their transient effects on direct current circuits. Prereq.: PHYS 610. Prereq. or concurrent: MATH 673. 4 q.h.

*510L, *610L, *611L. *General Physics Laboratory 1, 2, 3.* Experimental work designed to supplement the General Physics sequence. Three hours per week. Prereq. or concurrent: 510 or 601 for 510L; 610 or 603 for 610L; 611 or 602 for 611L. 1+1+1 q.h.

621. *Electronics for Computer Science.* Elements of electricity and magnetism; D.C. circuits; linear and non-linear devices; digital circuitry. This course is designed for Computer Science majors. Not applicable to the major in physics or to the combined major in physics and astronomy. Prereq.: PHYS 510, MATH 673, CSCI 600, or consent of the instructor. 4 q.h.

## Upper Division Courses

NOTE: The minimum requirement for all upper division courses in physics and astronomy is either (A) satisfactory completion of PHYS 510, 610, 611 and MATH 674, or (B) consent of the department.

701, 702, 703.** *Intermediate Classical Mechanics 1, 2, 3.* Statistics and dynamics of particles and rigid bodies. Gravitation and the properties of a gravitational field. Principle of virtual work. Motion in accelerated reference frames. Generalized coordinates; Lagrange's and Hamilton's equations of motion. Damped and forced harmonic oscillators. Matrix theory applied to rotary motion of a free body and top and to normal oscillations of a many-body system. Prereq.: PHYS 611 and MATH 705. 3+3+3 q.h.

704, 705.** *Introduction to Modern Physics 1, 2.* Special relativity; quantum effects related to electromagnetic radiation and material particles; selected topics in atomic, nuclear, and solid-state physics. Prereq.: PHYS 611 and MATH 674. 3+3 q.h.

*705L. *Modern Physics Laboratory.* Experimental work designed to supplement the Physics 704 and 705 lecture courses. Three hours per week. Prereq. or concurrent: PHYS 705. 1 q.h.

710. *Thermodynamics.* An elementary level course in the principles and theorems of thermodynamics which are derived from the observable macroscopic quantities of mass pressure, volume, and temperature. Prereq.: PHYS 611 and MATH 674. 3 q.h.

*710L. *Thermodynamics Laboratory.* Experimental work designed to supplement the corresponding lecture course. Three hours per week. Prereq. or concurrent: PHYS 710. 1 q.h.

722. *Physical Optics and Advanced Light.* Interference, diffraction, dispersion, polarization, coherence, molecular scattering and absorption of radiation. Prereq.: PHYS 611 and MATH 674. 4 q.h.

*722L. *Physical Optics Laboratory.* Experimental work designed to supplement the corresponding lecture course. Three hours per week. Concurrent: PHYS 722. 1 q.h.

730. *Electronic Instrumentation.* Theory of direct- and alternating-current circuits, solid state devices, electrical and electronic instrumentation. Prereq.: PHYS 611 and MATH 705. 3 q.h.

*730L. *Electronic Instrumentation Laboratory.* Laboratory work in alternating-current circuits, transistor and diode circuits, and electronic instrumentation. Six hours per week. Concurrent: PHYS 730. 2 q.h.

741, 742, 743.** *Electromagnetic Field Theory 1, 2, 3.* Electric field and potential, charge distribution, polarization of material media, magnetic field and the vector potential, magnetic moments and magnetic polarization of media, introduction to and application of Maxwell's equations. Prereq.: PHYS 611 and MATH 705. 3+3+3 q.h.

750. *Mathematical Physics.* The mathematical techniques required in the study of classical, statistical, and quantum mechanics, and field theory. Prereq.: PHYS 611 and MATH 705. 4 q.h.

805. *Undergraduate Physics Research.* Research conducted under the direction of a faculty member. May be repeated to a maximum of 6 q.h. Prereq.: PHYS 702, 705, and senior standing. 2 q.h.

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*Additional fee required.

**Must be taken in sequence.

810. *Introduction to Quantum Mechanics.* The postulates of wave mechanics, the Schroedinger Wave Equation, and solutions for elementary problems in quantum theory. Prereq.: PHYS 702 and 705; MATH 706. 3 q.h.

815. *Kinetic Theory and Statistical Mechanics.* The principles and theorems of thermodynamics which are based upon the statistical treatment of non-observable microscopic quantities, atomic and subatomic particles. Prereq.: PHYS 710 and MATH 706. 4 q.h.

820. *Advanced Quantum and Quantum Statistical Mechanics.* Quantum-mechanical scattering, angular-momentum coupling schemes, hydrogen molecular ion, Thomas-Fermi and Hartree-Fock models; quantum statistics and applications to the theory of metals, superfluidity and superconductivity. Prereq.: PHYS 810 and PHYS 815. 3 q.h.

822. *Electrodynamics.* Development of relativistic kinematics from the potential form of Maxwell's equations and of the connection between electrodynamics and quantum concepts. Application of tensor methods to electromagnetic theory with emphasis on physical interpretation. Prereq.: PHYS 743 and MATH 706. 3 q.h.

826. *Elements of Nuclear Physics.* An introduction to the nucleus and subatomic particles, the deuteron, scattering and absorption, nuclear models, radioactivity, alpha, beta and gamma decay, accelerators, nuclear reactions, and elementary particles. Prereq.: PHYS 705, 705L and MATH 705. 3 q.h.

*826L. *Nuclear Physics Laboratory.* Experimental work designed to supplement the corresponding lecture course. Three hours per week. Prereq. or concurrent: PHYS 826. 1 q.h.

830. *Elements of Solid State Physics.* Selected topics in solid state physics: crystal structure, mechanical thermal, and magnetic properties of solids. Prereq.: Permission of instructor. 4 q.h.

835. *Spectroscopy.* Treatment of atomic and nuclear structure based on the analysis of atomic, molecular, X-ray, Gamma-ray, and other spectra. Prereq. or concurrent: PHYS 810, or permission of instructor. 4 q.h.

*835L. *Spectroscopy Laboratory.* Experimental work designed to supplement the corresponding lecture course. Three hours per week. Prereq. or concurrent: PHYS 835. 1 q.h.

850. *Special Topics in Physics.* The study of a standard topic at greater depth, of the development of a correlated background for areas of physical knowledge, or the physical and educational experimentation necessary to develop new physics courses. Prereq.: consent of instructor and department chair. 2-5 q.h.

*Additional fee required.

890. *Physics and Astronomy for Educators.* Principles of Newtonian Physics, conservation of energy and momentum, electricity; introduction to astronomy, planets and satellites, stars and galaxies. Three hours lecture and two hours laboratory. Not applicable to the major in Physics or to the combined major in Physics and Astronomy. Prereq.: Admission to upper division status in the School of Education or to the Graduate School. 4 q.h.

Shown below are suggested curricula for complete four-year programs. Students are urged to come to the department office early in their first year to select, and consult with, an advisor from the teaching staff.

## Suggested Curriculum for Majors With a Minor in Mathematics

**FIRST YEAR**

| Courses | Cr. Hrs. |
|---|---|
| PHYS 510, 510L, 610, 610L, 611, 611L | 15 |
| MATH 571, 572, 673 | 14 |
| CHEM 515, 516, 517* | 12 |
| Electives (See Note) | 8 |
| | 49 |

**SECOND YEAR**

| Courses | Cr. Hrs. |
|---|---|
| PHYS 704, 705, 705L | 7 |
| PHYS 710, 710L | 4 |
| MATH 674 | 4 |
| MATH 705, 706 | 8 |
| ENGL 550, 551 | 8 |
| HSC 590 | 3 |
| HPES Activity Courses | 3 |
| Foreign Language or Electives(See Note) | 12 |
| | 49 |

**THIRD YEAR**

| Courses | Cr. Hrs. |
|---|---|
| PHYS 701, 702, 703 | 9 |
| PHYS 741, 742, 743 | 9 |
| PHYS 750 | 4 |
| Electives (See Note) | 17 |
| | 45 |

**FOURTH YEAR**

| Courses | Cr. Hrs. |
|---|---|
| PHYS 810 | 3 |
| PHYS 815 | 4 |
| PHYS 820 | 3 |
| PHYS Elective | 3 |
| Electives (See Note) | 30 |
| | 43 |

NOTE: The electives must satisfy the general University and/or College requirements, upper division credit requirements, and the foreign language requirement of the College of Arts

*Recommended.

and Sciences. Students majoring in any of the degree programs offered by the department are strongly urged to satisfy the college language requirement in French, German, or Russian.

Minimum requirements for the A.B. degree in Physics with a minor in mathematics: Physics courses 46 q.h.: 510, 510L, 610, 610L, 611, 611L, 701, 702, 703, 704, 705, 705L, 710, 710L, 741, 742. Mathematics Courses, 22 q.h.: 571, 572, 673, 674, 705.

Minimum requirements for the B.S. degree in Physics with a minor in mathematics: Physics courses, 63 q.h.: Same as the A.B. above plus courses 743, 750, 810, 815, 820 plus one 800-level physics elective. Mathematics courses 26 q.h.: Same as A.B. above plus course 706.

Minimum requirements for the B.S. with a combined major in Physics and Astronomy and a minor in mathematics: physics courses, 61 q.h.: Same as the A.B. above, plus 15 q.h. from the following physics courses -722, 722L, 743, 750, 810, 815, 820, 835, 835L. (Students interested in planetary or radio astronomy may substitute courses in geology or electrical engineering for up to 12 of these 15 hours with departmental permission.), Astronomy courses, 25 q.h.: 608, 700, 701, 702, 800, 801, 802, 805. Mathematics courses, 26 q.h.: Same as for the B.S. degree in Physics.

## ASTRONOMY

*Professors Young (Supervisor), Bishop and Tabak.*

### Lower Division Courses

504. *Descriptive Astronomy.* Introduction to modern knowledge about the universe. Astronomical observing methods; the earth and moon and their place in the universe; planets, stars and star systems, galaxies; recent astronomical discoveries. 4 q.h.

*504L. *Astronomy Laboratory.* Telescope and planetarium laboratory work designed to supplement ASTRO 504. Two hours per week. Prereq. or concurrent: ASTRO 504. 1 q.h.

608. *Moon and Planets.* A detailed discussion of the moon and planets, with particular emphasis on the geology of the moon. Prereq.: ASTRO 504 or permission of the instructor. 4 q.h.

### Upper Division Courses

700, 701, 702.** *Astrophysics 1, 2, 3.* The application of physical principles to the study of stars and planets; stellar distances and dimensions; stellar spectra and chemical composition; nuclear reactions and evolution of stars; the Milky Way and other galaxies; cosmology. Prereq.: PHYS 611 (or PHYS 650) and MATH 674. 3+3+3 q.h.

800, 801, 802.* *Observational Astronomy 1, 2, 3.* Observational techniques in astronomy. Photography, photoelectric photometry, photographic darkroom techniques, spectroscopy, methods of data reduction. Some nighttime observatory work included. Prereq.: PHYS 704. 3+3+3 q.h.

805. *Research in Astronomy.* Individual investigation performed with faculty guidance. Prereq.: ASTRO 800, 801 and senior standing. 3 q.h.

NOTE: 700-and 800-level Astronomy courses are taught in alternate years with Astronomy 700 offered in the fall of odd-numbered years.

NOTE: These courses may be used to complete a Physics minor.

## POLITICAL AND SOCIAL SCIENCE

## POLITICAL SCIENCE

*Professors Binning (Chair), Eichenberger; Associate Professor Lepak, Porter; Assistant Professor Sracic.*

A major in Political Science comprises 48 quarter hours, with the requirement that the student complete at least two courses in each of the four areas: American Government, Comparative Government, International Relations, and Political Thought.

Related minors in history, economics, geography, and sociology are valuable to the Political Science major preparing for graduate study in political science, or for a career in journalism, law, public administration or the Foreign Service. The student who plans to do graduate study in political science or who expects to apply to the Foreign Service should achieve proficiency in at least one modern foreign language.

### Lower Division Courses

550. *Elements of Politics.* An analytic approach to the study of politics with illustrations drawn from a variety of political systems. 4 q.h.

601. *American National Government.* A detailed examination of American political structure and process at the national level, with emphasis on the constitutional order and the electoral system. Prereq.: POLIT 550 or SOCSC 511. 4 q.h.

640. *Comparative Government.* A detailed examination, using the case study approach, of institutional structure, political processes, and public policy in selected foreign political systems. Prereq.: POLIT 550 or 601 or SOCSC 511. 4 q.h.

660. *International Relations.* A detailed examination of theoretical and practical issues in contemporary international politics, law, organization and economic relations. Prereq.: POLIT 550 or 601 or SOCSC 511. 4 q.h.

*Additional fee required.

**Must be taken in sequence.

*Must be taken in sequence.

## Upper Division Courses

700. *American Executive.* An examination of the role of the chief executive officer within the governmental framework. The offices of mayor and governor are treated, but primary emphasis is on critical evaluation of the American Presidency. Prereq.: POLIT 601. 4 q.h.

701. *American Legislative Process.* An examination of the lawmaking function. Attention is focused on the United States Congress, with limited consideration of state and local government legislative practices. Prereq.: POLIT 601. 4 q.h.

702. *American Judicial Process.* The American judicial system, its institutional development and its role in policy determination, as evidenced in leading Supreme Court decisions. Limited attention is given the state judicial systems. Prereq.: POLIT 601. 4 q.h.

703. *American Constitutional Law.* An inquiry into constitutional interpretation by the Supreme Court based on examination of leading cases, with particular attention to questions of federalism, executive power, civil liberties, and economic regulation. Prereq.: POLIT 702. 4 q.h.

704. *American Political Parties.* A descriptive analysis of the role of political parties in a democratic society, with emphasis on development of a theory of party, an examination of the history and characteristics of the American party system, and a quantitatively structured description of the national electorate. Prereq.: POLIT 601. 4 q.h.

706. *Minority Group Politics.* The politics of minority groups within American society in terms of organization, behavior, objectives, and relative influence and power. The politics of Black America are given particular attention. Prereq.: POLIT 601 or BLKST 600. 3 q.h.

707. *Interest Group Politics.* The politics of special interests within American society in terms of organization, behavior, objectives, and relative influence and power. Interests concerned primarily with governmental economic policy are given special attention. Prereq.: POLIT 601. 3 q.h.

*712. *Political Behavior.* An introduction to the main theories and concepts of the field, including the use of quantitative analysis to measure and describe the causes of political behavior. Prereq.: POLIT 550 or 601, or SOCSC 511. 4 q.h.

*714. *Public Opinion.* A descriptive and quantitative analysis of public opinion in terms of its origin and location, content, interpretation and effects, within the American political system. Included is a practicum in opinion polling, requiring field collection of data, statistical analysis, and evaluative summary. Prereq.: POLIT 550 or 601, or SOCSC 511. 4 q.h.

*Additional fee required.

717. *Health Care Policy.* Seminar on the politics of health-policy formation and alternative proposals for the organization of health care delivery, manpower, and finance systems; interviews with administrative and planning personnel. Prereq.: POLIT 601, or admission to NEOUCOM-YSU, or junior standing in a health field. 4 q.h.

718. *American Public Policy and Policy Analysis.* The formation, implementation and evaluation of contemporary American public policy. Prereq.: POLIT 601. 4 q.h.

720. *Public Administration.* A study of administrative organizations in American federal and state governments, with special attention to their role in the formulation and implementation of public policy as demonstrated in case studies. Prereq.: POLIT 601. 4 q.h.

721. *Urban Government.* The structure and politics of urban government, with special attention to intergovernmental relationships. Prereq.: POLIT 601. 4 q.h.

722. *State and Local Government.* The political processes and institutions of state and local governments, with special attention to Ohio government. Prereq.: POLIT 601. 4 q.h.

740. *Comparative Politics.* The systematic study of the field of comparative politics, focusing on theories of comparative politics applicable to all political systems. Prereq.: POLIT 640. 4 q.h.

741. *Russian Politics.* Study of politics in the Russian Federal Republic, emphasizing the crisis of Communist-era rule and the development of post-Communist reform politics. Prereq.: POLIT 640 or permission of instructor. 4 q.h.

742. *Politics and Economics of Developing Areas.* A systematic study of political and economic development in the "underdeveloped areas" of all the world. Prereq.: POLIT 640. 4 q.h.

744. *European Government and Politics.* A comparative study of governmental institutions and political behavior of selected Western European political systems. Prereq.: POLIT 640. 4 q.h.

745. *Eastern European Government and Politics.* A comparative examination of the political systems of Eastern Europe in the contemporary period. Emphasis on governmental institutions, the Communist Party, and policy development. Prereq.: POLIT 640. 4 q.h.

751. *Latin American Governments and Politics.* A comparative study of governmental institutions and political behavior of the Latin American Region including South America, Central America and the Caribbean Basin. Prereq.: POLIT 640. 4 q.h.

752. *Government and Politics — Asia.* Prereq.: POLIT 640. 3 q.h.

760. *International Politics.* The principles underlying politics among nations and a study of their application to present international problems. Prereq.: POLIT 660. 4 q.h.

761. *United States Foreign Policy.* The formulation and execution of contemporary United States Foreign Policy, with attention to its basic principles in the 20th century. Prereq.: POLIT 660. 4 q.h.

762. *Eastern European Foreign Affairs.* Study of foreign policies of Russia and other Eastern European states, emphasizing issues of regional security and political economy. Prereq.: POLIT 660. 4 q.h.

763. *International Law.* Principles of international law as they have developed through custom and usage, international agreement, and judicial decisions. Prereq.: POLIT 660. 4 q.h.

764. *International Organization.* A study of international organizations (including the United Nations) and regional organizations that foster political integration. Prereq.: POLIT 660, or junior standing and consent of instructor. 4 q.h.

765. *Comparative Foreign Policy.* The factors that shape foreign policy, and a comparison of the foreign policies of selected nation states. Prereq.: POLIT 660. 4 q.h.

766. *Latin-American Foreign Affairs.* A systematic study of the inter-American system with special attention to the structure and function of the Organization of American States, recent U.S. policy toward Latin America, and the foreign policies of major Latin-American countries. Prereq.: POLIT 751 or consent of instructor. 4 q.h.

767. *Asian Foreign Affairs.* A study of the foreign policies of selected countries of Asia. Prereq.: POLIT 660, 752, or consent of instructor. 4 q.h.

768. *International Conflict.* An examination of the role of force in international politics. Special emphasis on theories of conflict, deterrence theory, technological developments in modern weaponry, and problems of arms control and disarmament. Prereq.: POLIT 660. 4 q.h.

785. *Political Thought 1.* The development of western political thought from the time of classical Greece through Medieval Period. Among major figures treated: Plato, Aristotle, Cicero, Augustine, and Aquinas. Prereq.: 12 hours of political science or consent of instructor. 4 q.h.

786. *Political Thought 2.* The development of western political thought from the Renaissance to the Modern Period. Among major figures treated: Machiavelli, Bodin, Hobbes, Locke, Rousseau, and Burke. Prereq.: 12 hours of political science or consent of instructor. 4 q.h.

787. *Political Thought 3.* The development of western political thought of the nineteenth and twentieth centuries. Among major figures treated: Hegel, John Stuart Mill, Marx, and Lenin. Prereq.: 12 hours of political science or consent of instructor. 4 q.h.

788. *Political Thought 4.* Western political thought of the contemporary period. Among major figures treated: Arendt, Kelsen, Maritain, Marcuse, Popper, Rawls and Strauss. Prereq.: 12 hours of political science or consent of instructor. 4 q.h.

800. *Select Problems, American Government.* This course may be repeated once. Prereq.: consent of instructor. 3-6 q.h.

820. *Select Problems, Political Science Research Methodology.* A study of the use of various research methodologies used in political science. A research paper applying one of the methodologies to various topics is required. This course may be repeated once. Prereq.: POLIT 712 or 714 or 718, or permission of instructor. 3-6 q.h.

840. *Select Problems, Comparative Government.* This course may be repeated once. Prereq.: Consent of instructor. 3-6 q.h.

860. *Select Problems, International Relations.* This course may be repeated once. Prereq.: Consent of instructor. 3-6 q.h.

880. *Select Problems, Political Thought.* This course may be repeated once. Prereq.: Consent of instructor. 3-6 q.h.

## SOCIAL SCIENCE

*Associate Professor McKean, Assistant Professors Gonzalez.*

### Lower Division Courses

510. *Introduction to Social Science 1.* An approach to the study of human society by integrating the general viewpoints of the various social science disciplines, focusing on the nature of culture and society as well as the basic institutions and processes which form the bases for social interaction. 4 q.h.

511. *Introduction to Social Science 2.* A continuation of Social Science 1 with a focus on the political and economic subsystems of society as they have developed and are conditioned by the culture and society of which they are an integral part. Prereq.: SOCSC 510. 4 q.h.

### Combined Major in Social Studies

The program for the combined major in social studies provides appropriate foundation for the study of law, for graduate work in the disciplines which it includes, and for entry into the civil service field. It can also fulfill requirements for teacher certification in the social sciences.

In addition to the major requirements of Social Science 510, 511 and History 605, 606, the social studies major consists of courses in the disciplines of economics, geography, history, political science, and sociology, to be distributed as follows:

A. A minimum of 18 quarter hours in each of two disciplines;

B. A minimum of eight quarter hours in each of the remaining three disciplines.

A minimum of 27 of the hours required must be in upper division courses.

The student seeking teacher certification in combined social studies should check the College of Education catalog section on teaching fields.

## PRE-FORESTRY

See *Biological Sciences.*

## PRE-LAW

*Political Science Faculty, Advisors.*

Pre-Law advisement is available at the beginning of the student's college study to acquaint the student with the various fields of legal practice which require specialized undergraduate study, and in the junior year to arrange for law school entrance examinations and interviews.

There are no prescribed majors for the Pre-Law student. The options of a single discipline major, the American Studies major, or the combined major in social studies exist.

Law school admission standards generally require an undergraduate point average of at least 3.00 and placement above the 60th percentile in the Law School Admissions Test, which is designed to measure capacity for analytic thought and for precision in the use of language. Regional and national law schools may have more rigorous requirements. Students are advised to consult *The Official Guide to U.S. Law Schools,* a publication of the Law School Admissions Council and the Association of American Law Schools, copies of which are available for use in the offices of the Department of Political Science.

## PRE-MEDICAL, PRE-DENTISTRY, PRE-OSTEOPATHY, and PRE-VETERINARY

See *Advisors in the Department of the Biological Sciences or Chemistry for details of these programs.*

The primary aim of pre-professional students is to satisfy entrance requirements for their respective professional schools. The requirements are listed in bulletins from those schools and should be carefully studied. The American Association of Medical Colleges has published a book entitled *Medical School Admission Requirements,* which summarizes entrance requirements for medical schools in the United States and Canada. Copies of this book are on reserve in the library and in the Department of Biological Sciences.

Pre-Medical students may elect either of the following programs:

(1) A biology major with a chemistry minor

(2) A chemistry major with a biology minor

Program (1) or (2) is taken by the majority of students accepted into medical school. A student may elect any other major and minor if desired, but this is recommended only for students who can maintain extremely high grade averages.

See also *The Northeastern Ohio Universities College of Medicine.*

## PSYCHOLOGY

*Professors Beckett, Ellyson, Fry, Gittis, Graf, Haynes, Kestner, Krishnan, Letchworth, Masaki, Morrison (Chair), Small, Sweeney; Associate Professors Gray, Segreto, Stringer, White; Assistant Professors Flora, Mastrangelo.*

Psychology offers majors for both the Bachelor of Arts and Bachelor of Science degrees. The Bachelor of Arts degree may be appropriate for students seeking: (1) a general liberal arts degree; (2) paraprofessional employment; (3) certification with a B.A. degree to teach psychology in the secondary schools; (4) preparation for graduate study in psychology in non-experimental areas.

The Bachelor of Science degree program is designed for those students who are interested in pursuing graduate work in experimental, biophysiological, psychopharmacological, or related research areas in psychology; and it may be appropriate for other areas.

Honors Program in Psychology: Requirements for admission are: (1) completion of a minimum of 45 q.h. at YSU with a minimum GPA of 3.4; (2) completion of PSYCH 560, 616, 617, and 618, preferably by the end of the sophomore year, with a minimum GPA of 3.50. Eligible students should consult an advisor and chair of Honors Committee for the application and further information.

### BACHELOR OF ARTS — PSYCHOLOGY
### 48 Hours:

A. PSYCH 560 (General); 616, 617 & 618 (Research Design and Statistical Analysis 1, 2 & 3).

B. An additional 30 hours in courses applicable to the psychology major, excluding PSYCH 720, 770, 790, 785, 845 and 891.

At least one course must be taken from each category from at least four of the five categories below. (Students may take as many courses from within a category as they desire): (1) Clinical/Personality: PSYCH 702, 802, 840. (2) Learning/ Motivation: PSYCH 734, 761, 800, 833, 860. (3) Development: 755, 756, 757. (4) Social/Industrial: PSYCH 700, 704, 712. (5) Experimental/Physiological: PSYCH 760, 762, 763, 810 & 810L, 828.

C. The remaining 3 hours in coursework may be taken in any course applicable to the major — 48 q.h.

### BACHELOR OF SCIENCE — PSYCHOLOGY
### 60 Hours:

A. PSYCH 560, 616, 617, 618, 724. (Statistics 3) 19 q.h.

B. Six of the following courses: PSYCH 734, 760, 761, 762, 763, 765, 800, 802, 810, 810L, 828, 833, 840, 860. 24-25 q.h.

C. Remaining courses from any applicable to major. 16-17 q.h.

D. MATH 550 and a course in Computer Science.

E. Minor in one of the Natural Sciences, Mathematics or Engineering.

As a major, Psychology is primarily an upper division program. Prospective majors are advised to concentrate on the completion of the university and college requirements during their freshman and sophomore years.

Students seeking certification to teach Psychology/Sociology in the secondary schools should consult the College of Education.

## Lower Division Courses

502. *Workshop in Applied Psychology.* Study of selected contemporary psychology-related topics requiring no previous exposure to psychological theory. The Department announces the topic and determines the credit, based on frequency and duration of workshop meetings. May be repeated for a total of eight q.h. with change in topics. Not applicable for the Psychology major nor for the Social Studies area requirement. 1-4 q.h.

505. *Personal Adjustment.* Based on a survey of psychological principles as they relate to the individual student, this course seeks to increase self-awareness, self-acceptance, and satisfying interpersonal relationships. *Not applicable to the psychology major.* 4 q.h.

560. *General Psychology.* An overview of psychology, its major sub-areas, and the activities of psychologists in each; basic principles governing the emergence, organization, and maintenance of behavior patterns. (Replaced PSYCH 501 and 601. Students who have credit for 501 or 601 may not take 560 for credit.) 4 q.h.

613. *Statistical Methods in Psychology 1.* Basic methods of handling data, including frequency distributions, percentiles, and measures of central tendency and dispersion; an understanding of correlation and use of graphic methods. Prereq.: C or better in PSYCH 560. 3 q.h.

614. *Statistical Methods in Psychology 2.* A review of the basic principles of descriptive statistics including measures of central tendency, variability, and correlation followed by an introduction to inferential statistics including z and t tests, Chi Square, and analysis of variance. Prereq.: C or better in PSYCH 613. 4 q.h.

*615. *Introduction to Experimental Psychology.* The application of scientific methodology to problems in psychology. An introduction to the apparati, methods, and techniques with selected experiments to acquaint the student with basic principles. Prereq.: C or better in PSYCH 614. 4 q.h.

*616. *Research Design and Statistical Analysis 1.* An introduction to scientific methodology in psychology. Topics will include methods for obtaining data, understanding journal articles, and the basics of research design. May not be taken for credit by students who have completed all or part of the PSYCH 613, 614, 615 sequence. Prereq.: C or better in PSYCH 560. 4 q.h.

*617. *Research Design and Statistical Analysis 2.* The foundations of statistical analysis. Topics will include statistical notation, probability, sampling distributions, correlations, and regression. May not be taken for credit by students who have completed all or part of the PSYCH 613, 614, 615 sequence. Prereq.: C or better in PSYCH 616. 4 q.h.

*618. *Research Design and Statistical Analysis 3.* An extension of statistical analysis to multiple groupo designs and a continuation of the analysis of psychological research through readings, demonstrations, and experiments. A research project will be required. May not be taken for credit by students who have completed all or part of the PSYCH 613, 614, 615 sequence. Prereq.: C or better in PSYCH 617. 4 q.h.

620. *Woman: A Psychological Study.* A systematic exploration of the psychology of woman including questions of her social and personality development in terms of institutional, interpersonal, and intrapersonal factors. Woman will be surveyed in her many roles such as mother, sexual object, consumer, worker, and creator. Prereq.: PSYCH 560. 4 q.h.

692. *Human Sexuality.* An interdisciplinary approach to the study of human sexuality. Holistic approach dealing with questions that concern the college student of today. Includes problems in sex education, the nature of sexuality, the relationship of sex to personal identity, and sexual mobility. Factual information will be given in the areas of physiological reproduction, contraception, sexually transmitted disease, sexual dysfunctions, techniques, and response. Listed also as BIOL 692, HSC 692, and SOCIO 692. Prereq.: HPES 590. Does not count toward general university requirements. 4 q.h.

## Upper Division Courses

700. *Social Psychology.* A consideration of underlying psychological principles that give rise to the concept of self in society; includes such topics as interactions, social-cultural reality, group norms, the crowd, public opinion, and propaganda. Prereq.: PSYCH 560 or SOCIO 600. 4 q.h.

701. *Introduction to Learning.* Concepts basic to learning; the role of reinforcement, and techniques, such as operant conditioning, that utilize it. *Applicable to the psychology major only with permission of the chair.* Prereq.: PSYCH 560. 3 q.h.

702. *Abnormal Psychology.* Patterns of deviant behavior, including current systems of classification; classic syndromes; the nature and trend of major maladjustments; possible causative factors; and methods of prevention and treatment. Prereq.: PSYCH 560. 4 q.h.

*Additional fee required.

704. *Conflict Resolution.* Social psychological research and theory concerned with the definition, escalation, maintenance, and de-escalation of social conflict. Topics to be addressed include integrative bargaining, mediation, coalition formation, distributive and procedural justice, and conflict gaming literature. Prereq.: PSYCH 700 or consent of instructor. 4 q.h.

707. *Psychology of Marriage and Family Relations.* Psychological factors contributing to marital success and family stability: an examination of courtship, marriage, child-and-family relations, sexual relations, and mental hygiene. Prereq.: PSYCH 560. 4 q.h.

709. *Psychology of Education.* Principles of psychology as applied to the educational process, including characteristics of the individual learner, the classroom, the instructor, methods and techniques, and other factors in the learning process. Prereq.: PSYCH 560. 4 q.h.

711. *Applications of Psychology to the Work Setting.* An introduction to applied psychology including topics in Industrial/Organizational psychology, engineering psychology, and consumer behavior. Not applicable to the major in Psychology. Prereq.: PSYCH 560. 4 q.h.

712. *Survey of Industrial/Organizational Psychology.* Principles of psychology applied to business and industry with emphasis upon both personnel and organizational behavior topics including job anaysis, selection, performance appraisal, organizational development, job satisfaction, motivation, and leadership. Prereq.: PSYCH 613 or PSYCH 617 or equivalent. 4 q.h.

720. *Psychological Theory Workshop.* Selected psychosocial problems and the application of psychological principles and theories to their solution. Topic and credit hours to be announced in *Schedule of Classes* when course is offered. May be repeated for a maximum of 12 q.h. with different course content. Only four q.h. can be applied to the University Social Studies area requirement. Four q.h. can be applied to the Psychology major without permission of the department chair. Prereq.: PSYCH 560. 1-4 q.h.

724. *Advanced Statistical Methods in Psychology.* A continuation of inferential statistics: complex analysis of variance and non-parametric statistics; additional study of special correlational techniques and concepts of regression and prediction. Recommended for the student preparing to seek an advanced degree. Prereq.: C or better in PSYCH 614 or 618. 4 q.h.

734. *Applied Behavioral Analysis.* Extension of the results of laboratory findings to human behavior: development, maintenance, and extinction of behaviors, in institutional, industrial, home, and educational settings. Prereq.: PSYCH 560 or permission of instructor. 4 q.h.

735. *Psychology and Group Dynamics.* A historical survey and review of the group dynamics in psychology starting with the originator, Kurt Lewin, and including a discussion of the major theoretical works, research, and application to individual behavior. Prereq.: PSYCH 613 or 616, and 700. 4 q.h.

745. *The Minority Individual.* Psychological research on the intrapersonal, interpersonal, and intergroup dynamics of being labeled a minority individual as the result of one's race, ethnicity, religion, or gender. The behavioral effects of minority group membership and its impact on the relationship between the individual and the society. Prereq.: PSYCH 700, and 755 or 756 or 757. 4 q.h.

748. *Stress: Theoretical and Clinical Models.* Stress theories, concepts and models including theoretical and empirical research on the role of stress in physical and mental illnesses. Prereq.: PSYCH 700 or 702, or permission of the instructor. 4 q.h.

755. *Developmental Psychology 1 (Child).* A study of human development from conception to puberty. Stresses the interaction between innate factors and experience in shaping behavior. Prereq.: PSYCH 560. 4 q.h.

755H. *Developmental Psychology I (Child)-Honors.* A rigorous study of human development from conception to puberty, requiring extensive library research and written reports. Stresses the influence of family dynamics on the development of personality and the impact of experience in shaping behavior, as well as discussing the influence of innate predisposition. Especially recommended for psychology majors and nontraditional students experienced with children. Prereq.: Sophomore standing, PSYCH 560, and eligibility for University honors program; or consent of the instructor. 4 q.h.

756. *Developmental Psychology 2 (Adolescent).* A study of human development from puberty to adulthood. Prereq.: PSYCH 560. 4 q.h.

757. *Developmental Psychology 3 (Adult).* A study of human development from adulthood through old age. Prereq.: PSYCH 560. 4 q.h.

760. *Perception.* Theories and experimental evidence on how environmental, physiological, and personal factors influence the reception, organization, and interpretation of sensory input. Prereq.: PSYCH 615 or 618. 4 q.h.

761. *Cognition.* Experimental methods, research findings, and current theories concerned with human cognitive processes. The information-processing approach, focusing on how information is transformed, stored, manipulated, and retrieved will be emphasized. Topics include attention, pattern recognition and categorization, memory, and language. Concurrent: PSYCH 761L. Prereq.: PSYCH 615 or PSYCH 618. 4 q.h.

761L. *Cognition Laboratory.* Laboratory demonstrations and experiments using research techniques in cognition. Three hours per week. Concurrent: PSYCH 761. 1 q.h.

762. *Verbal Learning and Memory.* This course provides an overview of problems, methods, experimental findings, and current and classical theories stemming from research on verbal learning and the temporary and long-range retention of that learning. Prereq.: PSYCH 615 or 618. 4 q.h.

763. *Comparative Psychology.* The variety of behaviors within the animal kingdom. Prereq.: PSYCH 615 or 618 or consent of instructor. 4 q.h.

764. *Psycholinguistics.* An overview of language production, use and comprehension including the biological basis of speech and language, language development, social aspects of language and bilingualism. Concurrent: PSYCH 764L. Prereq.: PSYCH 615 or PSYCH 618. 4 q.h.

764L. *Psycholinguistics Laboratory.* Research techniques in basic and applied psycholinguistics. Three hours per week. Concurrent: PSYCH 764. 1 q.h.

*765. *Experimental Social Psychology.* Problems, principles, methods, and techniques of experimental social psychology. Concurrent: PSYCH 765L. Prereq.: PSYCH 615 or PSYCH 618; and 700. 3 q.h.

765L. *Experimental Social Psychology Laboratory.* Field and laboratory work culminating in the presentation of an individual project. Six hours per week. Concurrent: PSYCH 765. 2 q.h.

770. *Individual Study.* The individual study of a special problem, or a review of the literature relating to a specific psychological problem or issue. A written report is required, one copy of which will remain on file in the department. May be repeated for a maximum of six hours with different problems. Prereq.: Consent of the instructor the student selects. 1-2 q.h.

775. *Cross-cultural Developmental Psychology.* Similarities and differences in psychological development in various cultural and national groups. Prereq.: psych 755 or PSYCH 756. 4 q.h.

780. *Psychological Aspects of Disease and Death.* The primary factors affecting an individual's attitudes toward illness, bereavement, and mortality; the psychological adjustments necessitated by physical illness or bereavement, appropriate counseling methods. Prereq.: PSYCH 560. 4 q.h.

785H. *Honors Seminar in Psychology.* Study of selected topics within psychology suitable to the honors program. Prereq.: Admission to the Psychology Honors Program, permit required. 1 q.h.

790. *Field Work in Psychology.* Supervised placement with a community agency or organization, under direction of a psychologist, social worker, psychiatrist, or other mental health or educational professional, to attain personal growth with respect to some area of psychology in which the student has a special interest, and to make classwork more meaningful and relevant. The student must write a paper integrating work experience with background reading, and is rated by the supervisors *in situ.* A maximum of three q.h. may be applied to the Psychology major. One q.h. credit is given for each three hours/week of field work for 10 weeks of the quarter. May be repeated up to six q.h. credit. Prereq.: 12 hours in psychology and permission of instructor. 1-3 q.h.

800. *Psychology of Learning.* A study of the learning process with emphasis on factors such as reinforcement, discrimination, generalization, transfer, etc.; an introduction to modern learning theory. Prereq.: PSYCH 615 or 618 or consent of instructor. 4 q.h.

802. *Personality.* An investigation of the variables which determine personality. Normal patterns of behavior are discussed and consideration is given to the more prominent theories of personality. Prereq.: 20 hours of psychology. 4 q.h.

805. *Interviewing Techniques.* The basic purposes, and problems of interviewing, including practicum and review. Prereq.: 20 hours of psychology or consent of instructor. 4 q.h.

806. *Vocational Guidance.* Techniques of vocational guidance and their application to high school and college students, vocational rehabilitation, and adults in general. Prereq.: 20 hours of psychology including PSYCH 840 or consent of instructor. 4 q.h.

807. *Introduction to Counseling.* The role of the preprofessional in helping the clinical and counseling psychologist; theories of adjustment; area resources; referral; professional problems. Prereq.: Senior standing plus PSYCH 702 and 802 or consent of instructor. 4 q.h.

810. *Psychophysiology and Behavioral Medicine.* An introduction to the relationship between the psychological and physiological bases of behavior. Response systems, such as cardiovascular, respiratory, and gastrointestinal, are covered as well as application of principles, theories, and research to health-related behaviors. Prereq.: PSYCH 615 or 618 or consent of instructor. Concurrent: PSYCH 810L. 4 q.h.

*810L. *Psychophysiology and Behavioral Medicine Laboratory.* Measurement and research techniques in basic and applied psychophysiology. Three hours laboratory-discussion. Concurrent: PSYCH 810. 1 q.h.

815. *Health Psychology.* Psychosocial factors that affect the promotion and maintenance of health, as well as the prevention and treatment of illness. Prereq.: 20 hours in psychology or permission of instructor. 4 q.h.

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*Additional fee required.

828. *Physiological Psychology.* The structural-functional relationships of the various divisions of the neural system, their relationships to the organism as a whole, and their contributions to human behavior. Prereq.: PSYCH 615 or 618 or consent of instuctor. 4 q.h.

833. *Principles of Operant Behavior.* Experimental analysis of behavior from an operant viewpoint, emphasizing simple and complex schedules of reinforcement and stimulus control. Prereq. or concurrent: PSYCH 615 or 618. 4 q.h.

836. *Psychology of the Exceptional Child: General.* A survey of exceptionality including the orthopedically and physically handicapped, sensorially handicapped, socially and emotionally handicapped, and the intellectually exceptional. Prereq.: PSYCH 755 or 756 or consent of instructor. 3 q.h.

837. *Psychology of the Exceptional Child: Retarded.* A detailed investigation of the psychological characteristics of the mentally retarded and the disabled learner, on borderline, mild, and severe levels. Prereq.: PSYCH 755 or 756 or consent of instructor. 3 q.h.

838. *Psychology of the Exceptional Child: Gifted.* A detailed investigation of the psychological characteristics of the gifted; problems of accommodation and adjustment of the gifted, the creative child. Prereq.: PSYCH 755 or 756 or consent of instructor. 3 q.h.

840. *Psychological Measurement.* Theories and principles of test construction, and an overview of psychological tests and questionnaires used in mental health, educational, and vocational settings. Prereq.: PSYCH 613 or 617 or consent of instructor. 4 q.h.

841. *History of Psychology.* The development of scientific psychology, with major emphasis on trends since the mid-19th century. Prereq.: 12 q.h. in psychology. 4 q.h.

845. *Issues in Psychology.* Issues and controversies in psychology both current and long-standing; a thorough review of ethical standards and obligations of the practitioner and/or teacher of psychology at the sub-professional, mid-professional, and full-professional levels. Prereq.: senior standing and consent of instructor. 3 q.h.

850. *Seminar.* Major topics in psychology not covered in listed courses. Offered each quarter with a different topic. *Applicable to the psychology major to the extent of three q.h. but may be repeated twice as elective hours.* Prereq.: senior major in psychology, or consent of instructor. 3 q.h.

855. *Infant Development.* A detailed study of the processes influencing infant development, from behavior genetics to environmental factors; a review of current research on physical, perceptual and cognitive development. Prereq.: PSYCH 755. 4 q.h.

860. *Motivation.* Classical and contemporary theories of motivation. Overview of research and theory on the interactive role of biological, learned, and cognitive components in motivation of human behavior, including emotion, need for achievement, affiliation and power. Prereq.: PSYCH 615 or 618. 4 q.h.

870. *Environmental Psychology.* The functional relationship between individual behavior and physical environment, and the relevance of this psychological interaction for environmental planning for the regional, city, neighborhood, and individual habitat. Prereq.: 20 hours of psychology including PSYCH 613 and 700 or consent of instructor. 4 q.h.

891H. *Honors Thesis.* The student will write a research paper (experimental or theoretical) on a topic approved by an honors thesis advisor and honor's thesis committee. May be repeated for a maximum of 6 q.h. Prereq.: Admission to the Psychology Honors Program. 1-4 q.h.

# RELIGIOUS STUDIES

*See Philosophy and Religious Studies.*

# RUSSIAN

*See Foreign Languages.*

# SOCIAL SCIENCE

See *Political Science.*

# SOCIOLOGY AND ANTHROPOLOGY

*Professors Fry, Gilmartin, White; Associate Professors Gartland (Chair), Shutes, Weaver; Assistant Professors D'Apolito, Jiang, Stone.*

The Department of Sociology and Anthropology offers majors and/or minors in both of its areas including a major in Nursing Home Administration and a minor in gerontology.

# SOCIOLOGY

The concentrations in sociology are useful to the professional study of law, teaching, research, and other fields requiring work beyond the bachelor's level.

Sociology majors are employed in a variety of settings, such as schools, institutions, urban affairs, social security and personnel.

A major in Sociology comprises 45 quarter hours. Majors must take SOCIO 500, 600, 701, 751, and 760, in addition to 23 q.h. of sociology courses.

## Lower Division Courses

500. *Fundamentals of Sociology.* An introduction to the science of human societies and groups: analysis of the structures, functions, and processes that bring about changes in societies, groups, communities, classes, and institutions. 4 q.h.

590. *Introduction to Women's Studies.* Introduces students to key concepts, theoretical frameworks, and inter-disciplinary research drawn from current scholarship about women. The course includes cross-cultural and historical analyses but concentrates on major issues relevant to the status and roles of contemporary American women including an examination of the effects of sexism, racism, ethnicity, and class distinction. *Does not count toward the Sociology major; does not fulfill the social science requirement.* Prereq.: ENGL 550. 4 q.h.

600. *Principles of Sociology.* A continuation of Sociology 500 with greater emphasis on the major social institutions and their problem areas. Prereq.: SOCIO 500. 4 q.h.

601. *Social Problems.* A sociological overview of various contemporary social issues, analyzing significant discrepancies between standards of expectation and actual social behavior, and attempting to ascertain possible causes, and discuss trends and possible changes. 4 q.h.

630. *Criminology.* Study of the social context of crime in America. Review of historical theories offered in explanation of criminal behavior. Listed also as CRJUS 630. 4 q.h.

640. *Women in Society.* Attention will be paid to cross-cultural and historical issues, but the major focus will be on the contemporary status of women in the U.S. The effects of the political and economic institutions upon women, particularly the effect of stratification, gender roles, and the socialization process will be studied. Prereq.: SOCIO 500. 4 q.h.

## Upper Division Courses

700. *Minority Groups.* A survey of the origins and characteristics of ethnic and racial minority groups, with emphasis on the significance of membership in such a group for in-group, out-group, and community solidarity. Prereq.: SOCIO 500. 4 q.h.

*701. *Social Statistics 1.* Measurement and interpretation of social data by the use of descriptive techniques. Prereq.: SOCIO 500 or ANTHRO 602. Listed also as CRJUS 710. 4 q.h.

*702. *Social Statistics 2.* Continuation of Sociology 701. The methods of probability theory as a basis for statistical inference, hypothesis testing, correlation, chi-square and variance analysis. Prereq.: SOCIO 701. Listed also as CRJUS 711. 4 q.h.

703. *Sociology of Aging.* Characteristics of aging; problems for the aging individual and his/her family as well as for society at large. Some basic skills needed for providing services to and for the aged. Prereq.: SOCIO 500. 4 q.h.

*Additional fee required.

705. *The Family.* Family and kinship systems as a major institution; their development, functions, and relation to other basic institutions found in different cultures and social strata. Prereq.: SOCIO 500 or 602. 4 q.h.

706. *Industrial Sociology.* The industrial social organizations and change processes in modern urban societies, particularly in America. The repercussions of technological change on social groups, viewed comparatively. Prereq.: SOCIO 500. 4 q.h.

707. *Urban Sociology.* A comparative study of cities of pre-industrial and industrial societies, historical and contemporary. The process of urbanization and changing urban structure and functions. Prereq.: SOCIO 500. 4 q.h.

708. *Political Sociology.* The social conditions that affect government and politics and that may help to determine political order and regulate struggles for power; associations and movements leading to stability or change. Prereq.: SOCIO 500. 4 q.h.

709. *Social Control.* Means of control in primitive and advanced societies. The role of the family, school, church, clubs, economic institutions, government, the media, and movies. The modification of individual and group behavior by various social pressures. Prereq.: SOCIO 500. 4 q.h.

720. *Applied Sociology.* Uses of sociology in practical affairs, providing theory and data for public policy, institutional reform, social action programs, and social inventions. Contributions to architectural design, industrial engineering, community planning, and innovative legislation. Prereq.: SOCIO 500. 4 q.h.

735. *Juvenile Delinquency.* Social and psychological factors underlying delinquency; the juvenile court and probation; treatment and preventive measures. Prereq.: SOCIO 500. Listed also as CRJUS 735. 4 q.h.

740. *Complex Organization.* Structures and processes of large-scale organizations: leadership, control techniques, tensions, bureaucratic pathologies, organizational change. Prereq.: SOCIO 500. 4 q.h.

741. *Social Movements.* An analysis of the role of social movements, intellectual criticism, and socio-economic trends; study of the dynamics of change initiated outside of regular and institutionalized channels, including mobs and crowds. Prereq.: SOCIO 500. 4 q.h.

742. *Small Group Processes.* A study of small group behavior; influence, attitudes, and values of social microsystems. Prereq.: SOCIO 500. 4 q.h.

743. *Social Stratification.* A comparative analysis of social stratification systems with a major emphasis on modern Western societies. Prereq.: SOCIO 500. 4 q.h.

744. *Social Deviance.* Problems of drug abuse, sexual deviation, crime, and other forms of deviance. Theoretical approaches to deviant behavior; etiologies and methods of social control. Prereq.: SOCIO 500. 4 q.h.

745. *Medical Sociology.* Social attitudes toward illness. Cultural and social factors in disease definition of illness, and organization of the health professions and health facilities. Lectures and field work. Prereq.: SOCIO 500, or admission to the NEOUCOM-YSU program. 4 q.h.

*751. *Social Research.* Seminar in methods of obtaining, interpreting, and presenting sociological data. Each student makes an intensive study of an existing situation. Prereq.: SOCIO 600 or ANTHRO 602 and SOCIO 701. 5 q.h.

755. *Theories of Gerontology.* A review and critical analysis of current theories of the social aspects of aging, and their use in research. Prereq.: SOCIO 500. 4 q.h.

756. *Aging and Ethnicity.* A study of aging in various American subcultures, noting differences in status/role systems, demographic distributions, life styles, methods of dealing with the aged, and related problems. Prereq.: SOCIO 500. 4 q.h.

757. *Gerontology: Retirement.* Examination of social attitudes toward the process of aging, retirement, and provision for later-life resources. Prereq.: SOCIO 500.4 q.h.

758. *Occupational Gerontology.* Social aspects of the work-occupational system of the aged as it relates to the use of human resources, support programs, and the social distribution of resources. Prereq.: SOCIO 500. 4 q.h.

760. *History of Social Theory.* The historical development of social theory from social philosophy, with emphasis on the scientific schools of thought of the 19th and early 20th centuries. Prereq.: SOCIO 600 or ANTHRO 602. 4 q.h.

761. *Modern Sociological Theory.* Analysis of key schools of present-day sociological theory. Prereq.: SOCIO 600 or 602. 4 q.h.

774. *Comparative Community Studies.* A comparative study of peasant society as a social type contrasted with primitve and industrial society; the impact of contact; problems of modernization; stability and conflict in developing cultures. Prereq.: SOCIO 500 or ANTHRO 602. 4 q.h.

787. *Population Movements.* Trends in world population in their relation to history, migration, and urbanization. Human demography and ecology: various measurements of the size, density, and distribution of population as well as economic and social environments. Listed also as ECON 787. Prereq.: Junior standing. 4 q.h.

789. *Human Beings and the Technological Society.* An interdisciplinary critical examination of humankind in the modern technological society from the perspectives of social, engineering, and life science. The topics (1) History of technology, (2) The World's available resources, (3) Population dynamics as they interact with nature and the human ecosystem. Prereq.: junior standing or consent of instructor. Listed also as CHEGR 789 and BIOL 789. 4 q.h.

821. *Internship in Sociology.* Application of sociological knowledge in the work setting. Assist professionals in various settings such as social agencies, government, hospitals, nursing homes, correctional facilities, and industry. Prereq.: Junior standing and permission of internship advisor. 4-12 q.h.

898. *Select Problems in Sociology and Anthropology.* Readings in sociology and anthropology dealing with current problems in theory and methods. Credit is given according to the nature and extent of the problems and the readings. For students planning to enter graduate school. Prereq.: Departmental major in senior year. 1-5 q.h.

*Additional fee required.

# ANTHROPOLOGY

A major in Anthropology comprises 45 quarter hours. Majors must take Sociology 701, and 751, Anthropology 602 and 801, courses in Cultural Anthropology, Physical Anthropology, and Archaeology, and two area courses.

The University Science/Mathematics area requirement may be satisfied by the following Anthropology courses: 703, 704, 884.

## Lower Division Course

602. *Introduction to Anthropology.* An exposition of the past and present horizons of anthropology, with specific attention to the emergence of humans, prehistory, and human social and cultural systems. 4 q.h.

## Upper Division Courses

701. *Cultural Anthropology.* A cross-cultural comparison of the cultural norms that regulate society, emphasizing the functional prerequisites for the existence of society and individual demands on society. Students who have taken ANTHR 711 will not receive credit for this course. Prereq.: ANTHR 602. 4 q.h.

702. *Archaeology.* An introduction to the methods and subject matter of archaeology in its reconstruction of paleolithic and prehistoric cultures as inferred from artifacts. Student who have taken ANTHR 712 will not receive credit for this course. Prereq.: ANTHR 602. 4 q.h.

703. *Biological Anthropology 1: Human Evolution.* The physical origins and development of the human species as a member of the primate order and the biological bases of human behavior disclosed by human paleontology and archaeology. May be used to satisfy the University science area requirement. Students who have taken ANTHR 782 will not receive credit for this course. Prereq.: ANTHR 602. 4 q.h.

704. *Biological Anthropology 2: Human Variation.* The distribution of the human species into variant physical types and the casual adaptations of these varieties in relation to evolutionary human ecology. May be used to satisfy the University science area requirement. Students who have taken ANTHR 783 will not receive credit for this course. Prereq.: ANTHR 602. 4 q.h.

710. *Social Anthropology.* The origin, diffusion, and continuity of primitive social institutions with their relation to contemporary social phenomena. Students who have taken ANTHR 713 will not receive credit for this course. Prereq.: ANTHR 602. 4 q.h.

750. *Language and Culture.* Language structure as an instrument in human behavior and social institutions. Prereq.: ENGL 551 or equivalent, and ANTHR 602 or equivalent. Identical with ENGL 750. 4 q.h.

753. *Anthropological Linguistics.* An introduction to elementary linguistic theory from an anthropological viewpoint with practical work in phonetics, phonology, morphology, syntax, and transformational grammar. Prereq.: ANTHRO 602 or 750. 4 q.h.

760. *Topics in Old World Ethnography.* An in-depth examination of the ethnography, cultural contributions, and achievements of Old World peoples, which may include the cultures of Europe, Africa, the Middle East, Asia, or Australia and Oceania. May be taken up to four times for credit if topic is different. Prereq.: ANTHR 602 or permission of instructor. 4 q.h.

761. *Topics in Native American Ethnography.* An in-depth examination of various topics in Native American ethnography. Topics vary by quarter and may include South American Indians, Native American civil rights, the reservation system, and others. May be taken three times for credit if topic is different. Prereq.: ANTHR 602 or consent of instructor. 4 q.h.

765. *Maya, Aztec, and Inca Cultures.* The origins, cultures, and achievements of the classic civilizations of the New World. Students who have taken ANTHR 716 will not receive credit for this course. Prereq.: ANTHR 602. 4 q.h.

775. *North American Indians.* The culture and achievements of the North American Indians. Prereq.: ANTHR 602. 4 q.h.

*778. *Archaeological Techniques.* Practice in archaeological field methods, including survey ing, mapping, excavation, and artifact analysis. Ordinarily offered in summer. 220 contact hours per quarter. Prereq.: ANTHR 712 or 702. 6 q.h.

*781. *Archaeological Laboratory Techniques.* Site reconnaissance, artifact anaylsis and preservation, microware analysis, analysis of faunal remains, coprolite analysis, archaeological report writing, etc. Some lab work may be required. Prereq.: ANTHR 712 or 702 or permission of instructor. 4 q.h.

*Additional fee required.

800. *Undergraduate Research.* Research participation under the direction and guidance of a full-service faculty member. Designed to acquaint the advanced student with special research problems associated with various aspects of the discipline. May be repeated to a maximum of 6 quarter hours. Prereq.: Permission of instructor and junior standing. 1-3 q.h.

801. *History of Anthropological Thought.* An analysis of the theories and methodology of the major contributors to contemporary anthropological thought, such as the evolutionist, diffusionist, functional, and multi-linear schools. Prereq.: ANTHR 600 or 602. 4 q.h.

815. *Primitive Religion.* A survey of anthropological approaches to the study of religion, illustrated by a critical consideration of past and present contributions to the field. Study of selected religious systems, areally and topically. Prereq.: ANTHR 602. 4 q.h.

817. *Cultural Resource Management.* The reconnaissance, identification, evaluation, preservation, and recording of prehistoric and historic cultural resources. Students will be familiarized with federal, state and local laws. Some field work may be required. Students who have taken ANTHR 717 will not receive credit for this course. Prereq.: ANTHR 712 or 702 or permission of instructor. 4 q.h.

822. *North American Prehistory.* The prehistoric development of North American Indian cultures from the Arctic to Northern Mexico. Prereq.: ANTHR 712. 4 q.h.

824. *Old World Prehistory: Special Topics.* An examination of the pre-historic development of Old World (Africa, Europe, Far East, Middle East, and Oceanic cultures). May be taken twice for credit if topic is different. Prereq.: ANTHR 712 or 702. 4 q.h.

825. *New World Archaeology: Special Topics.* An in-depth examination of the archaeological evidence of the development of New World cultures from early prehistoric to late post-industrial times. Topics vary by quarter and may include historical archaeology, industrial sites archaeology, Southwestern prehistory, Ohio prehistory, South American prehistory, and others. May be taken twice for credit if topic is different. Some topics may include fieldwork. Prereq.: ANTHR 712 or 702 or consent of instructor. 4 q.h.

877. *Method and Theory in Archaeology.* Past and contemporary theory and methodology in archaeology, with emphasis on recent innovations in the U.S. and Europe. Students who have taken ANTHR 777 will not receive credit for this course. Prereq.: ANTHR 712 or 702. 4 q.h.

879. *Primate Ethology.* Survey of the behavioral patterns of contemporary primates, emphasizing the relationships with the behavior patterns of early and modern homosapiens. Students who have taken ANTHR 779 will not receive credit for this course. Prereq.: ANTHR 602 and either 16 q.h. in the major or junior standing. 4 q.h.

*884. *Human Paleontology.* A detailed survey of the fossil evidence for human evolution, including techniques of measurement and description of human skeletal remains. May be used to satisfy the University science area requirement. Students who have taken ANTHR 784 will not receive credit for this course. Prereq.: ANTHR 782 or 703. 4 q.h.

## SPANISH

*See Foreign Languages.*

## WOMEN'S STUDIES

*Pat Gilmartin (Director), Sociology and Anthropology; Brothers, Brown-Clark, Budge, Elias, Garbe, Gergits, Gittis, W. Jenkins, A. Krishnan, Leck, Linkon, McNierney, S. Russo, Segreto, Schramer, Shillington, Stephan, Stringer, Strom, Tessier and Tingley.*

The University offers a minor in Women's Studies with the advice and approval of the chair of the department the student is majoring in and by completing 21 hours in the following courses, with at least two 700-800 level courses in at least two departments and at least three 500-600 level courses in at least two departments.

### Lower-Division Courses

English 617. *Women in Literature.* Prereq.: ENGL 551. 4 q.h.

English 632. *Images of Women.* Prereq.: ENGL 551. 4 q.h

Latin 660. *Women in the Ancient World.* 4 q.h.

Psychology 620. *Women: A Psychological Study.* Prereq.: PSYCH 560. 4 q.h.

Sociology 640. *Women in Society.* Prereq.: SOCIO 500. 4 q.h.

### Upper-Division Courses

History 726. *History of Women in the United States.* Prereq.: HIST 590, 605 or 606. 4 q.h.

Philosophy 704. *Woman: A Philosophical Study.* Prereq.: PHIL 600 or junior or senior standing. 4 q.h.

Religious Studies 752. *Feminist Theology and Spirituality.* Prereq.: Any 600 level course in Philosophy or Religious Studies or Junior standing. 4 q.h.

*Additional fee required.

The student may select one of the following special topics courses when offered with the appropriate focus to complete the 21 hours for a minor.

Art 790. *Special Topics in Studio Art.* Prereq.: ART 503 and/or ART 504 or consent of instructor. 2-4 q.h.

Black Studies 701. *Black Studies Colloquium 2.* Prereq: BLKST 601 or consent of the instructor. 4 q.h.

English 890. *Seminar in Literary Study.* Prereq.: 12 hours in upper-division literature courses. 4 q.h.

Foundations of Education 875. *Seminar in Foundations of Education.* 1-4 q.h.

History 801. *Selected Problems in American History.* Prereq.: Consent of instructor. 4 q.h.

Management 880. *Special Topics in Management.* Prereq.: senior standing or consent of instructor. 1-4 q.h.

Marketing 831. *Special Topics in Advertising and Public Relations.* Prereq.: consent of instructor. 3 q.h.

Health Sciences 893. *Workshop on Women's Health.* Prereq.: consent of instructor.

Human Performance and Exercise Science 894. *Workshop in Physical Education/Athletics.* Prereq.: HPES 750, 768 or consent of instructor. 1-4 q.h.

Philosophy 820. *Seminar: Contemporary Philosophical Problems.* Prereq.: PHIL 600 and 8 q.h. of upper-division philosophy or approval of department chair. 1-4 q.h.

Psychology 850. *Seminar.* Prereq.: senior major in psychology or consent of instructor. 3 q.h.

Religious Studies 850. *Seminar in Religious Studies.* Prereq.: any two upper-division courses in either philosophy or religious studies, or consent of instructor. 1-4 q.h.

Religious Studies 851. *Directed Readings in Religion.* Prereq.: any upper-division course in either philosophy or religious studies, or consent of instructor. 1-4 q.h.

Sociology 898. *Select Problems in Sociology and Anthropology.* Prereq.: departmental major in senior year. 1-5 q.h.

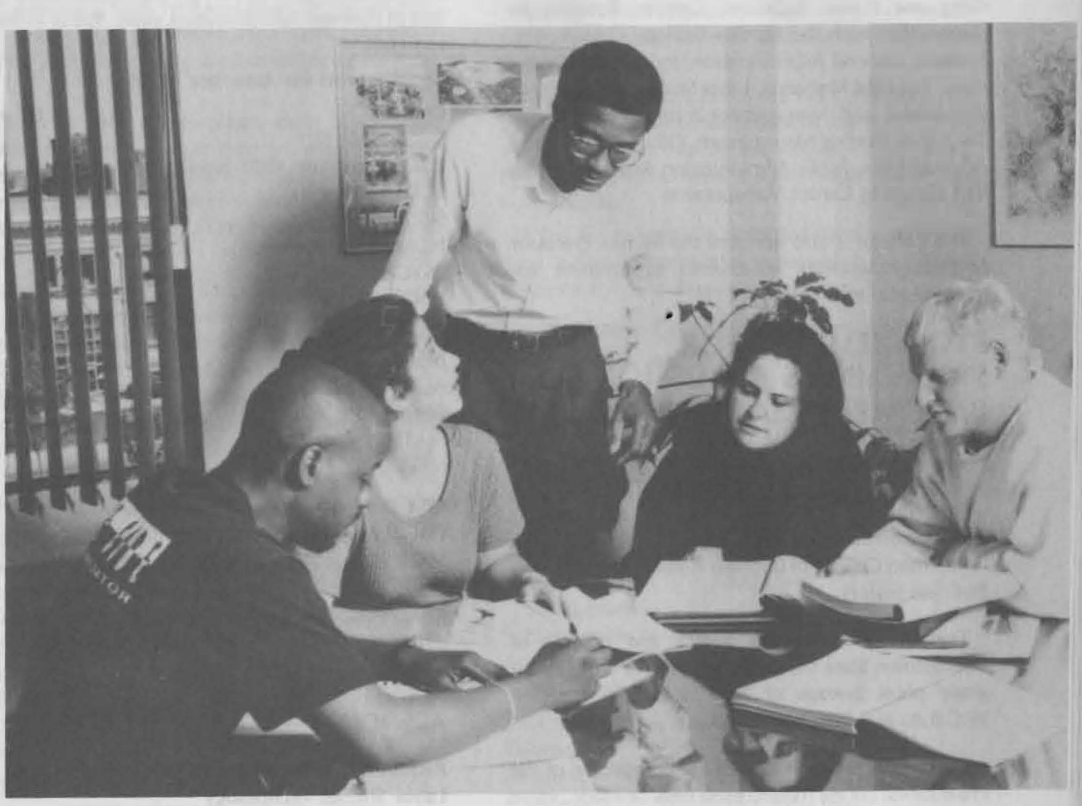
Speech 740. *Special Topics in Speech Communication.* Prereq.: SPCH 530 or 540 or junior standing with permission of the instructor. 4 q.h.

## ZOOLOGY

See *Biological Sciences*

# The Warren P. Williamson, Jr. College of Business Administration

*Betty Jo Licata, Dean*



The mission of the Williamson College is to create a quality learning environment that provides a broad professional education which prepares students for ethical and fulfilling careers in a global setting, and is the foundation for self development and progress to positions of increasing responsibility. The College is accredited by the Association of Collegiate Business Schools and Programs and is a candidate for accreditation with the American Assembly of Collegiate Schools of Business. The curricula in business and accounting are patterned after the guidelines set by these associations.

The College has programs leading to the Associate of Labor Studies, the Associate of Arts in Business Administration, and the Bachelor of Science in Business Administration from the departments of Accounting and Finance, Management, and Marketing.

The emphasis in the business programs is on developing analytical, problem solving, and communication skills necessary for informed decision making within the context of an organization. The moral and ethical components of business as a profession are stressed throughout each program.

Specific majors are offered in Accounting, Advertising Art in conjunction with the Art Department, Advertising and Public Relations, Fashion Retailing in conjunction with the Human Ecology Department, Finance, General Administration, Industrial Management, Industrial Marketing, Labor Studies, Management (Behavioral and Management Information Systems Tracks), Marketing Management, Office Services and Administration, Public Administration, Retail Marketing and Shopping Center Management.

The College is also home of the Monus Professor of Entrepreneurship, established to promote entrepreneurial studies.

# REQUIREMENTS FOR PRE-BUSINESS ADMISSION TO BACCALEAUREATE PROGRAM

## New Applicants

First quarter freshmen who are admitted to Youngstown State University will be accepted into the Williamson College of Business Administration as Pre-Business majors.

Transfer students both within and outside of Youngstown State University must have a minimum grade point average of 2.00 to transfer into the W.C.B.A. as a Pre-Business major.

Satisfactory progress toward the completion of the Pre-Business course requirements must be made before the completion of 50 quarter hours of course work in order to retain Pre-Business status in the W.C.B.A. Students who have not made satisfactory progress within this period of time must consider transferring to another college within the University. An advisor is available for consultation regarding other majors within the University.

## Upper-Division Requirements/Declared Business Major

Upon the completion of 80 quarter hours of course work (inclusive of English 551, Mathematics 550, 642, Economics 530, 630, 632, 624, 705, Management 604, Accounting 602, 603, and BIS 514 with grades of "C" or better), students who desire to be considered for Upper-Division Standing in the W.C.B.A. must apply with an academic advisor in Room 408 of Williamson Hall.

Students are restricted from registering for Upper-Division Business Courses until a major has been declared.

# REQUIREMENTS FOR THE DEGREE

## ASSOCIATE IN ARTS IN BUSINESS

The Associate in Arts degree is intended for students not seeking other associate or baccalaureate degrees. The Associate in Arts degree will not be awarded to students earning other degrees. To pursue an Associate in Arts degree, consult the Advisor's Office in the College of Business Administration, room 408 of Williamson Hall.

**Requirements for Associate in Arts**

| Courses | Cr. Hrs. |
|---|---|
| ENGL 550, 551 | 8 |
| ENGL Literature (600 level) | 4 |
| SCI Electives | 8 |
| SOCST Elective | 4 |
| HUMAN Electives | 12 |
| PSYCH 560 | 4 |
| HSC 590 | 3 |
| **CBA Tool Courses** | |
| BIS 514 | 4 |
| ACCTG 602, 603 | 8 |
| ECON 530, 624, 630 | 12 |
| MATH 550 or 642 | 5 |
| MGT 604 | 4 |
| **CBA Core Courses** | |
| FIN 720 | 4 |
| MGT 725 | 4 |
| MKTG 703 | 5 |
| Major Concentration Accounting, Finance, Management or Marketing | 16 |

## ASSOCIATE IN LABOR STUDIES

**Requirements for Associate in Labor Studies Technology**

| Courses | Cr. Hrs. |
|---|---|
| ENGL 550, 551 | 8 |
| HUMAN elective | 4 |
| SCI elective | 4 |
| PSYCH 560 | 4 |
| HIST 502 | 4 |
| HSC 590 | 3 |
| **CBA Tool Courses** | |
| MATH 550 or 642 | 5 |
| ECON 530 | 4 |
| ECON 630 | 4 |
| ECON 624 | 4 |
| BIS 514 | 4 |
| ACCTG 602 | 4 |
| ACCTG 603 | 4 |
| LST 515 | 4 |
| **CBA Core Courses** | |
| FIN 720 | 4 |
| MGT 725 | 4 |
| MKTG 703 | 5 |
| Labor Studies Concentration | 28 |

# LABOR STUDIES TECHNOLOGY

## Lower Division Courses

501. *Introduction to Organized Labor.* An overview of the labor studies program designed to introduce the student to the many facets of the labor movement. 4 q.h.

510. *Union Leadership Skills.* An introduction to basic leadership skills with emphasis on human relations, motivation, communication skills, decision-making, problem-solving, parliamentary procedure. 4 q.h.

515. *Labor Law.* A preliminary study of the legal agencies of government as they relate to the labor movement. Federal and state labor law, statutory and common, and how it applies to unions, employees, and employers. Prereq.: LSTEC 501 or relevant field experience. 4 q.h.

540. *Fundamentals of Occupational Safety.* An overview of the broad concept of safety, providing a proper foundation for understanding the different philosophies of and approaches to safety management. Analysis of providing a safe place of employment with discussions of current federal, state, and local laws and regulations; total loss-control approaches, operational-error approaches, system safety approaches, and psychological and societal implications. 4 q.h.

710. *Negotiations.* Review of the background of collective bargaining, bargaining goals (union and management); legal basis; study of traditional and mutual gain negotiations theories; wages–prices–profits–productivity; preparation of collective bargaining proposals, responsibilities of the parties in the bargaining process; strike procedures in bargaining. Prereq.: LSTEC 501, relevant field experience, or permission of instructor. 4 q.h.

720. *Contract Administration.* Study of contract content: fringe-benefit and non-fringe areas; working conditions; preparing local union representatives to administer the contract; human relations at the workplace; fair representation; the grievance procedure and its function. Prereq.: LSTEC 515 or MGT 725. 4 q.h.

730. *Grievance Procedure.* The grievance procedure as a part of collective bargaining; fair representation; skills required in grievance handling; practice in grievance-writing; arguing the case at lower, intermediate, and arbitration levels. Prereq.:LSTEC 515 or MGT 725. 4 q.h.

740. *Labor Studies Seminar.* Study of selected issues and problems on the basis of interest and need. May be repeated for a maximum of 12 q.h. Prereq.: LSTEC 501 or permission of instructor; or MGT 725.4 q.h.

# BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

The student has the responsibility for seeing that all graduation requirements for the degree are satisfied. For the Bachelor of Science in Business Administration degree, these are:

1. Pre-college or preparatory courses, taken in high school. See the General Requirements and Regulations section.

2. Courses and other requirements of the University. These are explained in the General Requirements and Regulations section, and are listed below.

The curricula leading to a degree in Business require a minimum of 186 quarter hours.

Admission to Pre-Business does not guarantee admission to upper division status with a major in Business.

The student whose needs are not completely met by existing conventional programs may wish to investigate and apply for the Individualized Curriculum Program. See the General Requirements and Regulations section.

R.O.T.C. students are permitted specific modifications of the requirement as explained in the General Requirements and Regulations section.

## Pre-Business Course Requirements

| General University Requirements | | Quarter Hours of Credit |
|---|---|---|
| English | 550, 551 | 8 |
| Speech | 652 | 4 |
| Health Science | 590 | 3 |
| Economics* | 530, 630, 632 | 12 |
| Psychology | 560 | 4 |
| Electives | | |
| English Lit | 600 Level | 4 |
| Social Studies | | 8 |
| Humanities | | 4 |
| Science | | 8 |
| HPES Activities | | 3 |
| **CBA Lower Division Tool Courses*** | | |
| Accounting | 602, 603, | 8 |
| Economics | 530, 630, 632, 624, 705 | 20 |
| Mathematics | 550, 642 | 10 |
| Management | 604 | 4 |
| Business Information Systems | 514 | 4 |
| **Upper Division Course Requirements** | | |
| **Core Courses**** | | |
| Finance | 720 | 4 |
| Management | 725, 750, 789, 850, 855*** | 19 |
| Marketing | 703 | 5 |

**Major Requirements** and electives, see major.
**Non-Business electives,** quarter hours vary according to major.

*WCBA lower division tool courses: each must be completed with a grade of "C" or better before applying for upper division status. Tool and core courses may not be used to satisfy any other degree requirements. CR/NC options may not be used in tool and core courses.

**WCBA upper division core courses: each must be completed with a grade of "C" or better.

***MGT 855 is not required for Accounting majors. MKTG 848 can be substituted for Marketing Advertising majors.

Courses for the major must exclude all courses used to satisfy general university, WCBA tool, and WCBA core requirements.

Major requirements (a grade of "C" or better must be made in all courses taken in the major).

### Other Degree Requirements

Completion of the appropriate number of quarter hours.

Upper division status (completion of 96 quarter hours of credit; completion of all tool courses with a grade of "C" or better; application must be made in the Advisors' office).

Major requirements (a grade of "C" or better must be made in all courses taken in the major).

Course level requirements (completion of (90) quarter hours of courses must be completed at the 600 level or higher, of which sixty (60) hours must be at the 700 level or higher).

At least 50 percent (90 hours) of the total degree requirements must be taken in non-business courses. Up to 13 hours of Economics courses can be counted as non-business.

Point Index Requirement.

Residence Requirement.

Application for Graduation.

Note: Courses taken to satisfy high school deficiencies may not be used to satisfy other university, school or department requirements for a degree.

## REQUIREMENTS FOR THE MAJOR

The courses required for the various majors are listed by each department. The combined majors in Advertising Art, Advertising and Public Relations, and the interdisciplinary requirements for Fashion Retailing are described in the Marketing Department listings. The combined majors in General Administration and in Public Administration are described in the Management Department listings.

## REQUIREMENTS FOR THE MINOR

A suggested business minor (Business Foundations) for non-business students would include ACCTG 602 and 603, FIN 720, MGT 604 and 725, MKTG 703 and at least eight additional hours of credit from the Williamson College of Business Administration for which proper prerequisites have been met. Completion of the business foundation minor fulfills most of the foundation requirements for entrance into the Master of Business Administration (MBA) program.

## PROFESSIONAL PRACTICE PROGRAM

In addition to broad academic training through the CBA degree programs, students can acquire professional experience through the Professional Practice Programs. Internships and cooperative education programs are designed to benefit both students and sponsoring organizations through internships and cooperative education positions. Participating students have the opportunity to supplement their classroom learning with actual business experience. To be eligible for internship positions, students must have a minimum grade point average, junior standing, and completed at least one course in their major beyond the core. Internships are typically ten weeks in length or a minimum of 200 hours. To be eligible for co-op positions, students must have completed their freshman year of study, be in good academic standing, and meet the requirements of the sponsoring organization. Cooperative education students work for an employer a minimum of two separate times before graduation. Additional information concerning programs and sponsoring organizations is available from the coordinator of professional practice in the CBA.

## COURSES OF INSTRUCTION AND CURRICULA

The student should become familar with the course-numbering system and its significance as well as the abbreviations used to indicate the amount of credit. These are explained at the end of the General Requirements and Regulations section. Each student is charged with the responsibility of checking the catalog for prerequisites for each course he or she wishes to take. This will ensure minimum changes of registration on the student's behalf and will alleviate many problems associated with scheduling.

The programs and courses in the Williamson College of Business Administration will vary in nature depending upon content, level of instruction, and the pedagogical approach of the professor. At all times, discussion and the exchange of ideas between student and faculty is encouraged.

# ACCOUNTING AND FINANCE

*Professors Bensinger, Hankins, Ross, Tackett (Chair), Volpe, Zetts; Associate Professors Antenucci, Chen, Claypool, Heal, Law, Shaffer, Wolf.*

For students interested in the accounting professions, courses offered include financial accounting, cost analysis, information systems, auditing, and taxes. The accounting program is designed to prepare individuals for careers as certified public accountants, industrial accountants, and as accountants for public, and nonprofit organizations. For those not majoring in Accounting, the courses offered provide a knowledgeable background in accounting as a management tool and functional area of a business, public, or non-profit organization. The curriculum for a major in Accounting consists of 53 quarter hours.

Courses in the finance concentration are designed to provide the student with the knowledge to enter any number of financial areas as a career or to provide sufficient background to use finance as a management tool in business, public, and nonprofit organizations. The finance concentration includes courses in corporate finance, investments and securities, and real estate and insurance. The curriculum for a major in Finance consists of 48 quarter hours.

## CURRICULA

For University requirements, lower division tool requirements, and upper division core requirements, see Table of Courses in the General Requirements and Regulations section.

## ACCOUNTING MAJOR (186 Hours for the Degree)

Accounting 703, 704, 705, 709, 711, 801, 808, 813, and Accounting Electives

Finance Upper Division Elective.

Management 714 and 735

Business Upper Division Elective

## FINANCE MAJOR (186 Hours for the Degree)

Finance 724, 725, 726, 730, 835, 838, 841

Additional requirements include selection of 5 courses from the following: Accounting 703, 704, 705; Economics 701, 709, 710, 712, 811, 812; Finance 870, 871, 850.

## ACCOUNTING MINOR (Suggested Courses Include)

Accounting 602, 603, 703, 704, 705, and 711 or 813

## FINANCE MINOR (Suggested Courses Include)

Finance 724, 725, 726, 730, 835, 841 or 838

# Accounting Sequence

## Lower Division Courses

503. *Elementary Accounting.* Certain principles, concepts, and terminology related to the accounting cycle. Includes an examination of procedures related to control of cash and payroll activities. Does not fulfill WCBA requirements. 4 q.h.

602. *Financial Accounting.* A study of the accounting cycle and generally accepted accounting principles including preparation of the financial statements. Prereq.: Sophomore standing with a "C"or better in BIS 514 or CIS 520. 4 q.h.

*603. *Managerial Accounting.* A study of the accounting informational needs of management. Emphasis is placed on techniques of planning and control. Prereq.: "C" or better in ACCTG 602. 4 q.h.

## Upper Division Courses

*703, *704, 705. *Intermediate Accounting 1, 2, 3.* A comprehensive study of the theories and concepts underlying financial accounting. Emphasis on income determination, asset valuation, measurement of liabilities, corporate equity accounting, and changes in financial position. Current issues in financial reporting and pronouncements of authoritative bodies are studied. Prereq. for ACCTG 703 is a "C" or better in ACCTG 603. Prereq. for ACCTG 704 is a "C" or better in ACCTG 703. Prereq. for ACCTG 705 is a "C" or better in ACCTG 704. 4+4+4 q.h.

707. *Individual Income Taxes.* Taxes for the individual and those who operate, or plan to operate, a small business, farm or hobby. Major emphasis will be placed on federal income tax laws for individuals. However, state and local income taxes will be included. The students will be working with current year tax forms. (Not available for credit to Accounting majors.) Prereq.: MGT 511 or ACCTG 602. 3 q.h.

*709. *Accounting Information Systems.* A study of systems analysis, design, and implementation within the context of an accounting information system. Topics will include a treatment of the business computing environment, security and control of information, the accounting information system as a component of the management information system, and a decision support and expert systems. Prereq.: "C" or better in BIS 514, 703, and 704 or 705. 4 q.h.

*711. *Basic Cost Accounting.* Study of cost accumulation for products manufactured under job order or continuous manufacturing techniques. Cost behavior and profit-volume relationships; cost structures for control and motivation; and, relevant costs for non-routine decision making are studied. Prereq.: "C" or better in ACCTG 603. 4 q.h.

712. *Advanced Cost Accounting.* Standard and differential costing will be studied in depth. Compilation and preparation of budget data for managerial and administrative purposes is included. Prereq.: "C" or better in ACCTG 711. 4 q.h.

721. *State and Local Taxes.* The theory applicable to state and local taxation concepts is reviewed in detail. Primary emphasis is on taxation principles in current use by state and local government units located throughout the United States. Case law is studied and some representative tax returns are prepared. Prereq.: "C" or better in ACCTG 603. 4 q.h.

745. *Accounting for Engineers.* Fundamentals of financial and cost accounting as applied to engineering. Prereq.: ISEGR 724. 4 q.h.

801. *Advanced Accounting.* Partnerships: formation, operation, and liquidation; installment sales; consignments; branch accounting; receivership; joint ventures; consolidations and mergers. Prereq.: "C" or better in ACCTG 705. 4 q.h.

808. *Auditing.* Auditing theory, practice and procedures are introduced and related to actual problems encountered in practice. Prereq.: "C" or better in ACCTG 704, 705, 709 and 711. 4 q.h.

809. *Advanced Auditing.* The application of quantitative methods to the solution of auditing problems; an examination of currently debated topics in auditing praxis. Prereq.: ACCTG 808. 4 q.h.

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*Additional fee required.

813. *Federal Taxation of Individuals.* Introduction to federal income tax laws pertaining to individuals. Emphasis on gross income and adjusted gross income, deductions, and sales, exchanges and basis of property. Coursework includes fundamentals of taxation of investors and proprietors. Prereq.: "C" or better in ACCTG 704. 4 q.h.

814. *Federal Taxation of Business.* Study of current federal income tax law applying to proprietorships, corporations, S corporations, and partnerships. Coursework includes fundamentals of researching tax law and preparing business tax returns. Prereq.: "C" or better in ACCTG 813. 4 q.h.

820. *Governmental and Funds Accounting.* Generally accepted accounting principles for not-for-profit and governmental organizations as established by the appropriately recognized, standard-setting bodies are discussed. Organizations include state and local governments, school districts, colleges and universities, hospitals, voluntary health and welfare organizations, and others. Prereq.: "C" or better in ACCTG 603. 4 q.h.

840. *Accounting Internship Program.* Participatory accounting and professional business experience under the direction of University faculty members and employees of firms participating in the program. The candidates will be employed full-time for the entire quarter in the offices of the participating firms. A written evaluation of the job experience is required by students and firms. Prereq.: Accounting major, junior standing, 2.75 Accounting average and 2.50 overall average and approval of internship committee. 4 q.h.

851. *Professional Practice in Accounting.* This course provides students with Cooperative Education experiences in Accounting. Students may be assigned to public, corporate, or governmental entities on a quarter to quarter basis. Students are considered full-time students even though no credit is given for the course. May be for more than one quarter. Prereq.: Junior standing. 0 q.h.

## Finance Sequence

### Lower Division Course

600. *Personal Finance.* The course will emphasize the many diverse financial decisions which an individual will face. Areas such as taxes, insurance, home buying, and borrowing will be examined. 3 q.h.

### Upper Division Courses

720. *Business Finance.* A study of the financial problems associated with the life cycle of business. This course consists of the analysis of problems relating to estimating the financial needs of an enterprise and to evaluating the alternative means of providing temporary and permanent capital. The relationship of current financial decision with financial policy is analyzed from the viewpoint of management and the investor. Prereq.: ACCTG 603. 4 q.h.

724. *Credit Management.* The nature, uses, and general functions of credit, credit instruments and legal aides for the credit department are presented. Management of the business credit-granting function; management of the consumer credit-granting function; investigation and analysis of commercial, bank, and foreign credit risks; analysis of financial statements for credit purposes; control of accounts receivable in relation to sales and working capital; and the control of credits and collections are evolved. Prereq.: FIN 720. 4 q.h.

725. *Real Estate Investment.* Topics covered include real property ownership, real estate markets, valuation methods, financing methods and management of real estate investments. Prereq.: FIN 720. 4 q.h.

726. *Risk Management.* The fundamental nature of risk and insurance. Property and liability insurance and other loss-bearing techniques are examined along with the proper use of life insurance in personal and business planning. Prereq.: FIN 720. 4 q.h.

730. *Investment Analysis and Management.* Studies the nature and investment merits of corporate bonds, preferred stocks, common stocks and investment companies from the viewpoint of the individual investor. Principles of portfolio management for individual investors are analyzed. Prereq.: "C" or better in FIN 720. 4 q.h.

835. *Advanced Business Finance.* The policies and practices required for effectively planning and controlling the sources and uses of a company's funds are analyzed, with emphasis on the adaptation of financial principle promotion, long-term financing, income administration, expansion, and reorganization. Prereq.: FIN 720. 4 q.h.

838. *International Financial Management.* The techniques of corporate financial management applied to firms doing business in more than one country and/or with assets denominated in more than one national currency. Techniques for managing foreign exchange and political risks as applied to capital budgeting, capital structure, and working capital decisions are discussed. Prereq.: FIN 720. 4 q.h.

839. *International Accounting and Finance.* A cross-functional introduction to multinational enterprises and multinational financial management with emphasis on Foreign currency risk management, measuring and managing accounting and economic exposure; foreign trade and investment analysis; and various other topics in international accounting and finance. Prereq.: FIN 720 and either ACCTG 705 or FIN 835. 4 q.h.

841. *Seminar in Investments and Security Markets.* An examination of the literature on efficient capital markets with implications for security selection and portfolio management. Prereq.: "C" or better in FIN 730. 4 q.h.

850. *Finance Internship.* This course provides students with the opportunity to combine theoretical concepts with business experience. Internships are available in banking, securities brokerage, insurance, real estate and corporate finance. Prereq.: GPA of 2.75, 12 hrs. of Finance. 1-4 q.h.

852. *Professional Practice in Finance.* This course provides students with Cooperative Education experiences in Finance. Students may be assigned to banking, securities brokerage, insurance, real estate, corporate or governmental entities on a quarter to quarter basis. Students are considered full-time students even though no credit is given for the course. May be for more than one quarter. Prereq.: Junior standing. 0 q.h.

870. *Small Business Entrepreneurship.* A study of the small business environment and the problems in starting a business. Students study how small businesses apply the managerial functions in using their resources. Prereq.: Senior standing or consent of the instructor. Crosslisted with MGT 870 and MKTG 870. 4 q.h.

871. *Small Business Enterprise.* Students work with actual problems faced by small businesses under faculty supervision. Problems are defined, analyzed and researched. Recommendations are developed and presented to clients for evaluation. Prereq.: MGT 870 or permission of the instructor. Crosslisted with MGT 871 and MKTG 871. 4 q.h.

# MANAGEMENT

*Professors Arlow, Daly, Guzell, Karpak, Kasuganti (Chair), Katz, Krishnan, McMahon, Psenicka, Russo, Sellaro, Wong; Associate Professors Fowler, Granito, Rakestraw, Wolanin; Assistant Professors Dastoli, Vendemia; Instructor Kos.*

The Department of Management offers courses in various business subjects which (A) complement those of other departments in the College of Business Administration; (B) Provide for the major/combined majors in (I) Industrial Management, (II) Management, (III) Public Administration, and (IV) General Administration; and (C) provide for the minor in Management.

The programs in the department are designed to prepare individuals for careers as managers/supervisors in business/industrial/transporation/public organizations. For those not majoring in one of these fields, the courses offered provide a knowledgeable background in management/supervision/administration of organizations.

The curriculum for a major in Management is 47 hours; Industrial Management major consists of 51 hours; combined major (Accounting and Finance, Management and Marketing) in General Administration is 47 hours; and the combined major (Accounting, Management, Political Science and Sociology and Anthropology) in Public Administration is 56 hours.

The department also offers a two-year Labor Studies program designed to help students develop collective bargaining skills.

## CURRICULA

All students in Management must take the department core requirements and the courses listed in their respective major. For University requirements, lower division tool requirements, and upper division core requirements, see Table of Courses in the General Requirements and Regulations section.

### Department Core Requirements

Management 735, 737, 804

### MANAGEMENT MAJOR — BEHAVIORAL TRACK (186 Quarter Hours for the Degree)

Accounting 711

Management 726, 890 and Upper Division Electives

Business Upper Division Electives

### MANAGEMENT MAJOR — INFORMATION SYSTEMS TRACK (186 Quarter Hours for the Degree)

Accounting 709

Management 761, 765, 825, 830, 835, 865, 875 and Upper Division Electives.

### INDUSTRIAL MANAGEMENT MAJOR (186 Quarter Hours for the Degree)

Accounting 711

Management 705, 820, 851, Upper Division Electives

### Business Upper Division Electives

### GENERAL ADMINISTRATION (COMBINED) MAJOR (186 Quarter Hours for the Degree)

Accounting Upper Division Elective

Finance 730, 835

Marketing 720, 815, 825 and Upper Division Electives

Management Upper Division Electives

Business Upper Division Electives

### PUBLIC ADMINISTRATION (COMBINED) MAJOR (186 Quarter Hours for the Degree)

Accounting 721 or Upper Division Accounting Elective, 820

Economics 702, 822

Political Science 601, 718, 720, 721, 722

Management 880 or 895

Sociology 708, 711

### MANAGEMENT MINOR (21-23) (Suggested Courses Include)

Management 725, 735, 750, 789, 804, and 855

## Lower Division Courses

511. *Introduction to Business.* An overview of the broad concept of business to provide a foundation for understanding the interrelationship of the various functions of business in order to determine areas of interest and aptitude. 3 q.h.

*601. *Microcomputer Applications in Business.* The study and use of selected microcomputer applications in business. Topics will include spreadsheets, database, and word processing. Prereq.: Sophomore standing. 4 q.h.

604. *Legal Environment of Business 1.* Various Sources of laws, basic legal reasoning and application. Emphasis to be placed upon basic legal concepts of contracts, labor, tax, anti-trust and business organizations, and their relationship to business and society. 4 q.h.

## Upper Division Courses

705. *Principles of Transportation.* The historical, economic, and regulatory background of transportation is studied. Emphasis is placed on the economic basis of rates and market centers. The valuation of property assets and their rate of return is given consideration. Prereq.: ECON 630. 4 q.h.

714. *Legal Environment of Business 2.* An in depth analysis of commercial law areas covered on the C.P.A. exam, with emphasis on sales, secured transactions, real and personal property, insurance, bankruptcy, and commercial paper. Prereq.: MGT 604 and Junior standing. 4 q.h.

719. *Personnel selection.* Review of current research in career planning. Emphasis on relationship of job interviewing to the staffing process. Teaches students to conduct selection interviews. Prereq.: MGT 725 or consent of the Instructor. 3 q.h.

725. *Fundamentals of Management.* This course emphasizes the basic principles of management rather than those involved in business organization. It studies the nature of managerial action within an organization, formal and informal structure, process of making decisions, and interrelated activities in management. Prereq.: Junior standing. 4 q.h.

726. *Planning and Controlling.* An in-depth analysis of the relationship between planning and controlling as components of the managing process. Prereq.: MGT 725. 4 q.h.

728. *Simulation Techniques in Business.* Introduces the students to the use of simulation techniques and their application in business. Several simple models representing situations in business and other areas which contain elements of risk or uncertainty will be adapted for computer simulations and the resulting outputs will be used for class discussion and evaluation. Prereq.: BIS 514. 3 q.h.

735. *Communication for Management and Business.* The course analyzes communication and information processes as means for coordinating and controlling organizational activities. Analytical writing activities are required including a long, formal report. Prereq.: ENGL 551 and MGT 725 or consent of instructor. 4 q.h.

*737. *Management Science.* An understanding of methods of management science from an executive or managerial viewpoint, emphasizing formulation of business problems in quantitative terms. Topics such as linear programming, dynamic programming, game theory, Monte Carlo method, probability theory, queueing theory, inventory theory, transportation method, and simulation will be discussed and evaluated. Prereq.: MATH 642, BIS 514 and ECON 624. 4 q.h.

746. *Industrial Traffic Management.* The nature and function of the traffic manager in industrial organizations; classification, tariffs, and rate formulation, routines, transit privileges, carriers, terminal services, claims procedure, regulations and regulatory procedure, warehousing, material handling, export and import phases of traffic management. Prereq.: Junior standing. 3 q.h.

750. *Human Behavior in Organization.* A study of human factors in the administration function. Emphasis is placed on the contributions of the behavioral sciences to the student of business. Among the topics covered are history of human relations, leadership and its development, labor-management relations, group dynamics, and communication and group processes. Prereq.: Junior standing. 4 q.h.

750H. *Honors Human Behavior in Organization.* An honors course emphasizing wide reading and independent research, which studies human factors in administration. Emphasis is based on the contributions of the behavioral sciences to the student of business. Among the topics covered are history of human relations, leadership and its development, labor-management relations, motivation group dynamics, and communication and group processes. Prereq.: Junior standing, completion of an introductory statistics course, MGT 725, a cumulative grade point average of 3.00 or higher. 4 q.h.

761. *Information Systems for Management.* A study, from the manager-user point of view, of the application of the systems approach to design and understanding of dynamic organizations. Includes application of information theory and decision science. Prereq.: MGT 725. 4 q.h.

765. *Structured Programming.* Structured programming and design techniques are applied to business problems using systems analysis tools such as a data flow diagram, data dictionary, and structured chart. Topics include techniques for data editing, validity checking, control totals,and table-handling. Prereq.: BIS 514. 4 q.h.

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*Additional fee required.

770. *Small Business Management.* The problems of small business relative to personnel, control, finance, marketing, management, and administration in manufacturing, distributive, and service firms. Prereq.: Junior standing. 4 q.h.

*789. *Operations Management 1.* A study of current operations management theories and practices with emphasis on direction, planning, and control of production systems. Includes detailed analysis in such areas as materials management, work measurement, quality control, scheduling, maintenance, and forcasting. Prereq.: MGT 725 and ECON 624. 4 q.h.

795. *Modeling Operations Management Systems.* The application of programming techniques to production problems. Emphasis is on the development of complete decision support systems useful in the production environment. Prereq.: MGT 789. 4 q.h.

804. *Human Resource Management 1.* Management and the human resource field; organization and jobs; employment and development of people. A review of applications of job design and analysis, human resource planning, recruitment and selection, equal employment opportunity legislation, training and development, career management. Human resource management theories and concepts are integrated into experiential exercises which simulate practical applications. Prereq.: MGT 725 and 750. 4 q.h.

805. *Human Resource Management 2.* Industrial relations; understanding and managing people; financial compensation; health and safety; the future of human resource management. A review of applications of the collective bargaining environment and process; motivation, participation, effective leadership, and quality of work life; developing and administering basic wage structure, incentive systems, and benefits programs; occupational safety and health, and compliance with related legislation. Case work and simulations. Prereq.: MGT 804. 4 q.h.

808. *Transportation Modes.* Topics involving air, water, and commercial motor transportation are covered. Specifically questions of regulation, tariffs, insurance, documentation, terminal methods and procedures are covered. Prereq.: MGT 604 and 705. 3 q.h.

816. *Problems in Transportation.* Problem study of selected areas in transportation to meet the needs of students having a professional interest in the field. The interstate commerce act is also reviewed for current changes. Prereq.: MGT 705. 3 q.h.

820. *Operations Management 2.* Study of areas pertaining to the production control function such as inventory control, forecasting, aggregate planning, and scheduling. Prereq.: MGT 789. 4 q.h.

*825. *Microcomputers in Business.* The analyses of business microcomputer applications with emphasis on the design of personal decision support systems. Prereq.: BIS 514 and MGT 761. 4 q.h.

830. *Management Science 2.* The use of management science techniques to solve complex business problems. Emphasis is placed on modeling and implementation of decision support systems and in particular the design of computer interfaces. Prereq.: MGT 737 and MGT 825. 4 q.h.

*835. *Systems Analysis.* An overview of the management information systems associated with decision making, integrating areas such as general accounting, marketing, production, and materials management. Emphasis is on analysis of organization systems, and systems modeling using data base information systems. Prereq.: MGT 761. 4 q.h.

850. *Policy Formulation and Administration.* Analysis of typical problems faced by complex organizations. The course will integrate the concepts and techniques learned in the functional areas and apply them from the general manager's point of view. Prereq.: MGT 725, 750, MKTG 703, FIN 720. 4 q.h.

851. *Problems in Industrial Management.* A series of case problems are presented, analyzed and interpreted covering areas in industrial management. In addition, each student is required to do original research in the field by collecting and analyzing data pertaining to specific problems either at the production or at the administration level or an industrial enterprise. Prereq.: MGT 789. 3 q.h.

855. *Business Ethics.* Analysis of ethical considerations involved in the management of a business in relation to society, stockholders, customers, employees, competitors, and government. Prereq.: MGT 725 and 750. 3 q.h.

*865. *Database Management Systems.* Design and management of organizational data resources. Database issues studied include design, definition, creation, documentation update, maintenance, revision, selection, acquisition, and use. The implementations of the hierarchical, network, and relational models will be discussed with emphasis on business applications. Prereq.: MGT 765. 4 q.h.

860. *Comparative Management.* Comparative study of organization, managerial styles, and leadership in foreign countries based on historical and environmental factors. Analyzing the reasons why managerial activity and the effectiveness of management vary among different business systems. Prereq.: MGT 725 and 750. 4 q.h.

870. *Small Business Entrepreneurship.* A study of the small business environment and the problems in starting a business. Students study how small businesses apply the managerial functions in using their resources. Prereq.: Senior standing or consent of the instructor. Crosslisted with FIN 870 and MKTG 870. 4 q.h.

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*Additional fee required.

871. *Small Business Enterprise.* Students work with actual problems faced by small businesses under faculty supervision. Problems are defined, analyzed and researched. Recommendations are developed and presented to clients for evaluation. Prereq.: MGT 870 or permission of the instructor. Crosslisted with FIN 871 and MKTG 871. 4 q.h.

*875. *Decision Support/Expert Systems.* Fundamental techniques, construction, and use of decision support systems, expert systems, and management support systems are introduced. Prereq.: BIS 514 and junior standing. 4 q.h.

880. *Special Topics in Management.* Subject matter, credit hours, and special prerequisites to be announced in advance of each offering. Prereq.: Senior standing in Management or consent of instructor. May be repeated to a maximum of 8 q.h. 1-4 q.h.

890. *International Business.* Management problems of firms engaged in international business, including the strategy of foreign involvement and control of foreign activities. Emphasis on management issues unique to firms in international operations. Prereq.: MGT 725 and 750. 4 q.h.

895. *Management Internship.* This course offers the student the opportunity to relate management theory to practice through on-the-job work experience with participating organization. Mandatory bi-weekly meetings with his/her faculty advisor will insure maximum learning from the experience. This program will be offered all four quarters of each academic year based on the availability of internships. A written evaluation of the job experience is required of the student. Prereq.: A total of 20 hours of Management courses including 725 & 750 and departmental screenings and approvals. 4 q.h.

899. *Independent Study.* The development of a special topic of interest to the student under the direct supervision of a management faculty member. Credit hours vary according to the nature of the project. Prereq.: Management Core and permission of department chair. 1-4 q.h.

## MARKETING

*Professors Deiderick (Chair), Decker, Mathews, Reid, Roussos, Sekeres, Stoll; Associate Professors Anderson, Burns, Davis, Kohut, Lang, Warren, Wilkinson; Assistant Professor Kittle.*

Marketing courses are designed to prepare a student for a career in areas related to the development, distribution, pricing, and promotion of goods and services whether it is in a business, nonprofit, or public organization. For those not majoring in marketing, the course offerings provide a knowledge of marketing as a management tool and functional area of the organization.

*Additional fee required.

Fashion Retailing students complete a block of interdisciplinary courses as well as general and professional courses for their specific degrees which are offered through the departments of Marketing and Human Ecology.

Marketing majors are offered in Industrial Marketing, Retail Marketing, Marketing Management and Shopping Center Management.

The curriculum for a major in Fashion Retailing is 67 hours; Industrial Marketing is 45 hours; Marketing Management consists of 45 hours; Retail Marketing is 47 hours; and Shopping Center Management is 50 hours.

A minor in Marketing consists of 21-24 quarter hours.

### CURRICULA

Industrial, Retail, Marketing Management and Shopping Center Management majors must take the department core requirements and the courses listed in their respective majors. Fashion Retailing majors must take the interdisciplinary courses listed under the major. For University requirements, lower division tool requirements, and upper division core requirements, see Table of Courses in the General Requirements and Regulations section.

### DEPARTMENT CORE REQUIREMENTS (FOR INDUSTRIAL, RETAIL,MARKETING MANAGEMENT AND SHOPPING CENTER MANAGEMENT MAJORS)

Marketing 625, 709, 715, 720, 726, 815, 825

### FASHION RETAILING MAJOR (186 Hours for the Degree)

Interdisciplinary requirements:

Marketing 525, 625, 635, 709, 731, 733, 809, 815, or 825

Advertising 704

Home Economics 705, 730, 764, 780 or Marketing 848, Home Economics 835 or Marketing 850, Home Economics 888

### INDUSTRIAL MARKETING MAJOR (186 Hours for the Degree)

Advertising 704

Marketing 843 and Upper Division Electives

### MARKETING MANAGEMENT MAJOR (186 Hours for the Degree)

Advertising 704

Marketing 847 and Upper Division Electives

### RETAIL MARKETING MAJOR (186 Hours for the Degree)

Advertising 704, 705

Marketing 713, 731 or 733

## SHOPPING CENTER MANAGEMENT MAJOR

### (186 Hours for the Degree)

Marketing 755, 757, 850, 865, 875

## MARKETING MINOR (21-24)

### (Suggested Courses Include)

Marketing 625, 703, 709, 720, 815

### Lower Division Courses

525. *The World of Fashion.* Social, cultural and business aspects of fashion in apparel; career opportunities, current problems, challenges and strategies created by constant changes in retailing products which make up the near environment. Identical with HMEC 525. 3 q.h.

*601. *Microcomputer Applications.* The study and use of selected microcomputer applications in business. Topics will include spreadsheets, database, and word processing. Prereq.: Sophomore standing. 4 q.h.

625. *Personal Selling.* Study of the selling process, focusing on the importance of the selling function to an organization, prospecting and planning for the sale, determining customers' needs and buying motives, sales presentations, handling objections, closing and following up on the sale. 4 q.h.

635. *Fashion Experience.* Projecting and maximizing an appropriate professional image consistent with goals and objectives; resources and processes for the analysis and forecasting of fashion trends; emphasis on influential designers; application of fashion theory. Prereq.: HMEC 525, MKTG 625. Identical with HMEC 635. 4 q.h.

### Upper Division Courses

703. *Fundamentals of Marketing.* The nature of marketing activity, focusing on the individual firm managing its marketing efforts and its relation to the society and the world. Topics include the development of the marketing mix, marketing situations, physical distribution, pricing, and demand analysis. Prereq.: Junior Standing. 5 q.h.

709. *Retail Marketing.* Treats the field of retailing as a subset of the larger field of marketing, by stressing the application of marketing concepts, approaches, and methods to all types of retailing organizations. The entire marketing system is considered from the consumers' and retailers' viewpoint, in theories and practices. Prereq.: MKTG 703. 4 q.h.

713. *Retail Buying.* Study of principles and philosophy that determines excellence in merchandise selection. Management of buying functions, breadth of assortments, depth of stock and development of buying cycles. Gives ethical and legal consideration in buying. Suggests what to buy through consumer behavior, consumer wants, and sales experiences. Designed to provide mastery of the tools that will be used in buying, pricing, stock control, and the analysis of statistical data. Prereq.: MKTG 703. 4 q.h.

715. *Sales Force Management.* Cases, problems, simulations, and lectures are used to sharpen knowledge and analytical skills relevant to salesforce management activities at all levels. Particular emphasis is placed on market opportunity analysis and sales force performance evaluation. Prereq.: MKTG 625 and 703 or consent of instructor. 4 q.h.

720. *Industrial Marketing.* Characteristics of manufacturers' goods, channels of distribution, functions of intermediates, distribution costs, marketing research, government control, and legal limitations. Product policies, service policies, packaging policies, price policies. Industrial advertising organization, planning and budgeting, use of advertising agencies and national advertising media, sales manuals, dealer helps. Prereq.: MKTG 703. 4 q.h.

726. *Consumer Behavior.* Acquaints students with individual and group behavior as it relates to marketing consumer behavior, considered both from the standpoint of the marketing manager and from that of the individual as a consumer. The behavioral sciences serve as a background to provide standards for the social and human evaluation of current marketing activities. Topics covered include: the buyer as a problem solver; buying decision processes and models; measurement of promotional effectiveness and lifestyle analysis. Prereq.: MKTG 703. 4 q.h.

731. *Non-Textiles.* Designed to meet the needs of buyers, copywriters, training departments, comparison shoppers, and instructors in consumer and distributive education fields. The principle of planning, selecting, and preparing merchandise for promotion through display. The sources of raw materials, manufacturing processes, care, use, and selling points of the following types of merchandise are studied: paper products, leather products, furs, jewelry, metals, stones, and cosmetics. 4 q.h.

733. *Furnishings.* The study of principles and functions which encompass furnishings for the home and industry. Stress on the primary functions of buying and selling with emphasis on forecasting, planning, selecting, negotiating, pricing and recording of merchandise. Consideration is given to the entire furnishing's activity including raw materials, the finished product, quality, selling points, and government rulings. Prereq.: MKTG 703. 4 q.h.

755. *Fundamentals of Shopping Centers.* A general survey of the elements in the development of planned shopping centers. The history and social significance of planned shopping centers are considered, along with their present position and future directions. Prereq.: MKTG 703. 4 q.h.

*Additional fee required.

757. *Shopping Center Development.* An examination of shopping centers from a marketing and development standpoint. Topics covered will include marketing strategies, site selection, promotions, tenant mix, and public relations. Prereq.: MKTG 703. 4 q.h.

809. *Techniques of Retail Merchandising.* Emphasis on merchandise planning, forecasting, sales, planning markdowns, planning stocks, calculating reorder quantities, planning and controlling expenses, and setting up goal figures as a guide to operations. A collection of up-to-date mathematical problems and cases faced by the retailer in making managerial decisions are analyzed. Prereq.: MKTG 709. 4 q.h.

*815. *Marketing Research.* Introduction to the major areas of research marketing. Attention is given to problem definition, research design, gathering information and analysis to assist marketing management with the decision making process. Both empirical and theoretical concepts are explored. Review of research problems, approaches and trends in industrial retailing, wholesaling, trade association, advertising, publishing and consulting firms. Prereq.: MKTG 703 and ECON 624. 4 q.h.

818. *Marketing Channels.* Behavioral and functional relationships with and between channel members are investigated. Coverage includes wholesaling, franchise systems, distribution policies, communications, power conflicts, pricing and legal constraints. Prereq.: MKTG 703. 4 q.h.

820. *Promotion Strategy.* A critical analysis of the range and activities of sales promotion; determining what and where to promote; selecting merchandise for promotion, budgeting, planning, and executing promotional activities; external and internal methods of promotion; and coordination of all sales promotion activities. Prereq.: MKTG 703. 3 q.h.

825. *Marketing Management.* A comprehensive study of the management functions in marketing including organization, planning, research, merchandising, sales, advertising and promotion, marketing channels, and control related to corporate policies and objectives. Management practices covering recruiting, selecting, training, equipping, compensating, and supervising are investigated. Prereq.: MKTG 709 or 720. 4 q.h.

842. *Special Topics in Marketing.* Topics will vary from quarter to quarter. Subject matter, number of credit hours, and prerequisites will be announced in advance of each topic. Not more than one *Special Topic* per quarter is permitted. Course may be taken twice with change of topic. 1-6 q.h.

843. *Industrial Buying.* A consideration of industrial buying from a purchasing management point of view. Problem areas of bids, control of quality, inventory control, maintaining sources, order points, and integration of the materials management functions with other activities of the firm, are examined. Purchasing, management developments in budgeting, capital equipment determinations, contract cancellations, ethics, make-or-buy decisions, legal aspects, negotiations, and performance evaluation are discussed. Prereq.: MKTG 720. 4 q.h.

845. *International Marketing.* Development of United States trade, foreign trade promotion, organization, export and import procedures and practices. Taught from the viewpoint of the international marketing manager who must recognize differences between markets in various countries as influenced by their particular cultural and economic environment. Prereq.: MKTG 703. 4 q.h.

847. *Physical Distribution.* A consideration of the problems likely to arise in the planning for and movement of goods through channels of distribution from producer to end user. Elements of the logistical system, including transportation modes, plant and warehouse location, and inventory size determinations, are introduced and discussed. Cases and problems are used to sharpen analytical techniques. Final attention turns to the total cost approach of physical distribution analysis and decision making. Prereq.: ECON 624. 4 q.h.

848. *Marketing and Social Responsibility.* Present marketing practices and their impact on the values of society and the impact of social and ethical trends upon marketing. Search for the consumers' interest, the social audits, marketing responsibilities, product safety, ecological considerations, legal restraints and pricing and sales practices. Prereq.: MKTG 703. 4 q.h.

850. *Marketing Internship.* Through employment with participating business organizations the student will receive professional marketing experience. Candidates will work for the entire quarter at a local business organization under the direct guidance of a faculty advisor. A student receives 4 quarter hours of credit for the internship. A paper will be due at the end of the course on the relationship of marketing theory and practices. 4 q.h.

865. *Shopping Center Operations.* A comprehensive review of the practices and procedures involved in the operation of shopping mall properties, including merchandising, maintenance, security, mall-tenant relations, and community relations. Prereq.: MKTG 703. 4 q.h.

870. *Small Business Entrepreneurship.* A study of the small business environment and the problems in starting a business. Students study how small businesses apply the managerial functions in using their resources. Prereq.: Senior standing or consent of the instructor. Crosslisted with FIN 870 and MGT 870. 4 q.h.

*Additional fee required.

871. *Small Business Enterprise.* Students work with actual problems faced by small businesses under faculty supervision. Problems are defined, analyzed and researched. Recommendations are developed and presented to clients for evaluation. Prereq.: MGT 870 or permission of the instructor. Crosslisted with FIN 871 and MGT 871. 4 q.h.

875. *Problems in Shopping Center Administration.* Current problems in shopping mall administration. Each student will be responsible for producing a project that includes problem definition, exploratory research, solution proposal, and presentation to a panel. Prereq.: MKTG 755, or 757, or 865. 4 q.h.

# ADVERTISING AND PUBLIC RELATIONS

Advertising and public relations courses are designed for those students who plan careers in advertising and public relations and for those who desire to have a knowledge of advertising that would benefit them as they pursue a career in business, public, or nonprofit organizations.

A major in Advertising and Public Relations consists of 49 quarter hours.

In conjunction with the Art Department a combined major of 69 quarter hours is offered in Advertising Art.

A minor in advertising consists of 22 quarter hours.

## CURRICULA

For University requirements, lower division tool requirements, and upper division core requirements, see Table of Courses in the General Requirements and Regulations section.

### ADVERTISING AND PUBLIC RELATIONS MAJOR (186 Hours for the Degree)

Advertising 704, 705, 706, 707, 708, 811, 813, 823

Public Relations 710, 750, 835

Business Upper Division Elective

### ADVERTISING ART (COMBINED) MAJOR (186 Hours for the Degree)

Art 501, 502, 503, 550, 650, 655, 656, 657, 725, 728, 830

Advertising 704, 705, 707, 708 or MKTG 815, and 823

MKTG/ADV/PREL upper division electives

### ADVERTISING MINOR (22 Hours — Suggested Courses Include)

Advertising 704, 705 and Departmental Electives.

## Advertising Sequence

### Upper Division Courses

704. *Principles of Advertising.* A survey of advertising in the framework of modern business activities, the course explores advertising's role in business, advertising media, advertising messages, and planning and managing advertising campaigns. Prereq.: ENGL 551. 5 q.h.

705. *Advertising Creative Strategy.* A study and application of the creative process to copywriting and graphic design in various media. Prereq.: ADVER 704. 4 q.h.

706. *Advertising Media Planning and Buying.* Planning, executing, and controlling of media buys are examined. Techniques of allocation of budget among print and electronic media are explored on national, regional, and local levels familiarizing the student with syndicated media resources. Prereq.: ADVER 704. 4 q.h.

707. *Advertising Management.* Principles and problem-solving techniques relative to the management of advertising are examined. Emphasis is on skill development in appraising factors which affect advertising decisions on messages, media, and budgets by analyzing markets, consumer behavior, and competitive conditions. Lecture, discussions, and case analysis are used to convey the above information. Prereq.: ADVER 704. 4 q.h.

708. *Advertising Research.* Introduction to the major areas of research in advertising including measurement of campaign effectiveness, message effectivness, and media effectiveness. The course acquaints the student with the basic principles, methods and techniques of advertising research including the principle sources of data used in the advertising industry. Prereq.: ADVER 704. 4 q.h.

811. *Direct Marketing.* An in depth investigation of direct marketing including mail order and direct response advertising. Measurability, accountability, lists, and the integration of direct marketing into the total marketing efforts are explored. Prereq.: ADVER 704. 4 q.h.

813. *Electronic Media Advertising.* The practices of the electronic media from an advertising standpoint are explored. Radio, television, cable, one-way interactive systems, and two-way interactive systems are investigated as advertising media. Media sales, writing, and production of commercials are discussed. Prereq.: ADVER 704. 4 q.h.

814. *Print Media Advertising.* The practices of the print media from an advertising standpoint are explored. Magazines and newspapers from both national and retail advertisers' perspectives are examined. Media sales, writing, and production of advertisements are discussed. Prereq.: ADVER 704. 4 q.h.

823. *Advertising Campaigns.* The application of fundamental theories and practices garnered in all the previous advertising courses to a specific advertising problem, including the development and creation of a complete advertising campaign. Prereq.: ADVER 704, 705, 707, and 708. 4 q.h.

831. *Special Topics in Advertising and Public Relations.* Topics will vary from quarter to quarter. Subject matter, number of credit hours, and prerequisites will be announced in advance of each topic. Not more than one *Special Topic* per quarter is permitted. Course may be taken twice with change of topic. 1-6 q.h.

850. *Advertising Internship.* Practical business experience is available to students in advertising under the direction of University faculty members, advertising department personnel in organizations, and public relations practitioners. The candidates will be employed a minimum of 20 hours per week during the quarter. Weekly campus conferences are required, and attendance at these conferences is mandatory. A written evaluation of the job experience is required by the student and the participating organization. Prereq.: ADVER 704, 705, 706, 707 and 708. 2.75 advertising and public relations average, 2.50 overall average, and approval of internship committee. 4 q.h.

## Public Relations Sequence

710. *Basic Public Relations.* A study of the management function which investigates and evaluates public attitudes, policies, means, and techniques used in the field to earn public understanding and acceptance. Prereq.: ENGL 551. 4 q.h.

750. *Public Relations Communication.* The course examines the writing and production of news releases, brochures, annual reports, speeches, visuals, business publications, and letters from a public relations standpoint. Prereq.: PREL 710 and ENGL 622. 4 q.h.

835. *Public Relations Campaigns.* The application of fundamental theories and practices garnered in previous public relations courses to a specific public relations problem including the development of a complete public relations campaign. Prereq.: PREL 710 and 750. 4 q.h.

850. *Public Relations Internship.* Practical business experience is available to students in advertising under the direction of University faculty members ,advertising department personnel in organizations, and public relations practitioners. The candidates will be employed a minimum of 20 hours per week during the quarter. Weekly campus conferences are required, and attendance at these conferences is mandatory. A written evaluation of the job experience is required by the student and the participating organization. Prereq.: PREL 710, 750 and 835. 2.75 Advertising and Public Relations average, 2.50 overall average, and approval of internship committee. 4 q.h.

# The College of Education

*Clara Jennings, Dean*

*Richard A. McEwing, Assistant Dean*

## ORGANIZATION AND DEGREES

The College of Education offers programs and activities for preparing individuals for a variety of educational positions in schools, colleges, industry, business and governmental agencies. It is organized to offer curricula and/or services for the preparation of: (1) teachers in early childhood, elementary, middle, and secondary school classrooms; (2) personnel to serve in various levels of school and administrative positions; (3) supervisory personnel for curricular development and instructional improvement; (4) teachers and other personnel in special education; (5) individuals for a wide variety of guidance and student personnel positions; (6) professional educators in colleges; community, technical, and vocational schools; and governmental agencies.

The College of Education is essentially an upper division school comprising six departments: Foundations of Education; Early and Middle Childhood Education; Educational Administration; Counseling; Secondary Education; and Special Education. It cooperates with the College of Arts and Sciences, the College of Health

Performing Arts in preparing teachers for both public and private schools.

Youngstown State University teacher education programs are accredited by the Ohio Department of Education and the North Central Association of Colleges and Secondary Schools. These programs are subject to the sections of the Ohio law and regulations governing teacher education and certification. The College of Education is responsible to serve as the recommending agent for all Youngstown State University graduates who wish to qualify for state of Ohio certification as well as for certification in other states.

In the College of Education, professional courses are offered leading to teacher certification and to the Bachelor of Science in Education degree.

Prospective teachers may also be certified on receiving degrees earned in the College of Arts and Sciences, College of Fine and Performing Arts, and the College of Health and Human Services, providing they meet requirements for admission to upper division status in the College of Education and complete the proper teacher education programs.

## Objectives of Teacher Education at Youngstown State University

The College of Education endeavors to provide for its students:

1. An understanding of the theoretical knowledge about human development, behavior, and learning.
2. The competencies to translate the knowledge about the learner and the learning processes into the appropriate teaching behaviors associated with the fostering of student learning and genuine human relationships.
3. A command of subject matter to be taught and the related fields of inquiry with the ability to use this knowledge in explaining various societal phenomena.
4. A knowledge of instructional materials and media essential for implementing a variety of teaching strategies.
5. Skill in the acquisition of inquiry techniques basic to generalizing knowledge and applying problem-solving approaches to the relevant social issues existing in a pluralistic society.
6. An appreciation of the values and feelings essential for working with individuals and the ability to develop empathetic relationships in a wide variety of professional and social roles in diverse educational agencies.
7. An understanding of and commitment to the highest level of professional and ethical treatment of individuals in the exercise of their influence.

## Requirements for the Degrees

### Bachelor of Science in Education

It is the student's responsibility to fulfill graduation requirements for the appropriate degree. These consist of:

1. The pre-college or preparatory courses for each degree. Typically, these are completed at the high school level. Prior to admission to Upper Division, the student must remove any deficiencies by a process described in the General Requirements and Regulations section of this catalog.
2. The General Education requirements to be completed in the University are explained in the General Requirements and Regulations section of this catalog.
3. Completion of a minimum of 186 quarter hours of credit with a grade point average of at least 2.50 overall and a 2.67 grade point average in the teaching field and professional education courses (each computed separately including transfer hours) with no less than a C grade in all major, certification, and professional education courses.
4. The Bachelor of Science in Education degree is earned by all students enrolled in the College of Education. It is awarded only to students who qualify for a teaching certificate. Exceptions to this policy can be made only by the Dean of the College of Education.

The curricula leading to the degrees are designed to be completed in four academic years. A student who is willing and able to carry heavier loads successfully or to attend four quarters annually, may finish in less than four years.

R.O.T.C. students are allowed certain modifications of the requirements, as explained in the General Requirements and Regulations section.

## Majors in Teacher Education

The following designations and abbreviations indicate student majors.

Please be careful and consistent when designating the major.

1. Elementary Education (1-8)
   (If studying for El. Cert. Only)
2. Elementary — Kindergarten (K-8)
   (If Studying for El. and Kindergarten)
3. Secondary (7-12)
   (Use the Word "Secondary" Followed by the Teaching Field Major. Thus: Secondary — English or Secondary — Math., Etc.)
4. Special Subject (Teaching Field; K-12 — Special Certificate)

5. Special Education (K-12)
   (For those seeking a certificate in Special Education* only)
6. Special Education — Elementary Education (For those seeking both certificates, Special Education* and in Elementary Education)
7. Special Education — Secondary Education (For those seeking both certificates, Special Education and Secondary Education)

## Requirements for Admission to Upper Division Status

Neither admission to the University nor enrollment in the College of Education guarantees admission to upper division status in the College of Education or to candidacy for a teaching certificate. The student must apply for admission to upper division status in the College of Education upon the accumulation of 90 quarter hours of lower division credit. This application is submitted through the Office of the Assistant Dean, College of Education. A student applying for Upper Division status must make an appointment with an academic advisor in the Assistant Dean's Office for approval of the Upper Division application. Upper division status admission grants permission to enroll in the upper division education courses through a class permit system.

Students who wish to qualify for a Bachelor of Science in Education degree must enroll in the College of Education. Admission to Upper Division Status in the College of Education is obtained upon satisfactory completion of the following requirements:

1. 90 quarter hours of credit
2. Grade of "C" or better in FOUND 501 and SPCH 654
3. A 2.50 cumulative grade point average
4. Completion of ENGL 550 and 551 with at least a "B" average; or ENGL 601 with a "C" or better
5. Completion of FOUND 710 with a grade of "C" or better
6. Completion of the NTE General Knowledge section
7. Completion of the career goal statement and the Ohio "good moral character" statement
8. Approval from advisor and/or department chair

Competence in written and spoken English is required for each candidate in order to qualify for upper division status in the College of Education.

All B.S. in Ed. candidates are enrolled in the College of Education, regardless of major. Candidates for A.B. or B.S. degrees are enrolled in the College of Arts and Sciences, but must also be admitted to upper division status in the College of Education. B. Mus., B.S. in B.A., or B.F.A. Degree candidates are enrolled in the school awarding the particular degree, but they must be approved for upper division status in the College of Education in order to earn a teaching certificate.

Requirements for admission to upper division status in the College of Education should usually be met by the end of the sophomore year. Later qualification does not justify waiving any course prerequisites or planned sequences, and usually results in prolonging the period beyond the usual four years.

An undergraduate transfer student may be admitted to upper division status in the College of Education if in good standing in an NCATE approved teacher education program at the previous school.

## Requirements for Student Teaching

Application for a student teaching assignment must be filed with the Student Field Experiences Office by January 1 of the year preceding the academic year in which student teaching is to be completed. The student must register for the proper number of hours for the respective student teaching course(s) during the open registration period preceding the student teaching term. Students anticipating more than one teaching certificate should seek advisement in the College of Education. To qualify for a student teaching assignment the student must have: 1) senior status; 2) an overall G.P.A. of at least 2.50; 3) completed prescribed prerequisites for student teaching and 4) an average of 2.67 in the major/certification area and professional education courses (each computed separately with no grade less than a C) with the course sequence substantially completed. No other course work may be taken concurrently with student teaching. Student teaching is a full time eleven week course which may deviate somewhat from the University calendar depending on the calendar of the assigned school. Secondary Education and Special Education student teaching is a full-time eleven-week course which may deviate somewhat from the University calendar depending on the calendar of the assigned school. The Elementary Education student teaching experience is two (2) quarters. One quarter is in the primary grades and one quarter is in the upper elementary grades. These assignments are a full-time ten-week course which may deviate somewhat from the University calendar depending on the calendar of the assigned school.

## Requirements for Certification

*Initial Certification.* The Dean of the College of Education has the authority to recommend to the Ohio State Board of Education, and other certification agencies, those Youngstown State University graduates who

*Special Education certification areas currently include DH, MH, SBH, and SLD. However, these designations are not included in the legal majors list.

qualify for certification in any teacher education program offered by the University. The degrees earned in the College of Education will fulfill certification requirements for kindergarten, elementary, secondary and special teaching certification. Students earning degrees in schools other than the College of Education must complete all requirements of the teacher education program in order to be certified. Students may qualify for a four-year provisional certificate in: elementary, secondary, and special fields. All candidates for any teaching certificate must meet the requirements for admission to upper division status in the College of Education, but the degree earned may be conferred by any of the University colleges in accordance with the specific requirements for the degree desired. However an overall undergraduate grade point average of 2.50 and 2.67 in the major field(s) and professional education courses must have been earned if the student is to be recommended for certification by Youngstown State University irrespective of the type of degree received. **In addition, each candidate for certification must pass the State of Ohio prescribed licensing examination(s) prior to receiving YSU's recommendation for certification.**

For further information regarding additional fields, validations or endorsements, consult the academic advisors in the College of Education.

### Post Baccalaureate Alternative Certification

Post-baccalaureate students desiring Youngstown State University's recommendation for certification in Ohio and any other state must be admitted to the university and advised in the same manner as undergraduate students. They must meet the standard set of requirements for admission and upper division status in the College of Education. In addition, they must satisfy the general education, teaching field, and professional education requirements comparable to the undergraduate program. Post-baccalaureate students may use approved, documented program equivalency to satisfy appropriate parts of the certification program.

Post-baccalaureate students seeking initial high school certification NOT desiring Youngstown State University's recommendation and who are part of a **State-approved Internship Certificate Program** of an Ohio public board of education may take courses from the College of Education to satisfy the requirements. The College of Education and the intern's school district will determine the specific courses. Twenty-seven quarter hours of course work will be required, none of which can be met by program equivalency or previous class work. The internship begins with 9 quarter hours in the summer, followed by one to two internship years during which the remaining courses are taken. Successful internship completion leads to recommendation for high school certification by the school system's superintendent and is good in Ohio only.

### Certification in a Second Teaching Field

Post-baccalaureate and undergraduate students seeking certification in a second teaching field will need to satisfy the approved academic program as stated in the catalog under the section "Teaching Fields." The same quality point requirements apply to second teaching fields as those for initial certification. A passing score on the specialty exam of the State of Ohio for the second teaching field is required prior to YSU's recommendation for the second teaching field.

### Advisement

All prospective teachers are advised by the academic advisors in the College of Education. Secondary students are also advised in the department in which their major is located. Students seeking advice in the College of Education should make appointments in advance with the academic advisors in the Office of the Assistant Dean.

### Courses of Instruction and Curricula

Each curriculum leads to an Ohio provisional certificate. Minimum requirements for teachers' certificates are determined by the Ohio Department of Education; if those requirements change, they become effective immediately at Youngstown State University. State department minimal requirements may be and usually are exceeded by University requirements.

## EARLY AND MIDDLE CHILDHOOD EDUCATION

*Professors Beary (Chair), Kim, Tribble; Associate Professors Bailey, Ginetti; Assistant Professors Da Ros, DiPillo, Feist-Willis, Shillington.*

The Department of Early and Middle Childhood Education offers the four-year elementary teacher certification program, approved by the Ohio State Department of Education.

All undergraduate elementary education students are served by academic advisors in the Office of the Assistant Dean of Education. These advisors are prepared to advise and counsel students concerning the requirements for their admission to "upper division status" at which time they become eligible to enroll in professional education courses.

*Teacher Education Centers.* Prior to student teaching all students must complete a TEC (Teacher Education Center) experience. A TEC, conducted in local schools, is defined as University faculty presenting theory and supervising the teaching lessons connected with EMCE 713, 714, 715, 813. Prerequisites: EMCE 705; MATH 515, 516, 617; HIST 605 or 606; 12 q.h. of science; EMCE 812; ENGL 651. This program requires students to spend the entire day at the school site for ten weeks.

Applications are due two quarters prior to participation and may be obtained from the Early and Middle Childhood Education Department.

## ELEMENTARY EDUCATION CURRICULUM

An undergraduate student seeking certification in elementary education must complete a specified series of general courses in addition to the upper division (professional education) courses as well as an area of concentration. All components are designed to meet state certification standards.

### I. Curriculum in Elementary Education

#### A. General Requirements

| Courses | Cr. Hrs. |
|---|---|
| FOUND 501 Introduction to Education | 4 |
| ENGL 550 Composition 1 | 4 |
| ENGL 551 Composition 2 | 4 |
| ENGL Literature Elective | 4 |
| ENGL 651 Introduction to Language | 4 |
| ENGL 708 Children's Literature | 4 |
| COMM 654 Speech Communication in the Clsrm. | 4 |
| COMM 705 Speech Problems of Children | 3 |
| MUSIC 621 Music Literature and Appreciation | 4 |
| MUSIC 721 Music Ed. for Elementary Teachers | 4 |
| ART 662 Art Appreciation for Clsrm. Teachers and ART 762 Art Strategies for Classroom Teachers | 4<br>3 |
| Three of the five sciences: | |
| BIOL 505 Biology and the Modern World **or** BIOL 506 Principles of Biology 1 | 4 |
| CHEM 500 Chemistry in Modern Living **or** CHEM 501 Survey of Chemistry 1 | 4 |
| GEOL 505 Physical Geology | 4 |
| PHYS 500 Physics and Man **or** PHYS 501 Fundamentals of Physics 1 | 4 |
| GEOG 503 Introduction to Physical Geog. | 4 |
| MATH 515 Math for Elementary Teachers 1 | 5 |
| MATH 516 Math for Elementary Teachers 2 | 4 |
| MATH 617 Algebra for Elementary Teachers | 5 |
| PSYCH 560 General Psychology | 4 |
| PSYCH 755 Developmental Psychology 1 (Child) | 4 |
| GEOG 640 Human Geography | 4 |
| HIST 605 History of the United States 1 or HIST 606 History of the United States 2 | 4 |
| HSC 590 Health Education | 3 |
| HPES 622 Motor Skill Anal. for Elem. Tchrs. | 1 |
| HPES Activities (Elective) | 2 |
| HSC 721 Health Ed. in the Elem. Grades | 3 |
| HPES 722 Phys. Ed. in the Elem. Grades | 3 |

#### B. Professional Education Requirements

| Courses | Cr. Hrs. |
|---|---|
| FOUND 702 Instructional Media (See Foundations of Education) | 2 |
| EMCE 705 Professional Laboratory Experiences: Elementary | 3 |
| FOUND 708 Education and Society. The School as an Interactive Institution | 4 |
| FOUND 710 Educational Measurement and Guidance | 4 |
| EMCE 713 Teaching of Mathematics | 4 |
| EMCE 714 Teaching of Social Sciences in the Elementary School | 4 |
| EMCE 715 Teaching of Science in the Elementary School | 4 |
| COUNS 761 Human Relations and Guidance Skills for Teachers | 3 |
| SPED 730 Exceptional Learners in the Regular Classroom | 2 |
| EMCE 812 Language Arts 1 | 4 |
| EMCE 813 Language Arts 2 | 3 |
| EMCE 881 Corrective Techniques in Reading | 4 |
| EMCE 841A Elementary Education Seminar | 2+2 |
| EMCE 841 Supervised Student Teaching: Elementary | 12+12 |

#### C. Areas of Concentration

All students majoring in Elementary Education are required to complete an Area of Concentration.

Students have two options:

Option A: Complete a minimum of 30 q.h. of approved courses within a recognized, content teaching field. Students who are most interested in middle school teaching are encouraged to take this option

Option B: Complete a designated cluster of a minimum of 30 q.h. of approved course work in Natural Science, Social Science, Humanities/Language Arts, Humanities/Fine Arts or Mathematics. Students who are most interested in primary school teaching are encouraged to take this option.

Because of the wide range of choices available in this component, students should seek assistance from the academic advisors in the Office of the Assistant Dean of Education.

### Lower Division Courses

630. *Creative Processes of Learning and Teaching.* This course provides prospective teachers with the knowledge, skills and dispositions necessary to support children's development and learning. Special attention will be given to interpersonal relationships and curriculum models in group care settings. 10 field/clinical hours. Prereq.: PSYCH 755 and ENGL 551. 4 q.h.

### Upper Division Courses

(Open only to students who have been admitted to upper division status in the College of Education.)

702. *Instructional Media.* (See Foundations of Education.)

705. *Professional Laboratory Experiences: Elementary.* Observational and participatory experiences in actual elementary school situations under the direction of regular school teachers and administrative personnel. Students work as teachers' aides in assigned

schools for the equivalent of one full school day each week. Minimum time must be at least six hours weekly. In addition, one hour of campus conference is required weekly. Course should be scheduled during the quarter following admission to upper division status in the College of Education and must be taken prior to or with the basic methods courses. Required of all elementary candidates. Grading will be CR/NC. 3 q.h.

705K. *Professional Lab Experience: Kindergarten.* Observational and participatory experiences in actual kindergarten situations under the direction of regular school teachers and administrative personnel. Students work as teacher aides in assigned schools for the equivalent of one full school day each week. In addition, one hour of campus conference is required weekly. Required of all candidates seeking Kindergarten validation. Grading is CR/NC. Course shall precede or be taken concurrently with EMCE 630, 830, 831, and/or 832. 3 q.h.

713. *Teaching of Mathematics.* Principles and content in learning elementary school mathematics and their application to effective teaching group and individual assessment techniques. Prereq.: MATH 515, 516, 617. 4 q.h.

714. *The Teaching of Social Sciences in the Elementary School.* An introduction to the "new social studies." Investigating its rationale, methods, materials and the acquisition of the supportive instructional strategies and knowledge required of the classroom teacher; implications for multicultural education. Prereq.: HIST 605 or 606. 4 q.h.

715. *The Teaching of Science in the Elementary School.* Principles in the learning of science and their application to effective teaching. Group assessment techniques. Prereq.: Twelve quarter hours of science. 4 q.h.

762. *Human Relations in the Elementary School (K-8).* Application of human relations principles to skills and abilities which are effective in improving human relations among students, between teachers and students, and between teacher and parent. Prereq.: COUNS 761. 2 q.h.

801. *Purposes and Practices of the Elementary School.* An analysis of contemporary purposes and practices with emphasis on origins, purposes, strengths and weaknesses. Identification of developmental and special needs, pupil progress and management techniques. Prereq.: EMCE 705. 4 q.h.

811. *Supervised Student Teaching: Pre-Kindergarten.* Student teaching consists of a ten-week assignment in a preschool. Grading will be CR/NC. Prereq.: Senior status and approval of department chair, HE 663, 664, 771, 866, EMCE 630, SPED 731. 1-12 q.h.

811A. *Pre-Kindergarten Seminar.* A seminar intended to give student teachers a better understanding of the basic elements of pre-kindergarten education and one's own role on a professional education team. Grading will be CR/NC. Must be taken concurrently with EMCE 811. 1-2 q.h.

812. *Language Arts 1.* The principles and methods of teaching reading in the elementary school with emphasis on diagnostic/prescriptive teaching. Prerequisite or concurrent EMCE 705, 705K or equivalent. 4 q.h.

813. *Language Arts 2.* Teaching oral and written communication through consideration of listening, speaking, handwriting, spelling, creative and formal writing in the elementary school. Prereq.: ENGL 651. 3 q.h.

814. *Language Arts 3.* An advanced course in unconventional teaching strategies with emphasis on nontextbook approaches. May include field experiences. Prereq.: EMCE 812. 3 q.h.

815. *Seminar in Elementary School Science.* A critical study of current developments in objectives, methods, materials and evaluation in science education as they affect the elementary science program. The course will include discussions, field trips, demonstrations and laboratory work. Prereq.: EMCE 715. 3 q.h.

816. *Diagnosis and Remediation of Elementary School Mathematics.* An indepth study of diagnosis and remediation as it affects the elementary school mathematics program. It will include discussions, field trips, demonstrations, and laboratory work. Applicable to undergraduate and graduate programs. Required of all elementary education candidates. Prereq.: EMCE 713. 3 q.h.

824. *Techniques of Teaching K-12.* Enables the prospective special subject K-12 teacher to learn instructional planning, strategy implementation, performance and achievement evaluation, and appropriate classroom management skills for use in elementary and middle school settings. Identical with SEDUC 824. Prereq: SEDUC 700 and 704. 706 and 706L recommended. 4 q.h.

830. *Early Childhood Education: Part 1.* Designed to prepare the student for teaching children, preschool and K-3. A study of the historical, philosophical, sociological and psychological implications of early childhood education. 3 q.h.

831. *Early Childhood Education: Part 2.* Designed to prepare the student for teaching children, preschool and K-3. Preparation of a workable environment for the young child with emphasis on his or her physical, mental and social characteristics. Prereq.: EMCE 830. 3 q.h.

832. *Early Childhood Education: Part 3.* Designed to prepare the student for teaching children, preschool and K-3. Evaluation and implementation of curriculum, teaching methods and strategies. Attention given to the role of parents as teachers. Prereq.: EMCE 830, 831. 3 q.h.

841. *Supervised Student Teaching: Elementary.* Student teaching consists of a twenty week assignment in a kindergarten and/or elementary and/or middle school. May be repeated up to twenty-four hours. Grading will be CR/NC. Prereq.: Completion of the TEC requirement, senior status and approval of the Chair. 1-24 q.h.

841A. *Elementary Education Seminar.* A seminar intended to give student teachers a better understanding of the basic elements of teaching, and to help develop an understanding of one's own role on a professional education team. Grading is CR/NC. Prereq.: Completion of the TEC requirements, senior status and approval of the Chair of the Elementary Education and Reading Department. Must be taken concurrently with EMCE 841. 1-4 q.h.

859. *Prekindergarten Teaching Methods and Materials.*Methods and techniques used to implement the prekindergarten curriculum with emphasis on communication and creative arts, social, emotional and physical development and concept formation. Required for prekindergarten validation of other teaching certificates. Prereq.: HMEC 731 or equivalent. Identical with HMEC 859. 4 q.h.

860. *Practice in Early Childhood Education.* A culminating practicum designed to provide clinical experience with preschool and K-3 children. Students will apply theories related to the development of young children. Prereq.: EMCE 830, 831, 832. 4 q.h.

874. *Gifted and Talented Programs.* Survey of theoretical foundations of contemporary programs and models; historical development; issues, evaluation, and research; differentiated programming procedures and problems. Also listed as SPED 874 and SEDUC 874. Prereq.: EMCE 705. 4 q.h.

878. *Teaching Gifted and Talented Students.* Theory and organization of curriculum with design and integration of content subjects including strategies and identification of resources and materials. Also listed as EMCE 878 and SEDUC 878. Prereq.: EMCE 874. 4 q.h.

881. *Reading and Language Learning: Assessment and Development.* Application of selected formal and informal assessment procedures in the context of reading and language arts instruction. Emphasis on informal, ongoing assessment procedures that teachers can use while guiding learners in the classroom as well as on interpretation of formal, standardized data. Prereq.: EMCE 812. 4 q.h.

882. *Developmental and Content Area Reading.* A study of the development of comprehension skills, word attack skills, study skills, and related problems in the content areas from kindergarten through grade 12. Prereq.: EMCE 812. 3 q.h.

883. *Secondary School Reading.* The teaching of reading in the secondary school. Survey of methods, materials, and programs. Required for Secondary Reading Endorsement. Prereq: SEDUC 700 and 704. 4 q.h.

884. *Reading Internship.* Supervised experience in reading diagnosis and instruction, including developmental reading and related language arts. Students are expected to spend six hours per week in a designated school and to attend a two hour seminar. Prereq.: EMCE 812, 881, 882, 883. 4 q.h.

890. *Elementary Education Workshop.* A workshop provides intensive study and related activity in one of the following elementary curricular areas: mathematics, science, reading, social studies or language arts. 890 Elementary Education Workshop may be repeated. Prereq.: EMCE 705. 1-4 q.h.

## ELEMENTARY EDUCATION CURRICULUM

An undergraduate student seeking certification in the Elementary Education must complete a specified series of general education courses in addition to the upper division (professional education) courses designed to meet state certification standards.

### Endorsements and Validations

An existing elementary certificate may be endorsed to allow the individual to teach additional subjects. There is one teaching area described below offered as an endorsement.

*Reading (Grades K-12).* Minimum of 19 q.h. consisting of EMCE 812, 881, 882, 883 and 884.

An existing elementary certificate may be validated to allow the individual to teach other grade levels. There is one teaching area described below offered as a validation.

*Kindergarten.* Minimum of 30 q.h. consisting of EMCE 705K, 830, 831, 832, 860, 841, and 841A. Certified teachers should see the certification office.

# FOUNDATIONS OF EDUCATION

*Professors Haims (Chair), Leck, and Pascale, Tokar; Associate Professors deBlois, Pusch; Assistant Professors Levin, Rippberger.*

### Lower Division Courses

501. *Introduction to Education.* Designed to offer students a common core of experiences facilitating learning about schools, their functioning and their various programs. Examination of requirements for admission to the College of Education, issues relating to certification, and some basic principles and issues in the economic, historical, sociological, and philosophical foundations of American schooling. 30 hours of field experiences are required. Prerequisite for any other course in education unless waived by the dean of the College of Education. 4 q.h.

710. *Educational Measurement and Guidance.* Construction, administration, scoring, and interpreting of objective examinations; selection and administration of standardized tests and scales, and their use in vocational and educational guidance. Required of all candidates for teaching certificates. 4 q.h.

## Upper Division Courses

Students who have not been admitted to upper division status in the College of Education, or who are not working toward teacher certification may be admitted to FOUND 708, 872, 873, 875, 876, 877, 879, 889 or 899.

702. *Instructional Media.* Instructional modules for the development of educational media materials used in the classroom and procedures for operating equipment such as filmstrip, slide, overhead, motion picture and opaque projectors. One hour of lecture and two hours of laboratory a week. Prereq.: Admission to upper division status in the College of Education. Required for all candidates for teaching certificates. 2 q.h.

708. *Education and Society.* The school as an interactive institution. Examination of interactions of home, religion, state, economic and cultural norms with schooling plans, problems and procedures. A field experience of 24 hours is required to aid students in further development of an understanding of the effects and functions of formalizing education in American society. Required of all candidates for teaching certificates. 4 q.h.

870. *Problems of the Classroom Teacher.* Adjustment of teaching surroundings; seeking practical and acceptable solutions to problems through rethinking of philosophy, instructional methods, and ethics; the professional, legal, and social status of the teacher; teacher-pupil relations, and other problems. 3 q.h.

871. *Pupils' Problems.* The problems of school routine, such as discipline, attendance, public school delinquency, child labor, and school-parent relationship: practical cases. Social agencies as auxiliaries to the school program. 3 q.h.

*872. *Statistical Methods in Education.* An introductory course in frequency distributions, measure of central tendency, measure of variability, calculation and meaning of percentiles, the normal curve, reliability and validity of measures and simple correlation. 3 q.h.

873. *Comparative Education.* A survey of the national school systems of selected foreign countries to facilitate comparisons with the U.S. structure. 3 q.h.

875, 876, 877. *Seminar in Foundations of Education.* Various topics of current interest in the foundations area selected by the staff. Maximum 15 q.h. 1-4 q.h. Each.

879. *Educational Sociology Seminar.* Students will be required to participate in an extensive field project designed to give them an understanding of minority groups in our population and their cultures. This field experience coupled with seminar sessions will be the basis for a written paper. 2-4 q.h.

880. *Inner-City Educational Workshop.* A survey of some of the more creative and innovative approaches being used in inner-city schools: lectures, discussions, visual aids; nationally recognized experts in the field employed as consultants. A review of economic, social, and psychological forces which have changed our cities, and the educational implications thereof. A critical evaluation of personal attitudes which lead to prejudice, misunderstanding, and fear. Prereq.: Certificated Teachers Employed in Inner-City Schools. 3 q.h.

*889. *Small Computer Applications in the Classroom.* Focus on computer awareness, literacy, and the implications of learning theory on computer application. Students will develop the knowledge and skills necessary to utilize and integrate microcomputing into the learning environment. 3 q.h.

899. *The Community School.* The basic principles in the organization and administration of community school activities. Observations of community schools and their varied programs together with textual and research materials. The Flint Community Schools will receive particular attention. Open to non-majors. 3 q.h.

# COUNSELING

*Professors DiRusso, Gill-Wigal, Richards; Associate Professor Martinek; Assistant Professors Convery, Rando, Rogers (Chair).*

The department offers work toward the M.S. in Education degree with specialization in higher education student personnel services, school counseling and community counseling. Students may qualify for state certification in school counseling and meet the educational requirements for National Counselor certification and Ohio licensure as Professional Counselors. A complete listing of program options and course descriptions is presented in the YSU Graduate School Catalog.

The Counseling Department offers a limited number of undergraduate elective courses for students planning to become teachers or counselors.

## Upper Division Courses

761. *Human Relations and Guidance Skills for Teachers.* Approaches to improving the interpersonal aspects of the learning climate within the classroom. Primary focus is on the application of human relations principles. Consideration is also given to amelioration and prevention of behavior problems. Prereq.: EMCE 705 (or concurrent with). 3 q.h.

821, 822. *Seminar in Guidance and Counseling.* Study of selected topics chosen by staff, e.g.: career guidance, counseling process, and other contemporary issues in school personnel work. May be repeated for different topics. 1-4 q.h.

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*Additional fee required.

841. *Supervised Student Teaching: Elementary.* Student teaching consists of a twenty week assignment in a kindergarten and/or elementary and/or middle school. May be repeated up to twenty-four hours. Grading will be CR/NC. Prereq.: Completion of the TEC requirement, senior status and approval of the Chair. 1-24 q.h.

841A. *Elementary Education Seminar.* A seminar intended to give student teachers a better understanding of the basic elements of teaching, and to help develop an understanding of one's own role on a professional education team. Grading is CR/NC. Prereq.: Completion of the TEC requirements, senior status and approval of the Chair of the Elementary Education and Reading Department. Must be taken concurrently with EMCE 841. 1-4 q.h.

859. *Prekindergarten Teaching Methods and Materials.*Methods and techniques used to implement the prekindergarten curriculum with emphasis on communication and creative arts, social, emotional and physical development and concept formation. Required for prekindergarten validation of other teaching certificates. Prereq.: HMEC 731 or equivalent. Identical with HMEC 859. 4 q.h.

860. *Practice in Early Childhood Education.* A culminating practicum designed to provide clinical experience with preschool and K-3 children. Students will apply theories related to the development of young children. Prereq.: EMCE 830, 831, 832. 4 q.h.

874. *Gifted and Talented Programs.* Survey of theoretical foundations of contemporary programs and models; historical development; issues, evaluation, and research; differentiated programming procedures and problems. Also listed as SPED 874 and SEDUC 874. Prereq.: EMCE 705. 4 q.h.

878. *Teaching Gifted and Talented Students.* Theory and organization of curriculum with design and integration of content subjects including strategies and identification of resources and materials. Also listed as EMCE 878 and SEDUC 878. Prereq.: EMCE 874. 4 q.h.

881. *Reading and Language Learning: Assessment and Development.* Application of selected formal and informal assessment procedures in the context of reading and language arts instruction. Emphasis on informal, ongoing assessment procedures that teachers can use while guiding learners in the classroom as well as on interpretation of formal, standardized data. Prereq.: EMCE 812. 4 q.h.

882. *Developmental and Content Area Reading.* A study of the development of comprehension skills, word attack skills, study skills, and related problems in the content areas from kindergarten through grade 12. Prereq.: EMCE 812. 3 q.h.

883. *Secondary School Reading.* The teaching of reading in the secondary school. Survey of methods, materials, and programs. Required for Secondary Reading Endorsement. Prereq: SEDUC 700 and 704. 4 q.h.

884. *Reading Internship.* Supervised experience in reading diagnosis and instruction, including developmental reading and related language arts. Students are expected to spend six hours per week in a designated school and to attend a two hour seminar. Prereq.: EMCE 812, 881, 882, 883. 4 q.h.

890. *Elementary Education Workshop.* A workshop provides intensive study and related activity in one of the following elementary curricular areas: mathematics, science, reading, social studies or language arts. 890 Elementary Education Workshop may be repeated. Prereq.: EMCE 705. 1-4 q.h.

## ELEMENTARY EDUCATION CURRICULUM

An undergraduate student seeking certification in the Elementary Education must complete a specified series of general education courses in addition to the upper division (professional education) courses designed to meet state certification standards.

### Endorsements and Validations

An existing elementary certificate may be endorsed to allow the individual to teach additional subjects. There is one teaching area described below offered as an endorsement.

*Reading (Grades K-12).* Minimum of 19 q.h. consisting of EMCE 812, 881, 882, 883 and 884.

An existing elementary certificate may be validated to allow the individual to teach other grade levels. There is one teaching area described below offered as a validation.

*Kindergarten.* Minimum of 30 q.h. consisting of EMCE 705K, 830, 831, 832, 860, 841, and 841A. Certified teachers should see the certification office.

# FOUNDATIONS OF EDUCATION

*Professors Haims (Chair), Leck, and Pascale, Tokar; Associate Professors deBlois, Pusch; Assistant Professors Levin, Rippberger.*

### Lower Division Courses

501. *Introduction to Education.* Designed to offer students a common core of experiences facilitating learning about schools, their functioning and their various programs. Examination of requirements for admission to the College of Education, issues relating to certification, and some basic principles and issues in the economic, historical, sociological, and philosophical foundations of American schooling. 30 hours of field experiences are required. Prerequisite for any other course in education unless waived by the dean of the College of Education. 4 q.h.

710. *Educational Measurement and Guidance.* Construction, administration, scoring, and interpreting of objective examinations; selection and administration of standardized tests and scales, and their use in vocational and educational guidance. Required of all candidates for teaching certificates. 4 q.h.

SEDUC 704 Professional Lab — must be taken concurrently with SEDUC 700. Prerequisite for SEDUC 706.

FOUND 702 Instructional Media — must be taken prior to or concurrently with SEDUC 706; not required of Home Ec. majors.

SEDUC 706 Principles of High School Teaching — must be taken concurrently with SEDUC 706L.

SEDUC 706L Principles of High School Teaching Lab — must be taken concurrently with SEDUC 706; not required of P.E. majors.

FOUND 708 Education and Society — must be taken before SEDUC 800G.

FOUND 710 Educational Measurement and Guidance — required for admittance to the upper division sequence.

SPED 730 Exceptional Children in the Regular Classroom — may be taken at any point in the sequence; not required of special education majors.

SEDUC 800B Techniques of Teaching Basic Business Subjects — may be taken at any point in the sequence.

SEDUC 800C Special Methods: Speech Communications — must be taken after SEDUC 706 and 706L prior to student teaching.

SEDUC 800D Techniques of Teaching Accounting and Data Processing — may be taken at any point in the sequence.

SEDUC 800E Special Methods-English — must be taken prior to student teaching.

SEDUC 800G Special Methods — must be taken prior to student teaching.

SEDUC 800M Special Methods-Mathematics — must be taken after SEDUC 706 and 706L prior to student teaching.

SEDUC 800P Techniques of Teaching Office Practice and Office Machines — may be taken at any point in the sequence prior to student teaching.

SEDUC 800S Special Methods-Social Studies — must be taken prior to student teaching.

SEDUC 842 Student Teaching — normally taken at end of sequence. SEDUC 700, 704, 706, 706L and 800, FOUND 702, 708 and 710.

## TEACHING FIELDS

All prospective Secondary Education students are advised to read carefully the sections relative to requirements for Admission to Upper Division Status, for Student Teaching, and for Certification which begin on the first page of the College of Education entry in this catalog.

YSU recommends that students complete courses of study which a) lead to qualification in more than one teaching field and/or b) train the student in teaching fields projected to be available in the job market at the time of certification. See an academic advisor in the College of Education or the coordinator in Career Services for information which may enhance your "saleability."

Students pursuing a degree or teaching certificate in a secondary or special K-12 area (other than special education) are to be advised by the College of Education academic advisors and faculty advisors in their major teaching field. Please consult curriculum sheets in the College of Education Assistant Dean's Office for the following teaching fields.

### Grades 7-12 Single Subject Teaching Fields

*Biological Science* (Major for Secondary Teaching, Grades 7-12). Minimum of 53 q.h. All of the following BIOL 509, 510, 611, 612. Thirty-five credit hours selected from the following: BIOL 700, 701, 702, 710, 721/721L, 762, 765, 770, 771, 775, 780, 789, 790, 790L, 792, 804/804L, 808, 850, 853. One of the following: FOUND 872 or BIOL 853. One of the following: MATH 525, 550, or 571. Concurrent with SEDUC 800G, students are required to register for BIOL 850. Additional 24 q.h. from Chemistry, Earth Science, Physics.

*Chemistry* (Major for Secondary Teaching, Grades 7-12). Minimum of 50 q.h. to include CHEM 515, 516, 517, 603, 604, 719, 720, 729, 739, 740, 729, 796. One of the following: CHEM 721 or 741. Also required is Special Methods, SEDUC 800G to be taken concurrently with CHEM 850. One of the following: FOUND 872 or PSYCH 613. Required for Physical Chemistry sequence: MATH 571, 572, 673, 674 and either PHYS 501, 502, 502L, 503, 503L, 650 or PHYS 510, 610, 610L, 611, 611L.

*Computer Science* (Major for Secondary Teaching, Grades 7-12). Minimum of 63-64 q.h. to include CSCI 610, 615, 620, 705, 710, 740, 770, 780, 805, 875, 885, MATH 571, 572, 673, and one of the following two MATH 714 or 743. Also required is Special Methods SEDUC 800G.

*Drama/Theatre* (Major for Secondary Teaching, Grades 7-12). Minimum of 52 q.h. to include SPCH 561, 661, 668, 761, 762, 765; three of the following four: SPCH 860, 861, 891, 892, electives in theatre, and selection from one of the following two blocks: SPCH 791, 863, 864, 865, 866 or SPCH 763, 769, 792, 866, 867. Also required is Special Methods SEDUC 800G.

*Earth Science* (Major for Secondary Teaching, Grades 7-12). Minimum of 52 q.h. to include GEOL 505, 513, 514, 602, 608, 615, 815, GEOG 630, 737, ASTRO 504, 608, and electives selected from GEOL 701, 702, 704, 704L, 706, 708, 714, 801, 802, GEOG 730. Also required is Special Methods SEDUC 800G to be taken concurrently with GEOL 805. One of the following: FOUND 872 or PSYCH 613. One of the following: MATH 525, 550, or 571.

*Economics* (Major for Secondary Teaching, Grades 7-12). Minimum of 52 q.h. to include ECON 520, 621, 622, 701, 624, 705, 709, 710, 712, HIST 714, ECON 802, 811 and one of the following: ECON 824, 825, 850, 853. Also required is Special Methods SEDUC 800S.

*English* (Major for Secondary Teaching, Grades 7-12). Minimum of 48 q.h. to include ENGL 690, 709, 741, 755, 890; two of the following: ENGL 618, 770, 780, 862, 864, 871; one of the following: ENGL 860, 881, 882, 883, 884, 886; one of the following: ENGL 887, 891, 892, 895, 896; one additional course from the above two sections; one of the following: ENGL 610, 620, 631, 638, 710, 738; one of the following: ENGL 665, 765, 865, 609, 617, 632, 633, 708; one or two of the following: ENGL 716, 717, 740, 743, 744, 746, 747, 750, 757, 758, 849, 859; also required is Special Methods SEDUC 800E.

*General Science* (for Secondary Teaching Grades 7-12). This is not a major, but may be taken to add a second teaching field. Minimum of 50 q.h. to include BIOL 509, 510, 611, CHEM 515, 516, 517, GEOL 505, 608, ASTRO 504, PHYS 500. One of the following two options: OPTION A - PHYS 501, 501L, 502 or OPTION B - PHYS 510, 610, and electives. Also required is Special Methods SEDUC 800G to be taken concurrently with one of the following: GEOL 805, CHEM 850, PHYS 850, BIOL 850. One of the following: FOUND 872, PSYCH 613, or BIOL 853. One of the following: MATH 525, 550, 571. Twenty-four q.h. from Biology, Chemistry, Earth Science, Physics.

*Geography* (Major for Secondary Teaching, Grades 7-12). Minimum of 52 q.h. to include GEOG 503, 640, 650. Twelve hours must be selected from each of the three following groups: Group A - GEOG 603, 630, 730, 735, 737, 820, 823, Group B - GEOG 722, 726, 740, 741, 755, 756, 821, 830, 840, and Group C - GEOG 626, 750, 850. Also required is Special Methods SEDUC 800S.

*Health* (for Secondary Teaching, Grades 7-12). This is not a major, but may be taken to add a second teaching field. Minimum of 46 q.h. to include HSC 596, 601, 604, 606L, 680, 691, 693, 731, 755, 756, 791, 794, 820, 892. BIOL 551, 552 and related Health Electives. Also required is Special Methods SEDUC 800G or HSC 794.

*History* (Major for Secondary Teaching, Grades 7-12) Minimum of 56 q.h. to include HIST 511, 512, 513, 605, 606; three of the following: HIST 601, 630, 701, 702, 704, 706, 708, 710, 712, 713, 714, 717, 720, 723, 725, 726, 732, 733, 734, 736, 737, 738, 740, 741, 743, 744, 747, 748, 762, 801. Three of the following: HIST 699, 752, 753, 754, 755, 758, 760, 761, 762, 763, 764, 765, 766, 767, 768, 777, 779, 780, 782, 785, 790, 792, 850, 851. Three of the following: HIST 611, 661, 662, 663, 727, 728, 729, 749, 750, 770, 771, 772, 776, 789, 797, 799, 860. Also required is Special Methods SEDUC 800S.

*Home Economics* (Major for Secondary Teaching, Grades 7-12). Minimum of 66 q.h. to include HMEC 506, 508, 550, 551, 552, 552L, 604, 606, 606L, 705, 706, 731, 763, 764, 780, 850, 852. ECON 510 or ECON 520, BIOL 604, and PSYCH 755. Also required is HOMEC 771, 799, and 800.

*Journalism* (for Secondary Teaching, Grades 7-12). This is not a major, but may be taken to add a second teaching field. Minimum of 46 q.h. to include JOURN 622, 626, 716, 717, 723, ENGL 741, JOURN 820, 824; one of the following two: ENGL 651 or ENGL 755; one of the following: SPCH 580 or ENGL 743; and the following course twice: JOURN 721, or JOURN 825 when available, then 721L once.

*Latin* (for Secondary Teaching, Grades 7-12). Minimum of 48 q.h. to include LATIN 601, 602, 707, 708, 709, 717, 718, 719, 727, 729, 804, 829. Also required are Special Methods SEDUC 800G. Students who have had an extensive high school preparation may elect to receive the 8 credits for LATIN 601 and 602 by examination. Successful completion of the appropriate competency tests will be required in this case, before the students complete any subsequent courses.

*Mathematics* (Major for Secondary Teaching, Grades 7-12). Minimum of 58 q.h. to include MATH 571, 572, 673, 674, 683, 721, 722, 725, 743, 751, 752, 896; one of the following two: MATH 730 or 830; the following computer science course CSCI 610. Also required are Math electives at the 700 - 800 level except those not applicable toward the Math major and Special Methods SEDUC 800M.

*Physical Education* (for Secondary Teaching, Grades 7-12). This is not a major, but may be taken to add a second teaching field. Minimum of 48 q.h. to include HPES 506, 589, 595; HSC 601, 604; HPES 661, 670, 750, 766, 767, 768, 780, 795, 851 or 852. One of the following: HPES 500, 501, or 505. One of the following: HPES 592, 593, or 504. One of the following: HPES 516, 517, or 518. One of the following: HPES 519, 522, or 511. One of the following: HPES 545, 540, 572, 570. One of the following: HPES 555, 557, 537 or 548. BIOL 551, 552.

*Physics* (Major for Secondary Teaching, Grades 7-12). Minimum of 48 q.h. to include PHYS 500, 510, 610, 610L, 611, 611L, 704, 705, 705L and 21 q.h. of electives in Physics. Also required are CHEM 515, 516 and Special Methods SEDUC 800G to be taken concurrently with PHYS 850. The following mathematics courses are prerequisites or concurrent for Physics majors: MATH 571, 572, 673, 674 and 705. One of the following: FOUND 872 or PHYS 750.

*Political Science* (Major for Secondary Teaching, Grades 7-12). Minimum of 46 q.h. to include POLIT 601, 640, 660, 702, 704, 721, 722, and upper division POLIT electives. Also required is Special Methods SEDUC 800S.

*Psychology/Sociology* (for Secondary Teaching, Grades 7-12). This is not a major, but may be taken to add a second teaching field. Minimum of 49 to 50 q.h. to include PSYCH 700, 702, Socio. 500, 600, 751, 700, 711, ANTHR 602; one of the following two: PSYCH 755 or 756; one of the following two: PSYCH 615 or 704; one of the following two pairs: SOCIO 701 and 702 or PSYCH 613 and 614. Also required is Special Methods SEDUC 800S.

*Speech/Communication* (Major for Secondary Teaching, Grades 7-12). Minimum of 51 q.h. to include SPCH 581, 603, 606, 640, 653, 656, 670, 750, 754, 798, 801 and six q.h. from the following 4 courses: SPCH 615, 740, 745, and 898. Also required is Special Methods SEDUC 800C.

*Stenography and Typing/Keyboarding* (Major for Secondary Teaching, Grades 7-12). Minimum of 51 q.h. to include. OSA 506, 510, 523, 615, 623, 630, 640, 641. BIS 513, 704, 720, 810, 820, 830, 831. Also required is Special Methods SEDUC 800P. (All Business Education students must pass proficiency exams in the teaching field before being approved for student teaching.)

*Visual Arts* (Major for Secondary Teaching, Grades 7-12). Minimum of 71 q.h. to include ART 500, 501, 502, 503, 504, 521, 522, 523, 550, 602, 604, 723, 725, 730, 808, 809, and 822; two of the following three: ART 611, 612, 721; two of the following three: ART 606, 618, 780; one of the following: ART 770 or 771 and an Art elective. Also required are ART 762, 763, and 801.

## Grades 7-12 Comprehensive Teaching Fields

*Comprehensive Business Education* (Major for Secondary Teaching, Grades 7-12). (Minimum requirements 90 q.h.) All majors complete the following: BIS 500, 514, 523, 641, 704, 710, 826, MAT 604, ACCTG 503. TEACHING FIELDS: Your teaching certificate will list the areas which you are certified to teach. Select two (2) of the following areas and take all the courses in those areas: Area 1. Bookkeeping/Basic Business - ACCTG 602, 603, 703, 711, 813, HMEC 780, BIS 714, SEDUC 800B, SEDUC 800D. Area 2. Data Processing (Students who choose this area will also be certified for Typing/Keyboarding) - BIS 510, 623, 642, 663, 671, 672, 741, 810, SEDUC 800P. Area 3. Sales - ADVER 704, MKTG 625, 703, 709, 726, 715, BIS 741, SEDUC 800B. For vocational certification, you must have two years relevant work experience or equivalent (see your advisor for options). Separate application must be made for vocational certification. In order to be approved for student teaching, business education majors must pass (with at least 80%) five subject-matter proficiency examinations (four for non-shorthand majors).

*Comprehensive Communications* (Major for Secondary Teaching, Grades 7-12). Minimum of 94 q.h. to include OPTION A English, Speech, Reading: ENGL 651, 755, 741, 690; two of the following: ENGL 618, 770, 780, 862, 864, 871; one of the following: ENGL 860, 881, 882, 883, 884, 886; one of the following: ENGL 887, 891, 892, 895, 896; one of the following: ENGL 610, 620, 631, 638, 710, 738. SPCH 581, 653, 656, 745, 750, 754, 798, 801; EMCS 812, 881, 882, 883, 884; ENGL 890, 709; SPCH 670. OPTION B English, Speech, Journalism: ENGL 690, 709, 890; two of the following: ENGL 618, 770, 780, 862, 864, 871; one of the following: ENGL 860, 881, 882, 883, 884, 886; one of the following: ENGL 887, 891, 895, 896; one of the following: ENGL 610, 620, 631, 638, 710, 738; SPCH 653, 656, 670, 745, 750, 754, 798, 801; JOURN 622, 716, 723, 721L, 820, 824; ENGL 741; SPCH 581; one of the following two: ENGL 651 or 755. Also required is one of the following three Special Methods SEDUC 800E, 800C, 800G.

*Comprehensive Science* (Major for Secondary Teaching, Grades 7-12). Minimum of 94-96 q.h. to include BIOL 509, 510, 611, 612, 10 q.h. upper division, CHEM 515, 516, 517, 603, 604, 719, 720, GEOG 630, GEOL 505, 602, 615, ASTRO 504, PHYS 608 and one of the following two physics sequences a. PHYS 501, 501L, 502, 502L, 503, 503L, 504L; b. PHYS 510, 610, 610L, 611, 611L. Completion of this major will qualify the student for the teaching fields of Biology, Chemistry, Physics, and General Science. The teaching field of Earth Science may be obtained by completing GEOL 815 and two of the following four: GEOL 513, 514, 608 or 714. Also required is Special Methods SEDUC 800G.

*Comprehensive Social Studies* (Major for Secondary Teaching, Grades 7-12). Minimum of 96-98 q.h. to include HIST 605, 606; one of the following: HIST 511, 512, 513; one of the following: HIST 611, 661, 662, 663, 14 q.h. in History Upper Division Electives and one of the following two options: OPTION A - student completed the above requirements in History and a minimum of 30 q.h. in each of two disciplines out of four defined below:

1. ECON 520, 621, 622, ECON Upper Division Electives;
2. GEOG 626, 640, 650, GEOG Upper Division Electives;
3. POLIT 550, 601, 640, 660, Recommended POLIT Upper Division Electives 704, 722;
4. SOCIO 500, 600, 700, 707, PSYCH 700, 702; 755 or 756.

or OPTION B- student completes above requirements in History and a minimum of 30 q.h. in one of the four disciplines defined above and 30 q.h. well distributed across the remaining three disciplines. (Students choosing option B will qualify for only two 9-12 teaching fields.) Also required is Special Methods SEDUC 800S.

## Grades K-12 Special Teaching Fields

Computer Science (Major for Special Certificate, Grades K-12). Minimum of 68 q.h. to include CSCI 610, 615, 620, 705, 710, 740, 770, 780, 805, 875, 885, 886, MATH 571, 572, 673, 714. Also required are SEDUC 837 and EMCE 824.

*Drama/Theatre* (Major for Special Certificate, Grades K-12). Minimum of 68 q.h. to include SPCH 561, 661, 668, 761, 762, 765, 868, 869, 895; ENGL 708; three of the following four: SPCH 860, 861, 891, 892; 10 q.h. in Theatre electives; one of the following two blocks (a. SPCH 791, 863, 864, 865, 866 or b. SPCH 763, 769, 792, 866, 867). Also required are Special Methods SEDUC 800G, 838 and EMCE 824.

*Health Education* (Major for Special Certificate, Grades K-12). Minimum of 64 q.h. to include HSC 596, 601, 604, 606L, 680, 691, 692, 693, 721, 731, 755, 756, 791, 794, 820, 827, 892, 899; PSYCH 755, 756; CHEM 505; HMEC 551, 551L; BIOL 551, 552, 560; SOC 500.

*French* (Major for Special Certificate, Grades K-12). Minimum of 68 q.h. to include FRNCH 501, 502, 503, 601, 602, 615, 655, 675, 705, 706, 710, 755, 771, 772; one of the following two: 740, 750, and two electives in 800-level French courses. Also required are Special Methods SEDUC 800G and EMCE 824. If a student has had previous French preparation in high school, he/she may elect to receive the credits for 501, 502, 503 by examination. Successful completion of the appropriate competency test will be required in this case, before the student completes 601. Students who have had extensive high school preparation may elect to receive the 8 credits for FRNCH 601, 602 by examination. Successful completion of the appropriate competency tests will be required in this case, before students complete any subsequent course.

*German* (Major for Special Certificate, Grades K-12). Minimum of 68 q.h. to include GERMN 501, 502, 503, 601, 602, 610, 615, 618, 620, 730, 750, 751, 755, HIST 768, 769; and two of the following five: GERMN 860, 861, 874, 875, 885. Also required are Special Methods SEDUC 800G and EMCE 824. If a student has had previous German preparation in high school, he/she may elect to receive the credits for GERMN 501, 502, 503 by examination. Successful completion of the appropriate competency test will be required in this case, before the student completes 601. Students who have had extensive high school preparation may elect to receive the 8 credits for GERMN 601 and 602 by examination. Successful completion of the appropriate competency tests will be required in this case, before students complete any subsequent course.

*Italian* (Major for Special Certificate, Grades K-12). Minimum of 68 q.h. to include ITALN 501, 502, 503, 601, 602, 640, 708, 709, 720, 721, 730, 731, and four of the following five: ITALN 801, 802, 830, 840, and 885. Also required are Special Methods SEDUC 800G and ELED 824. If a student has had previous Italian preparation in high school, he/she may elect to receive the credits for ITALN 501, 502, 503 by examination. Successful completion of the appropriate competency test will be required in this case, before the student completes 601. Students who have had extensive high school preparation may elect to receive the 8 credits for ITALN 601 and 602 by examination. Successful completion of the appropriate competency tests will be required in this case, before students complete any subsequent course.

*Russian* (Major for Special Certificate, Grades K-12). Minimum of 68 q.h. to include RUSSN 501, 502, 503, 601, 602. Twenty q.h. from the following ten: 604, 615, 640, 700, 765, 770, 800, 808, 809, 885; twenty eight q.h. of the following areas: may also include courses from the above 1) Advanced Russian Language, 2) Russian and Soviet Literature, 3) Russian and Soviet History and Culture and three of the following twelve courses: RUSSN 620, 660, 715, 716, HIST 777, 778, 779, POLIT 640, 741, 762, ENGL 750, ANTHR 753, and ECON 802. Also required are Special Methods SEDUC 800G and ELED 824. If a student has had previous Russian preparation in high school, he/she may elect to receive the credits for 501-503 by examination. Successful completion of the appropriate competency test will be required in this case, before the student completes 601. Students who have had extensive high school preparation may elect to receive the 8 credits for RUSSN 601 and 602 by examination. Successful completion of the appropriate competency tests will be required in this case, before students complete any subsequent course.

*Spanish* (Major for Special Certificate, Grades K-12). Minimum of 68 q.h. to include SPAN 501, 502, 503, 601, 602, 615, 655, 724, 735, 736, 752, 753, 754, 755, 756, 757, 758 and at least one 800-level elective included in remaining 12 q.h. Students with two years high school Spanish are advised to begin at SPAN 601; three years Spanish to begin at SPAN 602; four years Spanish to begin at SPAN 615. Also required are SEDUC 800G and ELED 824.

*Music* (Major for Special Certificate, Grades K-12). Minimum of 97 q.h. to include MUSIC 511, 518, 519, 530, 531, 532, 630, 631, 632, 715, 750, 770, 771, 772; one of the following two: MUSIC 716, 717; and one of the following emphasis areas: Voice, Instrumental, Piano, or Organ. Also required are MUSIC 815 and 823.

*Physical Education* (Special Certificate, Grades K-12). Minimum of 69-71 q.h. to include HPES 506, 516, 517, 545, 550, 551, 589, 595, 661, 669, 670, 750, 765, 766, 767, 768, 780, 795, 851, 852, 855, 860, 895, 896; HSC 601, 680; five q.h. from the following: HPES 500, 501, 592, 593, 504, 505; three q.h. from the following: HPES 510, 511, 512 or 513, 514 or 515, 519 or 556, 520 or 521, 522 or 523, 525, 540 or 541, 565 one q.h. from the following: HPES 537, 548, 555, 557, 564; one q.h. from the following: HPES 530, 531, 630, 631. Special Note: When students following the K-12 Physical Education certificate register for SEDUC 706, must block out the time listed for SEDUC 706L.

*Visual Art* (Major for Special Certificate, Grades K-12). Minimum of 81 q.h. to include ART 500, 501, 502, 503, 504, 521, 522, 523, 550, 600, 601, 602,

604, 606, 611, 612, 618, 662, 725, 730, 770, 780, 723, 822, 808 or 809. Also required are ART 662, 762, 763 and 801; SEDUC 843.

## Vocational Education

*Vocational Education*. Students pursuing vocational certificates should see an advisor in the appropriate department as well as a College of Education academic advisor.

*Business Education* (Vocational). Minimum of 90 q.h. to include BIS 513, 704, 706, 710, 720; OSA 523, 615, 640, 641; BUTEC 500, 580, 581. Select two of the following areas: AREA 1: BUTEC 582, 680, 681, 683, 684; HMEC 780; SEDUC 800B, 800D. AREA 2: BIS 810, 820, 830, 831; OSA 506, 510, 623, 630; SEDUC 800P. AREA 3: BUTEC 530, 540, 541, 641, 644, 648; SEDUC 800B. The following areas may be combined and added to your certification in place of one of the previous areas. However, Areas 4/5 may not be selected along with Area 2. AREA 4: BIS 810; OSA 510, 623. AREA 5: OSA 642, 741; BUTEC 681; SEDUC 800D.

*Home Economics-Consumer Homemaking Education* (Vocational). Minimum of 73 q.h. to include HMEC 506, 508, 550, 551, 552, 552L, 606, 606L, 631, 705, 706, 731, 763, 764, 780, 850, 852, ECON 510 or ECON 520, BIOL 604, HSC 692, PSYCH 755, and HMEC 853. Also required is HMEC 771, 799, 800.

*Home Economics-Job Training-Child Care Services* (Vocational). Minimum of 74 q.h. to include HMEC 514, 531, 550, 631, 632, 706, 663, 664, 731, 850, BUTEC 500, MATH 506, MUSIC 722, HSC 590, HPES 623, EMCE 630, PSYCH 755, HMEC 835; one of the following two: HMEC 543 or 672; one of the following two: HMEC 763 or 764; one of the following two: HMEC 780 or 852. Also required are HMEC 771, 799 and 890.

*Home Economics-Job Training-Food Services* (Vocational). Minimum of 72 q.h. to include HMEC 550, 551, 552, 552L, 606, 606L, 609, 610, 611, 611L, 626, 628, 731, 763, 810, 850, 852; BUTEC 500; MATH 506; BIOL 604; HMEC 835. One of the following: HMEC 780 or 852. Also required are HMEC 771, 799, and 890.

*Home Economics-Job Training-Fabric Services (Vocational)*. Minimum of 75 q.h. to include HMEC 506, 508, 525, 543, 550, 604, 635, 702, 703, 705, 731, 763, 764, 850, 875, BUTEC 500, MATH 506, ART 502, Art Elective-History or Appreciation. HMEC 835, one of the following: HMEC 780, 852; one of the following two: HMEC 730, or 877. Also required are HOMEC 771, 799 and 890.

*Home Economics-Job Training-Community and Home Services (Vocational)*. Minimum of 78 q.h. to include HMEC 550, 551, 552, 552L, 606, 606L, 611, 611L, 615, 632, 705, 706, 731, 763, 780, 830, 850, 852, BUTEC 500, MATH 506, BIOL 604, PSYCH 755, and HMEC 835. Also required are HMEC 771, 799 and 890.

*Home Economics-Job Training-Multi-Area Cooperative (Vocational)*. Minimum of 76 q.h. to include HMEC 508, 514, 550, 551, 552, 552L, 606, 606L, 609, 705, 706, 731, 763, 764, 780, 850, 852, BUTEC 500, MATH 506, BIOL 604, PSYCH 755, and HMEC 835. Also required HMEC 771, 799 and 890.

## Endorsements and Validations

An existing certificate may be endorsed or validated to allow the individual to teach additional subjects. This is usually achieved by completing a second teaching field as outlined in one of the above listings. Please see an academic advisor in the College of Education for additional information.

## General University and Professional Education Requirements

Required courses for a high school provisional certificate are listed below. In addition to the major teaching field, additional teaching field (if chosen), and electives, the following courses are required: FOUND 501, 702, 708, 710, SEDUC 700, 704, 706, 706L, 800, 842 or equivalent[1], SPED 730, (46 q.h.), PSYCH 560, 709 (8 q.h.), ENGL 550, 551 (8 q.h.), SPCH 654 (4 q.h.).

Humanities[2] (8-18 q.h.), Science and Mathematics[3], (12-22 q.h.), Social Studies[4]* (16-22 q.h.), HSC 590 and three one-quarter-hour activity courses (6 q.h.).

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[1]Equivalents in student teaching course and variability of quarter hours to satisfy certification areas are: SEDUC 843- Supervised Student Teaching: Visual Art, Gr. K-12; SEDUC 845- Supervised Teaching: Health, Gr. K-12; SEDUC 846- Supervised Student Teaching: Physical Ed., Gr. K-12; SEDUC 827- Supervised Student Teaching: Modern Language, Gr. K-12; SEDUC 837- Supervised Student Teaching: Computer Science, Gr. K-12; SEDUC 838- Supervised Student Teaching: Drama/Theatre, Gr. K-12; SEDUC 844- Supervised Student Teaching: Music, Gr. K-12. A student will register for 15 q.h. of student teaching in the secondary certificate area unless the certificate area is in combination with a special education certificate area. If a combination is sought, the required number of quarter hours is determined by the respective departments.

[2]Humanities. The candidate must have completed 8 q.h. in any of the following: literature courses in English or Humanities (600-level or above), course work in a literature in a foreign language (700-level or above), course work in the Department of Philosophy and Religious studies, or history and/or appreciation courses in the Department of Art, Speech Communication and Theater or the School of Music. For purposes of certification, at least one course in two of the following program areas is required: (1) Fine Arts, (2) Philosophy, (3) Theological Studies.

[3]Astronomy, Biology, Chemistry, Geology, Physics, and Mathematics to be taken in a minimum of two departments. One course must be in Mathematics. A minimum of 8 q.h. must be in Science, a maximum of 10 q.h. in Mathematics.

[4]Social Studies (Department of Economics, Geography, History, Political Science, Psychology, Sociology/Anthropology) are to be taken in a minimum of two departments. 8 q.h. of the 16 will have been taken in PSYCH 560 and 709. The remainder must be in a field other than Psychology.

*A combined total of 46 q.h. must be taken in Humanities, Science and Mathematics, and Social Studies.

## Lower Division Courses

510B. *Introduction to College Reading.* Reading and study skills–emphasis primarily on basic vocabulary and literal comprehension development. Extensive practice and application of main idea skills to college level texts. Open to students on the basis of English Placement Test results. Grading for FOUND 510B is A, B, C/NC. 4 q.h.

*510A. *Intermediate College Reading and Study Skills.* Reading and study skills–emphasis on study skills development (notetaking, reading the text, time management, test-taking, etc.), on the development of critical reading skills, and on the development of reading speed. Practice is given in developing these skills on college level texts. Open to students on the basis of English Placement Test results. Grading for FOUND 510A is A, B, C/NC. 4 q.h.

570. *Advanced Critical Reading, Thinking and Study Skills.* Designed to assist students to refine systematic critical reading, thinking and study skills, and to assist in the transition to a university setting. Prereq.: FOUND 510A or satisfactory English Placement Test results. 4 q.h.

## Upper Division Courses

**(Open only to students who have been admitted to upper division status in the College of Education.)**

700. *Foundations of Reading in the Secondary School.* A study of the rationale, principles, and techniques of improving the reading skills of secondary school students, including a survey of specialized reading materials in various subject fields. The course is required for all secondary education students, except English and Comprehensive Communication majors, who take EMCE 883 instead. Prereq.: Must be taken concurrent with SEDUC 704. 2 q.h.

704. *Professional Laboratory Experiences: High School.* Observational and participatory experiences under the direction of regular high school teachers and administrative personnel. Students work as "teachers' aides" in assigned schools for one full school day (or two half-days) each week. Minimum time must be at least six hours weekly, but the full school time involved in two half-days or one full day must be met even if it exceeds six hours. In addition, one hour of campus conference is required weekly. Course should be scheduled during the first quarter following admission to the College of Education and should precede SEDUC 706. Required of all regular high school and special teaching certificate candidates. Grading is CR/NC. Prereq.: Admission to upper division status in the College of Education. 3 q.h.

706. *Principles of High School Teaching.* Motivating, instructing and managing classes with students of varying cultural and ability backgrounds. Working with disruptive students. Rights and responsibilities of teachers and students. Analysis of classroom behavior. Secondary school curriculum. Taken concurrently with SEDUC 706L. Prereq.: SEDUC 704. 4 q.h.

706L. *Principles of High School Teaching Lab.* A 90-hour set of clinical experiences in classroom teaching, including on-campus activities such as microteaching, reflective teaching, peer teaching, simulation, role playing, tutoring, and protocols as well as field activities in local secondary schools. Must be taken concurrently with SEDUC 706. Prereq.: SEDUC 704. (Not required of P.E. majors). 3 q.h.

800B. *Techniques of Teaching Basic Business Subjects.* Includes demonstration and practice of up-to-date techniques. Prereq.: Junior standing, HMEC 780, BIS 706, ECON 621. 2 q.h.

800C. *Special Methods: Speech Communication.* Exploration of the content and methodology involved in the handling of traditional speech subjects. Emphasis on the identification of core concepts, planning, instructional strategies, and evaluation. Prereq.: SEDUC 706/706L unless taken concurrently with consent of instructor.
Same as Speech Education 800C. 3 q.h.

800D. *Techniques of Teaching Accounting and Data Processing.* Includes demonstration and practice of up-to-date techniques. Prereq.: Junior standing, BIS 710, ACCTG 606. 2 q.h.

800E. *Special Methods-English.* A study of the problems involved in the teaching of English. Observation of teaching in the secondary schools, reports, and term paper may be required. This course is prerequisite to SEDUC 842, Student Teaching. Prereq. or concurrent with permission of instructor: SEDUC 706, 706L, and senior standing. 3 q.h.

800G. *Special Methods.* A study of the problems involved in the teaching of different high school subjects. Each student specializes in the subject of main interest. Observation of teaching in secondary schools, reports, and term paper may be required. This course is prerequisite to SEDUC 842, Student Teaching. Prereq.: FOUND 702, 708, 710, SEDUC 704, 706, 706L. 3 q.h.

*800M. *Special Methods-Mathematics.* A study of the problems involved in the teaching of mathematics. Observation of teaching in the secondary schools, reports, and term paper may be required. This course is prerequisite to SEDUC 842, Student Teaching. Prereq.: FOUND 702, 708 and 710, SEDUC 704, 706, and 706L. 3 q.h.

800P. *Techniques of Teaching Office Practice and Office Machines.* Includes demonstration and practice of up-to-date techniques. Prereq.: Junior standing, BIS 510, 513, 615, 620, 820. 2 q.h.

800S. *Special Methods-Social Studies.* A study of the problems involved in the teaching of secondary social studies. Observation of teaching in secondary schools, reports, and term paper may be required. Prereq.: SEDUC 704, 706, 706L and senior standing. 3 q.h.

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*Additional fee required.

824. *Techniques of Teaching K-12.* Enables the prospective special subject K-12 teacher to learn instructional planning, strategy implementation, performance and achievement evaluation, and appropriate classroom management skills for use in elementary and middle school settings. Identical with EMCE 824. Prereq.: SEDUC 700 and 704. 706 and 706L recommended. 4 q.h.

826. *Teaching Intensive and Cooperative Business Education.* Organization, administration, implementation, and evaluation of Intensive and Cooperative Business Education programs at the secondary and adult education levels. Selection, instruction, curriculum, and placement of vocational students. Same as BIS 826. Prereq.: SEDUC 706 and 706L. 4 q.h.

827. *Supervised Student Teaching: Language (K-12).* Prereq.: SEDUC 700, 704, 706, 706L, 800, FOUND 702, 708, 710 or the equivalent method course(s) in the subject field; senior status and the approval of the Chair of the Department of Foreign Languages. Grading will be CR/NC. See requirements for Student Teaching under College of Education. 1-15 q.h.

837. *Supervised Student Teaching: Computer Science (K-12).* Prereq.: SEDUC 700, 704, 706, 706L, 800, FOUND 702, 708, 710, or the equivalent method course(s) in the subject field; senior status and the approval of the Chair of the Department of Computer Science. Grading will be CR/NC. See requirements for Student Teaching under College of Education. 1-15 q.h.

838. *Supervised Student Teaching: Drama/Theatre (K-12).* Prereq.: SEDUC 700, 704, 706, 706L, 800, FOUND 702, 708, 710, or the equivalent method course(s) in the subject field; senior status and the approval of the Chair of the Department of Communication and Theater. Grading will be CR/NC. See requirements for Student Teaching under College of Education. 1-15 q.h.

842. *Supervised Student Teaching: High School.* Prereq.: Senior status and completion of SEDUC 700, 704, 706, 706L, 800, FOUND 702, 708, 710 or the equivalent methods course in the subject field; a grade of at least B in two-thirds of the minimum subject field requirements and professional education courses for certification with no subject field course grade in the minimum requirements below C; and the approval of the chair of the department of the student's major. Grading will be CR/NC. See requirements for Student Teaching under College of Education. 1-15 q.h.

843. *Supervised Student Teaching: Visual Art, Grades K-12.* Prereq.: SEDUC 700, 704, 706, 706L, FOUND 702, 708, 710, ART 724, 760, 767, and 768, senior status and approval of the chair of the Art Department. Grading will be CR/NC. See requirements for Student Teaching under College of Education. 1-15 q.h.

844. *Supervised Student Teaching: Music, Grades K-12.* Prereq.: SEDUC 700, 704, 706, 706L, FOUND 702, 708, 710, MUSIC 511, 715, 716/717, 815, and 823; senior status and approval of the director, Dana School of Music. Grading will be CR/NC. See requirements for Student Teaching under College of Education. 1-15 q.h.

845. *Supervised Student Teaching: Health, Grades K-12.* Prereq.: SEDUC 700, 704, 706, 706L, FOUND 702, 708, 710 (or HPES 860); HSC 680, 701, 721, 794, and 892; senior status and approval of the chair of the HSC Department. Grading will be CR/NC. See requirements for Student Teaching under College of Education. 1-15 q.h.

846. *Supervised Student Teaching: Physical Education, Grades K-12.* Prereq.: SEDUC 700, 704, 706, FOUND 702, 708; HSC 680, HPES 750, 766, 767, 768, 780, 795, and 860; senior status and approval of the chair of the HPES Department. Grading will be CR/NC. See requirements for Student Teaching under College of Education. 1-15 q.h.

856. *Diagnosis and Treatment of Reading Disability: Part 1.* Selection, administration, and scoring of various individual tests: techniques for evaluating the child with a reading disability. Prereq.: consent of instructor and COUNS 822 or SPED 833. 4 q.h.

857. *Diagnosis and Treatment of Reading Disabilities: Part 2.* Instructional techniques and procedures for meeting specific needs of the child with reading disabilities. Work with specialized materials, machines, and other equipment used in reading improvement. Prereq.: SEDUC 856 or consent of instructor. 4 q.h.

871. *Characteristics and Needs of Gifted Children.* Introduction to gifted education. An overview of the theoretical and research base for gifted education, including appropriate classroom environments, teacher qualifications, and support services to meet the diverse social, emotional, and intellectual needs of gifted children. Current program standards will be included. Prereq.: Admission to the College of Education. 4 q.h.

874. *Gifted and Talented Programs.* Survey of contemporary gifted and talented programs and models; historical development; issues, evaluation, and research; differentiated programming for the gifted and talented—procedures and problems. Identical with EMCE 874. Also listed as SPED 874. Prereq.: EMCE 705. 4 q.h.

878. *Teaching Gifted and Talented Students.* Theory and organization of curriculum with emphasis on the integration of content subjects in a design appropriate for education of the gifted and talented; includes strategies and identifications of resources and materials. Identical with EMCE 878. Also listed as SPED 878. Prereq.: SEDUC 874. 4 q.h.

882. *Developmental and Content Area Reading.* A study of the development of comprehension skills, word attack skills, study skills, and related problems in the content areas from kindergarten through Grade 12. Prereq.: consent of instructor. 3 q.h.

884. *Internship in Reading.* Supervised experience in reading diagnosis and instruction, including both developmental and remedial pupils, in area schools. Students will teach two half-days a week in the school reading centers. A two-hour seminar will meet on campus once a week. Prereq.: EMCE 882, 883, SEDUC 856, 857 and consent of instructor. 4 q.h.

885. *Teaching Strategies 1.* Improving teaching skills of elementary and secondary in-service and pre-service teachers. Emphasis is on clarifying and extending concepts. Prereq.: Consent of instructor or junior standing. 3 q.h.

886. *Teaching Strategies 2* Improving teaching skills of elementary and secondary in-service and pre-service teachers. Emphasis is on interpreting data, developing valid conclusions based on inference, and extending such conclusions to generalizations. Prereq.: SEDUC 885. 3 q.h.

887. *Teaching Strategies 3.*Improving teaching skills of elementary and secondary in-service and pre-service teachers. Emphasis is on helping students transfer or apply generalizations and learned knowledge to comparable situations. Prereq.: SEDUC 886. 3 q.h.

891, 892, 893. *Seminar in Secondary Education.* Various topics of current interest in the secondary education area as selected by the staff. Prereq.: Admission to upper division status in the College of Education or Graduate School. 1-6 q.h. (15 Maximum)

894. *Audio-Visual Media.* A synthesis of the theory, practice, and values of communicating with audio-visual media. Demonstrations using filmstrips, slides, audio-tapes, overhead transparencies, motion pictures, opaque visuals, graphics, models, displays, and closed circuit television. Laboratory experiences in the preparation of materials and the use of modern media in teaching. Prereq.: Upper division or Graduate status. 4 q.h.

# SPECIAL EDUCATION

*Professor Angle (Chair); Associate Professors Hoops, Nickelsburg and Schaiper; Assistant Professors Stump, Sweeney.*

The Department of Special Education offers four undergraduate teacher certification programs, approved by the Ohio State Department of Education.

The programs are Developmentally Handicapped (DH), Multiply Handicapped (MH), Severe Behavior Handicapped (SBH), and Specific Learning Disabled (SLD).

One or more of the approved certification areas may be elected within a four-year program of studies leading toward the Bachelor of Science in Education degree.

All undergraduate special education students are served by academic advisors in the Office of the Assistant Dean of Education. These advisors are prepared to advise and counsel students concerning the requirements for their admission to "upper division status" at which time they become eligible to enroll in professional education courses.

Those students already possessing a bachelor's degree who wish to become certified in one of the special education programs should seek advisement from the academic advisors in the College of Education, Room 1051.

## Special Education Programs

YSU offers four undergraduate teacher certification programs for teachers of children with disabilities in the following categories:

*Developmentally Handicapped (DH).* These mildly retarded individuals are served in public school settings and need programs stressing basic academic, independent living, and vocational/occupational skills. Professional educators in this field are widely sought, and may function as teachers, consultants or supervisors.

*Multiply Handicapped (MH).* In Ohio, these individuals are served in county mental retardation programs, as well as the regular public schools. The emphasis is on training in self-care, perceptual-motor, communication, socialization, and employability skills.

*Severe Behavior Handicapped (SBH).* These are individuals of varying ability who have severe adjustment problems which interfere with their ability to adapt to normal classroom routine. They may become disruptive or display other symptoms of emotional disturbance. Classroom structure and behavior management techniques must be rigorous and consistent. Professional educators in this field are in demand and may function as teachers, consultants or supervisors.

*Specific Learning Disabled (SLD).* Many children with average or higher intelligence cannot function within a normal educational setting because of severe learning problems. They need unique, specialized programming designed to help them reach their potential. Professional educators in this field are widely sought, and may function as teachers, diagnosticians, consultants, supervisors, or SLD tutors.

*Special Teacher Education Program (STEP).* All students seeking certification in an area of Special Education must complete STEP. The program is an intensive field-based experience conducted in cooperation with local elementary and secondary schools. STEP provides field experiences coordinated with professional methods courses. Instruction and supervision are provided by faculty from the Department of Special Education. Students learn to observe, diagnose, prescribe for, and teach exceptional children individually and in small and large groups.

STEP is scheduled during the Fall, Winter, and Spring Quarters and students are committed to an 8:00 a.m. to 3:00 p.m. schedule. Theory and methods instruction takes place at the University and on-site teaching takes place in the public schools. Field experiences are carefully planned and closely supervised and evaluated daily to insure that students will develop needed competencies. The courses included in STEP are SPED 835, SPED 864, SPED 852 and SPED 854, for a total of 15 q.h. These provide specialized training in instructional and behavior management, communication/consultation skills, and in methods of reading/language arts or arithmetic. The emphasis is on individualized instruction adapted to the unique needs of each child.

Junior or senior students planning to take STEP must submit an application available in the office of the Department of Special Education. Applications for the Fall STEP are accepted beginning on the second Monday of the Winter Quarter. Applications for Winter STEP are accepted beginning the second Monday of Spring Quarter. Application for the Spring STEP are accepted beginning the second Monday of the Fall Quarter.

Minimum prerequisites for STEP include EMCE 705 or SEDUC 704, SPED 802 and 863 or 833, as well as EMCE 812 or 813. It is best to take STEP one or two quarters prior to student teaching. Students are advised that the STEP experience is a full-time commitment. They should not plan any outside work during that period, nor will they be permitted to take any concurrent coursework.

## Upper Division Courses

**(Open only to students who have been admitted to upper division status in the College of Education.)**

730. *Exceptional Learners in the Regular Classroom.* Characteristics, adjustment problems, and special needs with emphasis upon educational solutions. The law and its implementation: placement, programming, due process, and resources available to the regular classroom teacher. This course is intended for non-special education majors. 2 q.h.

731. *Education of Young Handicapped Children.* Developmental and behavioral characteristics, laws, standards, and programs. Screening and observation procedures. Learning styles and play activities. Remediation strategies for specific learning and behavioral problems. Encouraging parent involvement. Prereq.: PSYCH 755. 4 q.h.

802. *Education of Exceptional Children.* A survey of the problems and issues in the education of exceptional children and their characteristics and needs. Field observation required. 4 q.h.

828. *Education of Children With Severe Behavioral Handicaps.* Advanced behavior management procedures are employed within an educational/clinical setting. Explores multidisciplinary theories, techniques and strategies. Included are instructional and home management, assessment, multilevel reinforcement, crisis prevention and intervention, and handling aggressive behaviors. To be taken with SPED 828L. Prereq. or concurrent: SPED 862, 835. 3 q.h.

828L. *Education of Children with Severe Behavioral Handicaps Lab.* A sixty clock-hour clinical/field experience. Assessment of severe behavior disorders and developmment of intervention plans with children in local SBH units. Students are assigned to field sites 6-8 hours per week. To be taken concurrently with SPED 828. Prereq. or concurrent: SPED 862, 835. 2 q.h.

829. *Supervised Student Teaching: Severe Behavior Handicapped Children.* To be taken concurrently with SPED 869. Prereq.: FOUND 702, 708, 710, EMCE 705, 714, 715, 812 SPED 802, 828, 828L, 835, 852, 853, 862; senior status and approval of the chair of the Special Education Department. Grading will be CR/NC. See requirements for student teaching under College of Education. 6-15 q.h.

833. *Education of Mentally Retarded.* Description, classification, development, and personal social adjustment of mentally retarded individuals. Survey of community resources, service delivery systems, and the impact of current legislation. Field observation required. Prereq.: SPED 802. 4 q.h.

834. *Education and Training of MSPR.* Curriculum planning, teaching methods, and instructional materials for moderately, severely, and profoundly retarded, or developmentally disabled. To be taken concurrently with SPED 834L. Prereq.: SPED 802, 833. 4 q.h.

834L. *Practicum in Education and Training MSPR.* Application of assessment, habilitation, and rehabilitation techniques in an education and/or vocational setting. Includes alternative modes of communication and advanced behavior management strategies including aggressive client training. To be taken concurrently with SPED 834. Prereq: SPED 802, 833. 2 q.h.

835. *Classroom Management for Exceptional Individuals.* Management of the exceptional person's behavior; adaptations of the classroom environment to facilitate learning and personal social adjustment. Communicating effective management programs to parents. Prereq.: SPED 802. 4 q.h.

836. *Education of Multiply-Handicapped Individuals.* Identification and intervention in critical areas of development for individuals with physical handicaps, sensory deficits, or communication disorders. Developing objectives, planning and implementing adapted curricula in consultation with interdisciplinary specialists. Ten hours of classroom participation and observation are required. Prereq.: SPED 802, 833. 4 q.h.

839. *Supervised Student Teaching: Multiply Handicapped Children.* To be taken concurrently with SPED 869. Prereq.: FOUND 702, 708, 710, SPED 802, 833, 834, 834L, 835, 836, 851, EMCE 705, 715, senior status and approval of the chair of the Special Education Department. Grading will be CR/NC. See requirements for student teaching under College of Education. 6-15 q.h.

848. *Supervised Student Teaching: Developmentally Handicapped Children.* To be taken concurrently with SPED 869. Prereq.: FOUND 702, 708, 710, EMCE 705, 714, 715, 812, SPED 802, 833, 835, 851, 852, 853, senior status and approval of the chair of the Special Education Department. Grading will be CR/NC. See requirements for student teaching under College of Education. 6-15 q.h.

849. *Supervised Student Teaching: Specific Learning Disabled Children.* To be taken concurrently with SPED 869. Prereq.: FOUND 702, 708, 710, EMCE 705, 715, 812, SPED 802, 835, 852, 853, 863, 866, senior status and approval of the chair of the Special Education Department. Grading will be CR/NC. See requirements for student teaching under College of Education. 6-15 q.h.

851. *Social Studies and Social Skills for Mentally Retarded.* Study of individual problems, curriculum units, guidance and planning, preparation of instructional materials, and participation in local schools. Prereq.: SPED 802, 833. 4 q.h.

*852. *Language Arts Methods in Special Education.* Principles, practices, materials, and aids for teaching language arts in Special Education. Diagnostic and evaluation procedures; individual problems; techniques, curriculum units, guidance, planning; tutoring and participation. Prereq.: SPED 802, 863 or 833 and EMCE 812 or 813. Permit required through Department of Special Education. Outside field experience required. 4 q.h.

*853. *Arithmetic Methods in Special Education.* Principles, practices, materials, and aids for teaching arithmetic in Special Education. Diagnostic and evaluation procedures; individualized instructional techniques; observation, tutoring, and participation. Prereq.: SPED 802, 833, 863; EMCE 713. Permit required through Department of Special Education. Outside field experience required. 4 q.h.

854. *STEP Field Experience.* Field application of principles of organization, curriculum and management of a special education classroom, part of 10-week STEP (Special Teacher Education Program). Activities include IEP development, academic evaluation and instruction, behavior management, building self-esteem and a positive social climate, collaboration and parent conferencing. Prereq.: SPED 802, 863/833; EMCE 713, 812 or 813. Permit required through the Department of Special Education. 3 q.h.

855. *Career and Vocational Education for Handicapped Individuals.* Emphasis on lifelong career orientation and the development and implementation of K-12 prevocational/vocational curriculum. How to integrate practical experiences in the classroom, home and community. Prereq.: SPED 802. 4 q.h.

858. *Interview Concepts and Strategies in Early Childhood Special Education.* Review and analysis of the methods by which young children construct knowledge about their physical, social, and intellectual worlds. Study of patterns of normal and atypical development from birth through age eight, as well as the development of appropriate models for effective intervention. Prereq.: PSYCH 755. 3 q.h.

862. *Principles of Interaction With Special Needs Students.* Principles and methods of interaction with students, parents and other professionals in behalf of students with special needs. A team approach and the use of community resources will be emphasized. Prereq.: SPED 864. Also listed as COUNS 862. 3 q.h.

863. *Learning Disabilities.* Description, classification, development, and academic and social adjustment of children with learning disabilities. Relates the contribution of diverse disciplines to theory and practice. A developmental approach to motor, perceptual, cognitive, language, and social-emotional functioning within an educational context. Prereq.: SPED 802. 4 q.h.

864. *Communication and Consultation Skills in Special Education.* Designed to enable teachers of exceptional individuals to gain the cooperation and involvement of professionals, parents, and children. Students will assume the role of child advocate and explore methods of facilitating educational placements and programming designed to best meet handicapped children's unique needs. Collaboration skills will be emphasized. Prereq.: SPED 802 or permission of instructor. 4 q.h.

865. *Workshop in Special Education.* Intensive study and related activities in one or more of the following special education curriculum areas: trainable mentally retarded, educable mentally retarded, learning disability/behavior disorder, multi-handicapped. May be repeated if content is different. 1-6 q.h.

*866. *Clinical Teaching of Children With Specific Learning Disabilities.* A variety of assessment procedures are explored for the purpose of placing SLD children and designing appropriate educational programs for them. Emphases are upon disorders of motor, perceptual, cognitive, and language functioning and learning styles. Prereq.: SPED 802, 863. 4 q.h.

*867. *Practicum in Specific Learning Disabilities.* Diagnostic procedures are used to develop a comprehensive assessment of a child's current functioning. Emphases are upon those areas explored in SPED 866. An individualized education program (IEP) case study will be developed and a program implemented. Prereq.: SPED 802, 835, 852, 853, 863 and 866. A permit is required through the Department of Special Education. 4-6 q.h.

868. *Independent Study in Special Education.* Individual work under special education staff guidance; curriculum development or special education areas; individual problems in community agencies or schools. Prereq.: SPED 802, 833 or 863, or equivalent. May be repeated to maximum of accumulative total of 6 q.h. 1-6 q.h.

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*Additional fee required.

869. *Student Teaching Seminar - Special Education.* To be taken with student teaching. Reflective teaching techniques will be explored with emphasis on daily lessons and student teachers' interactions with children, teachers and administrators. Prereq.: Admission to student teaching in Special Education. 1 q.h.

871. *Characteristics and Needs of Gifted Children.* Introduction to gifted education. An overview of the theoretical and research base for gifted education, including appropriate classroom environments, teacher qualifications, and support services to meet the diverse social, emotional, and intellectual needs of gifted children. Current program standards will be included. Prereq.: Admission to the College of Education. 4 q.h.

874. *Gifted and Talented Programs.* Survey of theoretical foundations of contemporary programs and models; historical development; issues, evaluation, and research; differentiated programming procedures and problems. Identical with SEDUC 874. Also listed as EMCE 874. Prereq.: EMCE 705. 4 q.h.

878. *Teaching Gifted and Talented Students.* Theory and organization of curriculum with design and integration of content subjects including strategies and identification of resources and materials. Prereq.: SPED 871. 4 q.h.

## CERTIFICATION PROGRAMS IN SPECIAL EDUCATION

An undergraduate student seeking certification in special education (DH, MH, SBH, or SLD) must complete a specified series of general courses in addition to the upper division (professional education) courses. Both components are designed to meet state certification standards. Many students prefer to earn two (or more) certificates, i.e., either in special and elementary education or in two areas of special education (see section II A below).

### I. Curriculum in Special Education

#### A. General Requirements

| Courses | Cr. Hrs. |
|---|---|
| FOUND 501 Introduction to Education | 4 |
| ENGL 550 Composition 1 | 4 |
| ENGL 551 Composition 2 | 4 |
| ENGL Literature Elective | 4 |
| ENGL 651 Introduction to Language | 4 |
| ENGL 708 Children's Literature | 4 |
| COMM 654 Speech Communication in the Classroom | 4 |
| SPCH 705 Speech Problems of Children | 3 |
| MUSIC 621 Music Literature and Appreciation | 4 |
| MUSIC 721 Music Education for Elementary Teachers | 4 |
| ART 662 Art Appreciation for Classroom Teachers | 4 |
| ART 762 Art Strategies for Classroom Teachers | 3 |
| BIOL 505 Biology and the Modern World or BIOL 506 Principles of Biology | 4 |
| CHEM 500 Chemistry in Modern Living or CHEM 501 Survey of Chemistry 1 | 4 |
| PHYS SCI Elective | 4 |
| MATH 515 Mathematics for Elementary Teachers 1 | 5 |
| MATH 516 Mathematics for Elementary Teachers 2 | 4 |
| PSYCH 560 General Psychology | 4 |
| PSYCH 755 Developmental Psychology 1 (Child) | 4 |
| GEOG 640 Human Geography | 4 |
| HIST 605 History of the United States 1 or HIST 606 History of the United States 2 | 4 |
| HSC 590 Health Education | 3 |
| HPES 622 Motor Skill Analysis for the Elementary Teacher | 1 |
| HPES Activities (Elective) | 2 |
| HSC 721 Health Education in the Elementary Grades | 3 |
| HPES 722 Physical Education in Elementary Grades for the Classroom Teacher | 3 |
| HPES 895 Adapted Physical Education | 3 |

#### B. Professional Education Requirements

| Courses | Cr. Hrs. |
|---|---|
| FOUND 702 Instructional Media | 2 |
| EMCE 705 Professional Laboratory Experiences: Elementary | 3 |
| FOUND 708 Education and Society | 4 |
| FOUND 710 Educational Measurement and Guidance | 4 |
| EMCE 713 Teaching of Mathematics | 4 |
| EMCE 715 Teaching of Science | 4 |
| COUNS 761 Human Relations and Guidance Skills for Teachers | 3 |
| SPED 802 Education of Exceptional Children | 4 |
| EMCE 812 Language Arts 1 | 4 |
| EMCE 813 Language Arts 2 | 3 |
| SPED 853 Arithmetic Methods in Special Education | 4 |
| SPED 855 Career and Vocational Education for Handicapped Individuals | 4 |
| SPED 863 Learning Disabilities | 4 |
| SPED 864 Communication and Consultation Skills in Special Education | 4 |

The following 5 courses will be completed in STEP (see text).

| | |
|---|---|
| SPED 835 Classroom Management for Exceptional Individuals (Fall, Spring) | 4 |
| SPED 852 Language Arts Methods in Special Education | 4 |
| SPED 854 STEP Field Experience | 3 |
| SPED 864 Commun/Consult Sp Ed | 4 |

#### C. Specialization Area Requirements

##### 1. Developmentally Handicapped (DH)

| Courses | Cr. Hrs. |
|---|---|
| EMCE 714 The Teaching of Social Sciences in the Elementary School | 4 |
| SPED 833 Education of the Mentally Retarded | 4 |

SPED 851 Social Studies and Social Skills for the Mentally Retarded ..... 4
SPED 848 Supervised Student Teaching: Developmentally Handicapped Children ... 6-15
SPED 869 Student Teaching Seminar-Special Education ..... 1

Total DH Program (sum of A, B, & C1): 187 q.h.

**2. Multiply Handicapped (MH)**

| Courses | Cr. Hrs. |
|---|---|
| SPED 833 Education of Mentally Retarded | 4 |
| SPED 834 Education and Training of MSPR | 4 |
| SPED 834L Practicum in Education and Training MSPR | 2 |
| SPED 836 Education of Multiply-Handicapped Individuals | 4 |
| SPED 851 Social Studies and Social Skills for Mentally Retarded | 4 |
| SPED 839 Supervised Student Teaching: Multiply Handicapped Children | 6-15 |
| SPED 869 Student Teaching Seminar-Special Education | 1 |

Total MH Program (sum of A, B & C2): 193 q.h.

**3. Severe Behavior Handicapped (SBH)**

| Courses | Cr. Hrs. |
|---|---|
| PSYCH 702 Abnormal Psychology | 4 |
| EMCE 714 The Teaching of Social Sciences in the Elementary School | 4 |
| SPED 828 Education of Children with Severe Behavioral Handicaps | 3 |
| SPED 828L Education of Children with Severe Behavioral Handicaps Lab | 2 |
| COUNS 862 Principles of Interaction with Special Needs Students | 3 |
| SPED 829 Supervised Student Teaching: Severe Behavior Handicapped Children | 6-15 |
| SPED 869 Student Teaching Seminar-Special Education | 1 |

Total SBH Program (sum of A, B & C3): 191 q.h.

**4. Specific Learning Disabled (SLD)**

| Courses | Cr. Hrs. |
|---|---|
| PSYCH 702 Abnormal Psychology | 4 |
| EMCE 714 The Teaching of Social Science in Elementary Schools. | 4 |
| SPED 866 Clinical Teaching of Children with Specific Learning Disabilities | 4 |
| SPED 867 Practicum in Specific Learning Disabilities | 4-6 |
| SPED 849 Supervised Student Teaching: Specific Learning Disabled Children | 6-15 |
| SPED 869 Student Teaching Seminar-Special Education | 1 |

Total SLD Program (sum of A, B & C4): 193 q.h.

## II. Other Curriculum Options

### A. Undergraduate

Students are encouraged to consider becoming certified in two areas, but must realize that additional time will be needed beyond the 186 q.h. required for graduation. The most likely options are given below. Please consult with your academic advisor on a regular basis.

1. DH plus MH certification — Will require some additonal coursework plus student teaching in both areas.
2. SBH plus SLD certification — Will require 9 or 10 q.h. of additional coursework plus student teaching in both areas.
3. SLD plus Elementary Certification — Will require an area of concentration, about nine q.h. of additional coursework plus student teaching in both areas. Ask for special guide sheets.
4. SLD plus Secondary Certification — Will require additional lower division coursework in addition to Special Education requirements, and student teaching in both areas.

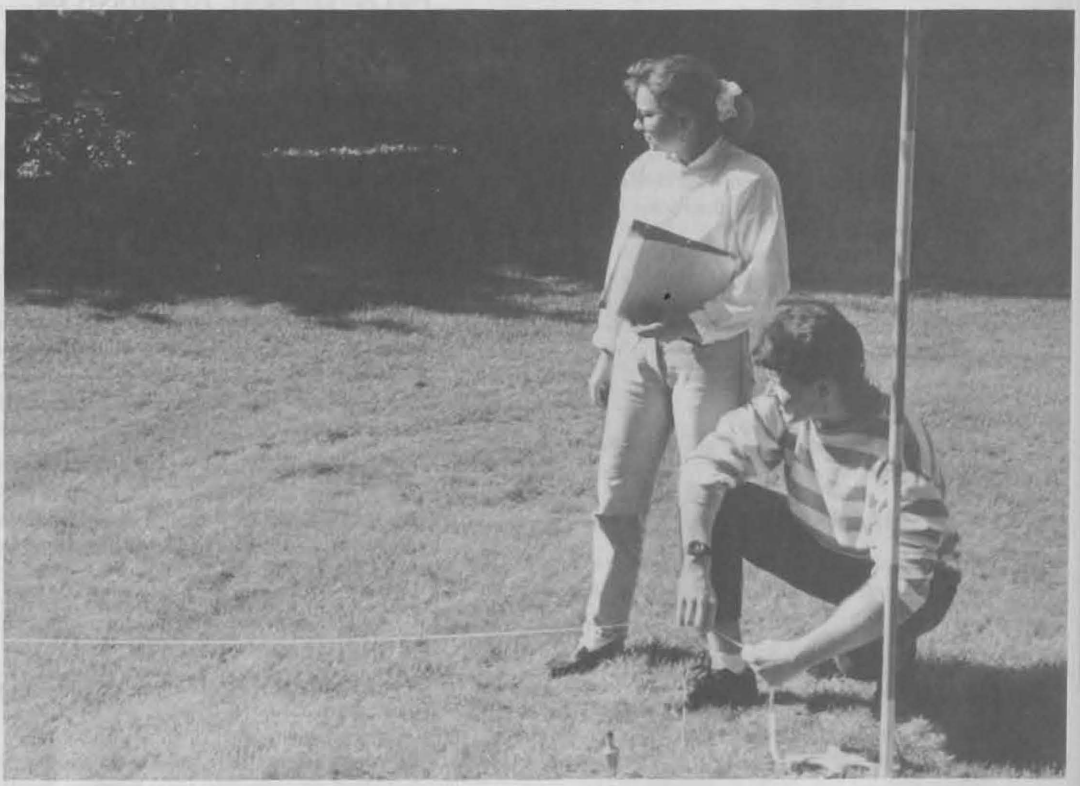
### B. Post-Graduate

There are four classes of post graduate (or graduate) students who may be admitted to certification programs in Special Education. In all cases, they must meet the criteria for admission to the College of Education (q.v.). Those having the fewest requirements are listed first.

1. Teachers certified in an area of Special Education usually may become certified in an additional area with relative ease. Student teaching is required.
2. Teachers certified in Elementary Education require additional coursework plus student teaching.
3. Teachers holding a Secondary or Special area certificate require all the above plus some coursework that elementary teachers will already have completed.
4. Students possessing a bachelor's degree but who are not certified to teach will need to complete basic College of Education admission and course requirements in addition to everything else listed above.

# The College of Engineering and Technology

*Charles A. Stevens, Dean*



## ORGANIZATION AND DEGREES OBJECTIVES

The College of Engineering and Technology is committed to furthering the mission of Youngstown State University by providing quality programs in engineering and engineering technology which encompass the mathematical and physical sciences, engineering sciences, social sciences and humanities. Application of these fundamentals prepares students for careers in both engineering and engineering related fields, educates students for living more abundantly, advances technology and supports, as well as challenges, industry and government, both locally and nationally, through research and public service integrated with teaching.

## FACILITIES

The Engineering Science Building is the home of the Engineering programs. The use of this building was a gift to the University by people of Ohio as enacted by the Ohio Legislature in 1965. The building was completed and dedicated in 1968 after the University became Youngstown State University. It contains 171,000 square feet of usable floor space which includes 48 laboratories, 30 classrooms, and eight research and development rooms.

The college's spacious laboratories have modern equipment for standard experiments as well as for advanced study in many fields. There is a 288-seat auditorium, facilities for closed-circuit television, and a computer center. The college also operates a machine shop to construct equipment used in research activities. The ample drawing rooms, classrooms, and offices are entirely modern.

## AWARDS AND PRIZES

Awards and prizes for engineering students are listed in the General Information section of the catalog.

## FEES

See *Fees and Expenses* in the General Requirements and Regulations section.

## SCHOLARSHIPS AND LOANS

Scholarships and loan funds applicable to engineering students are listed in the General Information section.

## ADMISSION - ENGINEERING

Students who apply for admission to the College of Engineering and Technology must meet the following conditions:

*New Freshmen*: appropriate ACT or SAT score.

*Internal Transfer:* C average overall (unrecalculated) in all work, and qualified to take MATH 571 and ENGL 550.

*External Transfer:* TOEFL of 525 or greater, if international; 2.50 GPA from a junior or community college; 2.30 GPA if from a university, but not from ABET accredited engineering program; 2.00 if from an ABET accredited program. The student must be prepared to take Calculus 1 (MATH 571) or a higher math course.

The table below shows the minimum requirements:

**PRE-COLLEGE**

| Subject | High School Units |
|---|---|
| English | 3 |
| Algebra | 2 |
| Geometry | 1 |
| Trigonometry | ½ |
| Chemistry | 1 |
| Mechanical Drawing | 1 |
| Physics | 1 |
| Other | 6½ |

If the above conditions are met, the student may be admitted to engineering, but not to one of the professional curricula. To qualify for such admission, the student must have completed a minimum of 24 Q.H. with a GPA of 2.0 (unrecalculated) and must have made a grade of C or better in MATH 571, ENGL 550 and either CHEM 515 or PHYS 510. Additional requirements may be imposed by the department.

## PROVISIONAL ADMISSION

Provisional admission may be obtained (except for external transfer) with the permission of the major Department chair and the dean. A student who is provisionally admitted must maintain a 2.00 GPA (unrecalculated) through 12 quarter hours of science, mathematics and/or engineering courses, or be suspended from the program.

**DISQUALIFICATION:** Prior to admission to a professional program, a student who earns two unsatisfactory grades (D, F, NC) in any required course will be disqualified from enrollment in engineering. A student who interrupts his/her enrollment must return as an "Undetermined Major" and will be subject to this rule even if he/she has been in a professional program previously.

## COURSE ENROLLMENT

All 600-, 700-, or 800- level courses in engineering, except CEEGR 610, 610L, 711 and 711L are available only to students who have been admitted to a professional curriculum by permission only.

## REQUIREMENTS FOR THE BACHELOR OF ENGINEERING DEGREE

It is the student's responsibility to see that all the graduation requirements for the degree sought are satisfied, but it is recommended that the student seek the help of the advisor frequently.

The curricula leading to the degree require a minimum of 197 quarter hours of credit, not including any make-up of high school deficiencies. High school deficiencies must be completed during the first two years of course work.

A limited offering is available during summer terms, and should be used with the consultation of the advisor.

**BE GRADUATION POLICIES**

Each of the curricula have established a new minimum graduation requirement. With these new requirements it is necessary to interrupt students in jeopardy before they are irreparably deficient. In most cases, this results in restricted enrollment in required courses at the senior level. If the student reaches an irreparably deficient point in the senior year, further enrollment will be denied. In addition to the overall recalculated C average required by the University, an unrecalculated C average in the major is required. Also an unrecalculated C average in all Engineering courses is required in all majors except Industrial Engineering. The restrictions for deficient students are shown below.

**Chemical Engineering**

A student deficient prior to the senior year will be denied enrollment in CHEGR 887.

**Civil and Environmental Engineering**

A student deficient in the Major prior to the senior year will be denied enrollment in CEEGR 837, 855, & 881.

**Electrical Engineering**

Enrollment may be denied in required courses if the student falls below the requirements.

**Industrial and Systems Engineering**

A student who is deficient will be denied enrollment in any 800-level course.

**Materials Engineering**

A student deficient in any of the three requirements will be denied enrollment in any 800 level course.

**Mechanical Engineering**

In order to enroll in MECH 808, 825, and 870, student must have no deficiency in any of the three requirements and must have a C or better in MECH 603 and MECH 641.

**IN THE UNIVERSITY MINIMUM COLLEGE REQUIREMENTS**

| GENERAL UNIVERSITY | QUARTER HOURS |
|---|---|
| English 550, 551 | 8 |
| Health Science 590 | 3 |
| Human Performance and Exercise Science Activities | 3 |
| Basic Sciences (as specified by the department) | 24 |
| Mathematics (as specified by the department) | 22 |
| Social Science (as specified by the department) | 12 |
| Humanities (as specified by the department) | 12 |
| **Total** | **84** |
| ENGINEERING | 113* |
| **Total** | **197** |

*This component shall bring the total minimum degree requirements to 197 quarter hours, and shall satisfy the ABET requirements of one year of engineering science and one-half year of design; or, one and one-half years of engineering topics.

The Engineering program can be completed in four academic years by those who are capable of successfully completing the study loads outlined.

## COURSES OF INSTRUCTION AND CURRICULA

The student should be familiar with the course-numbering system and its significance, as well as the abbreviations used to indicate the amount of credit. These are explained at the end of the General Requirements and Regulations section.

Engineering 581. *Introduction to Engineering.* Lectures on activities, practices and career opportunities in the various fields of the Engineering profession. Discussion of various engineering curricula as related to the preparation of the engineering student in his/her particular field.
2 q.h.

## CHEMICAL ENGINEERING (Nuclear Minor)

*Professors Ahmed, Jones, Lim (Chair), Szirmay, Zager; Assistant Professor Carr.*

The Chemical Engineering program, supplemented with courses in chemistry, physics, mathematics, and engineering, provides a broad preparation for design, operation and management in the chemical, biological, nuclear, pharmaceutical, and energy conversion industries as well as graduate study leading to research positions in industry and government and to academic careers.

The curriculum may be easily modified for students whose career objectives lie in environmental, biochemical engineering, medicine, or business administration.

Transfer to Chemical Engineering from other engineering programs, or from Chemistry, Physics, Biology, and Mathematics may be accomplished without loss of time or credit during the first two years.

The Chemical Engineering Laboratories are equipped for undergraduate instruction and student and faculty research. The equipment includes fluid flow apparatus, concentric tube and plate and frame heat exchangers, thermal conductivity apparatus, boiling heat transfer apparatus, tray dryer, double effect evaporator, computer-controlled distillation tower, gas absorption and liquid-liquid extraction columns, chemical reactors, crushers, grinders, and other solids processing equipment, electrostatic particle separator, centrifuges, filter presses, and other miscellaneous equipment. The nuclear laboratory contains radiation detectors, area monitoring and gamma scintillation equipment, and proportional counters. The University's subcritical nuclear reactor is also available to the department. The analytical equipment includes mass sensitive gas chromatograph, high performance liquid chromatograph, absorption and emission spectroscopes, x-ray flourescence analyzer and infrared gas analysis apparatus.

For student computations the department has several personal computers, printers, and plotters, as well as computer terminals connected directly to the University Computer Center.

The laboratory equipment is being continuously upgraded and modernized through the State of Ohio equipment replacement program.

## Chemical Engineering

*650. *Computer Methods in Chemical Engineering.* Application of computational software packages and spreadsheets to solve chemical engineering problems. Utilization of process simulation packages, such as HYSIM and FLOWTRAN. Real-time computing applications in laboratory automation. One lecture hour and three laboratory hours per week. Prereq.: ISEGR 642. 2 q.h.

680. *Design Techniques in Chemical Engineering.* A systematic survey of well-established and readily available methods for implementing the usual types of operational or process procedures. Where several design techniques may be applicable, the advantages and limitations of each are considered. Prereq.: MATH 572, CHEM 516. 3 q.h.

681. *Industrial Stoichiometry.* To aid the non-chemical engineer to organize, analyze, and effectively utilize the information inherent in chemically stoichiometric relationships, as they apply to actual plant situations. Prereq.: MATH 572, CHEM 516. 4 q.h.

682, 683. *Chemical Engineering Principles.* Engineering units and dimensions. Methods of analysis and measurement. Perfect gas and real gas relationships. Material and energy balances for both non-flow and flow systems. Prereq.: MATH 571, CHEM 516. 3+3 q.h.

684. *Stagewise Separations.* Cascade theory and design of staged separation processes. Concepts of reflux, algebraic solutions for linear systems and graphical methods of analysis. Design of distillation columns. Prereq.: CHEGR 683. 3 q.h.

688. *Energy Assessment.* Concept of energy assessment. Technology of energy production that includes coal gasification, liquefaction, magnetohydrodynamics, utilization of shale oil, solar, geothermal, and chemical energy. Nuclear energy utilization. Fuel from wastes. Energy resource distribution and future supply and demand. Simple calculations relating to fuel saving, production, and consumption. Primarily for non-engineering students. Prereq.: CHEM 500 or PHYS 500. 3 q.h.

*700. *Measurement Laboratory.* Computer application in real-time data acquisition and laboratory data processing. Measurements of physical and chemical properties. Oral presentations and preparation of technical reports. 3 hr. laboratory. Prereq.: CHEGR 650, ENGL 551, CHEGR 683. 1 q.h.

721. *Engineering Plastics.* Preparation, characterization, manufacture, properties and applications of commercial polymers. Prereq.: CHEGR 681 or 683, CHEM 721, or consent of instructor. 4 q.h.

726. *Elementary Nuclear Reactor Engineering.* Basic engineering science to serve as background material for nuclear reactor design. Nuclear fission as an energy source. Reactor use and classification. Comprehensive discussion of reactor design problems such as neutron distribution in the core, type of moderator, heat removal, and radiation protection. Prereq.: MATH 674, PHYS 610. 3 q.h.

745. *Corrosion Control Engineering.* Introduction to electochemical mechanism and theory of corrosion, engineering practice, and criteria for both anodic and cathodic control. Theory and engineering practice in the use of inhibitors. Prereq.: CHEGR 681 or 683. 4 q.h.

771, 772. *Chemical Engineering Thermodynamics 1, 2.* Development of the concepts and formalisms of thermodynamics and their applications to chemical engineering systems. Real and ideal behavior of single and multicomponent systems. Introduction to the thermodynamics of phase equilibria. Analysis and design of thermal systems. Prereq.: CHEGR 683 or CHEGR 681, MATH 673. 4+4 q.h.

785, 786. *Transport Phenomena 1 and 2.* Mathematical formulation of conservation laws. Dimensional analysis. Mechanism and fundamentals of momentum and energy transfer from macroscopic point of view with selected applications to analysis and design of chemical engineering equipment. Prereq.: CHEGR 683, MATH 705. 4+4 q.h.

*Additional fee required.

*785L, *786L. *Transport Phenomena Laboratory.* Experimental studies of transport properties and momentum, energy and mass transfer using industrial type equipment. Correlation of data and comparison with theory. Oral presentations and preparation of technical reports. 3 hrs. laboratory. Prereq.: CHEGR 785 and CHEGR 786, respectively. 1+1 q.h.

787. *Unit Operations 1.* Mass transfer processes. Diffusional operations and separation processes with emphasis on evaporation, humidification and drying. Derivation of the design equations from mass and energy balances. Applications of the equations to equipment design. Prereq.: CHEGR 786. 4 q.h.

788. *Unit Operations 2.* Gas absorption and desorption, interphase mass transfer processes, liquid extraction and leaching. Physical separation processes including filtration, settling, and size reduction. Derivation of the design equations for the above processes, and applications of the design equations to equipment design. Prereq.: CHEGR 786. 4 q.h.

*787L, *788L. *Unit Operations Laboratory.* Experiments in absorption, cascade operations, reaction kinetics, mixing and other chemical engineering operations employing industrial and pilot plant size equipment and instrumentation. Treatment of experimental data, correlations and comparison with theory. Oral presentations and preparation of technical reports. 3 hr. laboratory. Prereq.: CHEGR 787 and CHEGR 788, respectively. 1+1 q.h.

789. *Human Beings and the Technological Society.* An interdisciplinary critical examination of humankind in the modern technological society from the perspectives of engineering, life, and social science. The topics are (1) history of technology, (2) the world's available resources, (3) population dynamics as they interact with nature and the human ecosystem, such as "the green revolution", cybernation, value concepts, and techniques to forecast societal changes. Prereq.: junior standing, or consent of all instructors. Identical with SOCIO 789 and BIOL 789. 4 q.h.

800. *Special Topics.* Special topics and new developments in chemical engineering. Subject matter, credit hours, and special prerequisites to be announced in advance of each offering. Prereq.: Senior standing in chemical engineering or consent of instructor. 1-4 q.h.

801-802-803. *Chemical Engineering Projects.* Chemical engineering projects under the guidance of a faculty member. Literature search, design and construction of apparatus, experimentation and preparation of a comprehensive report. Prereq.: Advanced junior standing in chemical engineering and permission of the Department chair. 2+2+2 q.h.

805. *Principles of Biomedical Engineering.* Application of engineering principles and methods of analysis to processes in the human body. Rheological, physical and chemical properties of body fluids. Dynamics of the circulatory system. The human thermal system. Transport through cell membranes. Analysis and design of artificial organs. Prereq.: BIOL 552 or concurrent, advanced standing in chemical engineering or consent of instructor. 4 q.h.

811. *Advanced Transport Phenomena.* Development of basic differential balance equations for mass, momentum and energy. Analytical and approximate solutions to the equation of change with application to the analysis of common engineering problems. Prereq.: CHEGR 786 or consent of instructor. 4 q.h.

817. *Management of Nuclear By-products.* Sources and characteristics of radioactive material, principles and determination of tolerance; standards and regulations; protection from side effects. Prereq.: CHEGR 726, or concurrent. 1 q.h.

820. *Industrial Pollution Control.* Types, sources and effect of industrial and hazardous waste; principles of industrial and hazardous waste control; discussion and design of biological, physical, and chemical treatment processes. Prereq.: MATH 674, CHEM 517 or CHEGR. 681. 4 q.h.

821. *Fundamentals of Polymer Science.* The survey of polymerzation mechanisms, polymer structure-property relationships, transport properties, flammability related plasticizers and solvents as well as design applications. Prereq.: CHEGR 721 or CHEM 824. 4 q.h.

822. *Reinforced Polymer Structures.* Survey of raw materials, manufacturing methods, and design of products utilizing reinforcing materials combined with an elastomer or polymer binder. Prereq.: CHEM 721, MATH 674, CEEGR 601 or consent of instructor. 4 q.h.

830. *Introduction to Nuclear Reactors.* Neutron interactions and scattering; moderation ratio, the steady state reactor core and four factor equation, the diffusion equation for various reactor geometries and the reflected reactor core. Prereq.: CHEGR 726 or equivalent. 3 q.h.

831. *Introduction to Nuclear Materials.* Discussion of various chemical and metallurgical separation methods for the manufacturing and reprocessing of nuclear reactor fuel for the thermal and breeder reactors. Aspects of production of nuclear materials. Prereq.: CHEGR 726 or equivalent. 3 q.h.

835. *Introduction to Nuclear Fusion.* Fusion reactors; the kinetics of fusion reactions. Plasma confinement technology. Prereq.: CHEGR 726 or equivalent. 3 q.h.

850. *Industrial Processes.* A fundamental approach to the design of industrial chemical processes. Emphasis upon flow charting, chemical reactions, separations involved, thermodynamics, and economic considerations. Prereq.: CHEGR 785. 4 q.h.

*Additional fee required.

880, 881. *Chemical Reactor Design 1 and 2.* Chemical reaction equilibria. Theoretical developments and methods of interpreting experimental data pertaining to chemical kinetics. General design principles and construction features of reactors with application of these principles to the design of specific reactors. Prereq.: CHEGR 772. 3+3 q.h.

882. *Process Dynamics.* Introduction to automatic control and control loop concepts. Laplace transform techniques. Linear open-loop and closed-loop systems. Root-locus and frequency response methods. Design of control systems. Prereq.: CHEGR 786. 4 q.h.

*882L. *Process Dynamics Laboratory.* Experimental studies in process dynamics and control. Treatment of experimental data with correlation and comparison with theory. Oral presentations and preparation of technical reports. Three hours of laboratory. Prereq.: CHEGR 882. 1 q.h.

883. *Mathematical Methods in Chemical Engineering.* The applications of advanced mathematics to the solution of chemical engineering problems. Topics covered include treatment and interpretation of engineering data, modeling of chemical engineering systems and formulation of ordinary and partial differential equations governing chemical engineering operations and their solutions by use of numerical and analytical techniques. Prereq.: CHEGR 786. 4 q.h.

886. *Nuclear Reactor Design.* The steady state reactor core; four-factor equation, resonance escape probability, neutron flux distribution in various geometrics, two-group and multigroup theories. Transient reactor behavior and control; effect of delayed neutrons, fission product poisoning, nuclear fuels, nuclear heat transfer and burnout problems, reactor economy; fuel burnup and power cost. Thermal breeder and fast reactors. Neutron flux distribution measurements. Radiation detection and monitoring. Prereq.: CHEGR 726. 4 q.h.

887. *Process and Plant Design 1.* An examination of engineering economic analysis to include: cost estimation, profitability, optimum design, principles of fixed and operating costs, materials and site selection, and general and specialized design techniques. Prereq.: Senior standing in Engineering. 4 q.h.

888. *Process and Plant Design 2.* The application of chemical engineering and cost principles to the component design and selection of process equipment. Prereq.: CHEGR 788, 880, and 887. 4 q.h.

889. *Process and Plant Design 3.* The application of chemical engineering and cost principles to the design of chemical plants and processes including societal aesthetic, environmental, and safety considerations. Prereq.: CHEGR 888. 4 q.h.

*Additional fee required.

## CURRICULUM FOR THE DEGREE OF BACHELOR OF ENGINEERING WITH THE MAJOR IN CHEMICAL ENGINEERING

### FIRST YEAR

| Courses | Cr. Hrs. |
|---|---|
| ENGR 581 | 2 |
| CHEM 515, 515L, 516, 516L, 517, 517L, General Chemistry | 12 |
| MATH 571, 572, 673 Calculus | 14 |
| ENGL 550, 551 Basic Composition | 8 |
| HPES Activities | 2 |
| Humanities/Social Science Elective | 4 |
| ISEGR 642 Engineering Computations | 4 |
| PHYS 510 General Physics | 4 |
| | 50 |

Note: Students without background in mechanical drawing must enroll in MECH 500 Drawing Fundamentals.

### SECOND YEAR

| Courses | Cr. Hrs. |
|---|---|
| CHEM 719, 719L, 720, 720L, 721, 721L Organic Chemistry | 12 |
| CHEGR 650 Computer Methods | 2 |
| CHEGR 682, 683, Prin. of Chem. Engineering | 6 |
| CHEGR 684 Stagewise Separation | 3 |
| MATH 674 Calculus | 4 |
| MATH 705 Differential Equations | 4 |
| PHYS 610, 611 General Physics | 8 |
| Mathematics Elective | 3 |
| Humanities/Social Science Elective | 4 |
| HSC 590 Health | 3 |
| CEEGR 601 Mechanics | 4 |
| | 52 |

### THIRD YEAR

| Courses | Cr. Hrs. |
|---|---|
| CHEM 739, 739L, 740, 740L, 741, 741L Physical Chemistry | 12 |
| CHEGR 700L Measurement Laboratory | 2 |
| CHEGR 771, 772 Chem. Eng. Thermodynamics | 8 |
| CHEGR 785, 785L, 786, 786L Transport Phenomena | 10 |
| CHEGR 787 Unit Operations 1 | 4 |
| MTEGR 606 Engineering Materials | 4 |
| HPES Activity | 1 |
| Humanities/Social Science Electives | 12 |
| | 53 |

### FOURTH YEAR

| Courses | Cr. Hrs. |
|---|---|
| CHEGR 787L Unit Operations Laboratory 1 | 1 |
| CHEGR 788, 788L Unit Operations 2 | 5 |
| CHEGR 880, 881, Chemical Reactor Design | 6 |
| CHEGR 882, 882L Process Dynamics | 6 |
| CHEGR 887, 888, 889 Plant and Process Design | 12 |
| ELEGR 714R Circuits and Electronics | 4 |
| CHEGR Electives | 13 |
| Humanities/Social Science Elective | 4 |
| | 50 |

**Chemical Engineering Electives**

| Courses | Cr. Hrs. |
|---|---|
| CHEGR 680 Design Techniques in Chemical Engineering | 3 |
| CHEGR 685 Corrosion Control Engineering | 4 |
| CHEGR 721 Engineering Plastics | 4 |
| CHEGR 726 Elementary Nuclear Reactor Engineering | 3 |
| CHEGR 789 Human Beings and the Technological Society | 4 |
| CHEGR 800 Special Topics | 1-4 |
| CHEGR 801-802-803 Chemical Engineering Projects | 6 |
| CHEGR 805 Principles of Bio-medical Engineering | 4 |
| CHEGR 811 Transport Phenomena 3 | 4 |
| CHEGR 817 Management of Nuclear By-Products | 1 |
| CHEGR 820 Industrial Pollution Control | 4 |
| CHEGR 821 Polymer Science | 4 |
| CHEGR 822 Reinforced Polymer Structures | 4 |
| CHEGR 830 Introduction to Nuclear Reactors | 3 |
| CHEGR 831 Introduction to Nuclear Materials | 3 |
| CHEGR 835 Introduction to Nuclear Fusion | 3 |
| CHEGR 850 Industrial Processes | 4 |
| CHEGR 883 Mathematical Methods in Chemical Engineering | 4 |
| CHEGR 886 Nuclear Reactor Design | 4 |

Note: Transfer students from any two- or four-year academic program at other institutions or at this University who wish to pursue studies in Chemical Engineering should consult the department chair for individual counseling in order to arrive at a program of studies fully utilizing their educational background and requiring a minimum of time to satisfy the requirements for the degree of Bachelor of Engineering.

## Nuclear Science and Engineering Minor

The minor is open to all Engineering and Physical Science majors and comprises a minimum of 21 quarter hours including 10 quarter hours of core courses and the rest selected from the list of electives.

Engineering students may substitute a number of their departmental electives or other technical electives with the Nuclear Engineering courses to obtain the Nuclear Engineering minor with few or no additional credit hours.

**CORE COURSES**

| Courses | Cr. Hrs. |
|---|---|
| CHEGR 726 Elementary Nuclear Reactor Engineering | 3 |
| CHEGR 830 Introduction to Nuclear Reactors or CHEGR 835 Introduction to Nuclear Fusion | 3 |
| CHEGR 886 Nuclear Reactor Design | 4 |
| | 10 |

**ELECTIVES**

| Courses | Cr. Hrs. |
|---|---|
| CHEGR 789 Human Beings and the Technological Society | 4 |
| CHEGR 811 Transport Phenomena 3 | 4 |
| CHEGR 883 Mathematical Methods in Chemical Engineering | 4 |
| CHEGR 817 Management of Nuclear By-products | 1 |
| CHEGR 831 Introduction to Nuclear Materials | 3 |
| CHEGR 830 Introduction to Nuclear Reactors or CHEGR 835 Introduction to Nuclear Fusion | 3 |
| ELEGR 800 Sensor | 1-4 |
| ELEGR 805R Quantum Electronics | 4 |
| ELEGR 812R Molecular Engineering | 4 |
| ELEGR 819R Plasma Dynamics | 4 |
| MECH 825 Heat Transfer 2 | 4 |
| BIOL 825 Radioisotopes in Biology | 4 |
| CHEM 730 Clinical Radiochemistry | 3 |
| CHEM 730L Clinical Radiochemistry Lab | 1 |
| CHEM 835 Nuclear Chemistry and Applications | 3 |
| MATH. 706 Differential Equations 2 | 4 |
| MATH 760 Numerical Analysis | 4 |
| PHYS 704 Introduction to Modern Physics 1 | 3 |
| PHYS 705 Introduction to Modern Physics 2 | 3 |
| PHYS 705L Modern Physics Lab | 1 |
| PHYS 826 Elements of Nuclear Physics | 3 |
| PHYS 826L Nuclear Physics Lab | 1 |

# CIVIL AND ENVIRONMENTAL ENGINEERING

*Professors Alam, Bakos (Chair), Cernica, Khan, Martin, Ritter; Associate Professor Husain.*

In addition to furthering the mission of Youngstown State University, the Department of Civil & Environmental Engineering has established the following academic goals: to provide a quality program of engineering education which encompasses the basic and engineering sciences, mathematics, and the traditional and emerging areas of the discipline; to insure that graduates understand the scientific basis of the disc ipline; to develop in the students the skills to synthesize or design a device, system or process and to evaluate this design against standards of performance, economics, reliability, safety and environmental impact; to prepare its graduates for engineering practice or for graduate studies; to instill in its students a sense of pride and professionalism and an appreciation of ethics; to develop the student's oral and written communication skills; to provide the students with an opportunity to understand man and his/her culture, as well as, the individual relationships in and to society; to implement an aggressive and effective outcome assessment program and to use the results to improve the curriculum and overall program, and to provide a base for lifelong learning and professional development.

Students entering the program will basically take a common curriculum for the first two years. This commonality will provide the students with coursework in the fundamentals of engineering, mathematics, and basic science, so that they will obtain a greater depth of understanding and intellectual maturity. The student then continues in a traditional civil engineering program eventually choosing an area of concentration in transportation, structural, or environmental engineering. These options, however, are accompanied by a broad-based civil engineering education. The selection of engineering topics within the broad-based program were chosen in order to develop a degree of competence in a variety of areas within the discipline. These would include such areas as environmental, transportation, structures, hydraulics, geotechnical, and surveying/measurements.

Engineers seek to create what "never was" and thus, students must have an early view of civil engineering as a creative career. Integrating design throughout the curriculum, therefore, fosters the depth of understanding and self confidence they will need to think creatively and eventually become productive engineers. Design is, therefore, fully integrated into the curriculum so that students recognize design as a routine feature of their civil engineering education. It is the department's assertion that students can best develop these creative skills through an educational program that contains significant design experiences including, but extending well beyond, a traditional, senior-level, major design experience.

The department concentrates on the quality and coherence of these student design experiences and has a philosophy for presenting design to its students. Individual small design experiences added to otherwise traditional courses with minimal intrusion on their subject area, simply challenge students to identify and define the problem at hand and devise and examine solutions. Fundamental courses within and throughout the program help develop and build the understanding of design concepts and these, along with the program's pure design courses, ultimately lead to a significant, senior-level design project which provides the obvious proving ground for the skills which the student body has acquired from such a comprehensive civil engineering design education.

Students majoring in Civil & Environmental Engineering earn the Bachelor of Engineering (B.E.) degree. The course of study at the undergraduate level is principally a 4 year program.

Along with an emphasis on preparation for professional practice, University policy assures that each student obtains a significant exposure to the humanities and social sciences. The department further requires that the students achieve both breadth and depth in these areas.

Graduates are prepared for study on the masters and doctoral level in engineering or for employment in the engineering profession directly upon receipt of the baccalaureate degree.

The department retains its tradition acquired as a small school in maintaining close contact between its students and faculty. Senior professors serve as academic advisors and are used in all phases of instruction from freshmen to graduate courses.

All departmental facilities are located within the modern Engineering Science Building. The department itself maintains laboratories for environmental engineering, incompressible fluid mechanics, soil mechanics, strength of materials, surveying and concrete testing. A wide variety of equipment and instrumentation, including a large number of microcomputers, support both academic and research activities.

601. *Mechanics 1.* Principles of engineering mechanics as applied to statics with vector applications to resultants of forces, centroids and centers of gravity, distributed loads, equilibrium, and friction. Prereq.: MATH 572, PHYS 510 or concurrent. (F, W) 4 q.h.

602. *Mechanics 2.* Physical properties of area and masses, and methods of virtual work and energy with engineering applications. Elementary theory and relationships between load, stress, and strain in tension, compression, torsion, and bending. Combined stresses in members. Prereq.: CEEGR 601. (W, SP) 4 q.h.

*603. *Mechanics 3.* Deflection of beams, indeterminate beam analysis, column theory, and connections. Experimental verification of theories of strength of materials. Three hours lecture and three hours laboratory per week. Prereq.: CEEGR 602. (F, SP) 4 q.h.

610. *Surveying 1.* The theory of surveying and the use of instruments. Problems in leveling, traversing, and topography. Introduction to circular and vertical curves. Prereq.: MATH 520 or equivalent. (F) 4 q.h.

*610L. *Surveying 1 Laboratory.* Field surveying principles and techniques. Uses of transit and level are stressed. Three laboratory hours per week. Prereq.: Concurrently with CEEGR 610. (F) 1 q.h.

*612. *Computer Methods in Civil Engineering.* Introduction to the application software packages STAAD-3, AUTOCAD, and LOTUS 1,2,3. Computer programs using mainframe subroutines will be developed for civil engineering applications. Use of MSDOS and VM/SP operating systems will also be covered. Two lecture hours and three laboratory hours per week. Prerequisite: ISEGR 642; CEEGR 602 or concurrent. 3 q.h.

711. *Surveying 2.* A study involving the location, design, and construction of transportation systems, including route selection, horizontal and vertical alignment, earthwork calculations and layout. Prereq.: CEEGR 610. (SP) 3 q.h.

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*Additional fee required.

*711L. *Surveying 2 Laboratory.* Field and office techniques used in layout of circular, compound, and spiraled horizontal curves, and vertical curves. Three laboratory hours per week. Prereq.: Concurrently with CEEGR 711. (SP) 1 q.h.

*712. *Construction Management.* Fundamentals of construction management: to include contracts, bonding, estimating, organization, finance; cost and productivity of equipment, material, and labor; and project planning and scheduling. Prereq.: CEEGR 612. 4 q.h.

716. *Fluid Mechanics.* A study of the laws of fluid mechanics and their application as applied to incompressible flow; properties of fluids; fluid statics; kinematics and kinetics of one dimensional flow; impulse-momentum; and viscous flow in pipes. Prereq.: CEEGR 602. (F, W) 3 q.h.

*716L. *Fluid Mechanics Laboratory.* Experimental verification of the principles of fluid mechanics as applied to incompressible fluids. Three hours laboratory per week. Prereq.: Concurrently with CEEGR 716, ISEGR 642. (F, W) 1 q.h.

*717. *Hydraulic Engineering.* Civil engineering application of fundamental fluid mechanics principles to open and closed channel flow and distribution systems, hydraulic machinery, and basic concepts of hydraulic structures. Prereq.: CEEGR 716. (SP) 4 q.h.

*720. *Highway Engineering 1.* Principles of highway and traffic engineering to include administration, economic studies, finance, highway design standards, traffic characteristics, accidents, traffic studies, signalization, traffic marking and markers, highway capacity, long range and route planning, construction planning and supervision, highway geometry, rehabilitation, repair, and renovation of highways. Prereq.: CEEGR 610. (F) 4 q.h.

*736. *Environmental Engineering 1.* Causes and control of water, land, and air pollution; effects of pollution on health and aesthetics; environmental regulations and standards; introduction to water and wastewater treatment. Prereq.: CHEM 516, ISEGR 642 or equivalent. 4 q.h.

749. *Structural Analysis 1.* The determination of shears, moments, and stresses in statically determinate beams, frames, and trusses. Consideration of dead, live, moving, and wind loads. Elastic deflections of simple structures. Introduction to the analysis of statically indeterminate structures using numerical and energy methods. Prereq.: CEEGR 603. (W) 4 q.h.

*751. *Water Quality Analysis 1.* An introduction to physical, chemical, and biological measurements of water quality. Provides laboratory experience in the analysis of natural waters, drinking water, and wastewater. Emphasizes procedures for the collection and interpretation of data on related environmental prob-lems. Two hour lecture and six hours laboratory per week. Identical to CHEM 751 and BIOL 751. Prereq.: CHEM 603. 4 q.h.

*752. *Water Quality Analysis 2.* Advanced analytical techniques for evaluation of environmental problems. Topics include pollutant transport in natural waters, toxic contaminants in drinking water, and advanced wastewater treatment. Experience with several modern laboratory instruments is provided. Two hours lecture and six hours lab per week. Identical to CHEM 752 and BIOL 752. Prereq.: CEEGR 751. 4 q.h.

*775. *Hydrology.* A study of the properties, distribution, and behavior of water in nature as it appears in its three forms: precipitation, surface water, and subsurface water. Hydrologic design of hydraulic structures. Prereq.: CEEGR 716. (W) 4 q.h.

800. *Special Topics.* Special topics and new developments in Civil Engineering. Subject matter, credit hours, and special prerequisites to be announced in advance of each offering. Prereq.: Senior standing or consent of instructor. May be repeated to a maximum of 8 q.h. 1-4 q.h.

*820. *Pavement Design.* Design methods for flexible, rigid and other wheel-supporting pavements to include investigation, testing and preparation of subgrade, base course and pavement materials, design of various pavement mixtures, stresses in pavements, pavement design, and strengthening existing pavements. Prereq.: CEEGR 720, CEEGR 881. (SP) 4 q.h.

829. *Civil Engineering Materials-Concrete.* A course designed to broaden the student's understanding of Portland Cement Concrete as a construction material. Topics include the study of cement, hydration of cement, aggregates, admixtures for concrete, mix design handling and placing, curing and properties of Portland Cement Concrete. Testing of concrete, quality control and special concretes are also included. A library research paper on a concrete-related topic of the student's choice is required. Prereq.: CEEGR 749 or permission of instructor. 4 q.h.

*835. *Highway Location and Design.* Methods of highway route location; design methods and standards for highways, intersections, freeways, and interchanges. Includes the extensive use of computer-aided design. Prereq.: CEEGR 720. (SP) 4 q.h.

*837. *Environmental Engineering 2.* A study of the elements of water purification systems and sewage treatment plants. The course includes an actual design of a treatment plant. Three hours lecture and three hours laboratory per week. Prereq.: CEEGR 736 and an unrecalculated GPA of 2.0 or better for all CEEGR (major) courses. (W) 4 q.h.

849. *Structural Analysis 2.* Analysis of statically indeterminate beams, trusses, bents and multistory frames, utilizing concepts of strain energy, virtual work, slope-deflection, and moment distribution. Introduction to matrix methods of analysis using force and displacement methods. Prereq.: CEEGR 749. (SP) 4 q.h.

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*Additional fee required.

855. *Structural Design 1.* An introduction to the behavior, analysis, and design of reinforced concrete members. Included are singly and doubly reinforced beams, tee-beams, slabs, short and long columns. Both ultimate and working stress design approaches are included. Prereq.: CEEGR 749 and an unrecalculated GPA of 2.0 or better for all CEEGR (major) courses. (F) 4 q.h.

856. *Structural Design 2.* An introduction to the behavior and design of steel structures. Included are the design of rolled and built-up tension members, beams, columns, beam-columns, welded and bolted connections. Prereq.: CEEGR 749. (W) 4 q.h.

857. *Structural Design 3.* Selected topics in both reinforced concrete and steel design including moment resistant connections, plate girders, unsymmetrical bending, plastic design, composite design, prestressed concrete design, and precast concrete sections. Prereq.: CEEGR 855, CEEGR 856. (SP) 4 q.h.

858. *Wood and Timber Design.* An introduction to the design of wood structural members. Included are the application of the national design specification for wood construction to lumber stresses, design, and fastenings; wooden truss design; concrete form design; and structural applications of plywood. Prereq.: CEEGR 749. 4 q.h.

859. *Reinforced Masonry Design.* A course intended to introduce the student to reinforced masonry as an engineering construction material, and to study the application of current design techniques to reinforced masonry structures. Subject matter will include modern masonry materials; typical dead, live and lateral loads, including seismic loadings; and fundamental design concepts. Design of reinforced walls, columns, pilasters, beams and lateral load resisting elements will be included. A building design project will serve to integrate the topics studied. Prereq.: CEEGR 855. 4 q.h.

*863. *Integrated Design Project.* Students will be required to complete a meaningful design experience that focuses attention on professional practice and is predicated on the accumulated background of curriculum components. Two hours of lecture and six hours of laboratory a week. Prereq.: CEEGR 882 or Senior Standing. 4 q.h.

*873. *Transportation Planning.* A study of the various aspects of transportation planning. Topics include operation and control of transportation vehicles, the transportation planning method, transportation study needs, modeling development, evaluation of options and transportation systems management. Concepts studied will be applied to a problem to design a specific transportation facility. Prereq.: CEEGR 720. 4 q.h.

*877. *Systems Engineering.* System approach to engineering design and operation involving deterministic and probabilistic models; linear programming, critical path scheduling, and competitive strategies and their application to construction planning and other engineering problems. Prereq.: MATH 705. 4 q.h.

879. *Civil Engineering Analysis.* Application of mathematical and numerical methods to the systematic analysis and development of problems in the field of Civil Engineering. Prereq.: CEEGR 749. 4 q.h.

880. *Advanced Structural Analysis.* Matrix formulation and solution of complex structural problems; force and displacement methods using flexibility and stiffness-coefficient matrices. Prereq.: CEEGR 849. 4 q.h.

881. *Soil Mechanics.* Properties of soil, classification, capillarity, permeability, stress and strain, consolidation and compressibility, seepage. Prereq.: GEOL 611, MATH 674, CEEGR 749 and an unrecalculated GPA of 2.0 or better for all CEEGR (major) courses. (F) 3 q.h.

*881L. *Soil Mechanics Laboratory.* Typical soil testing procedures and physical testing of soil samples. Prereq.: Concurrently with CEEGR 881. (F) 1 q.h.

882. *Soil and Foundation Engineering.* Analysis and design of foundation structures; retaining walls, abutments, piers, piles, and footings; bearing pressures, movements and stability including embankments. Prereq.: CEEGR 881, CEEGR 855. (W) 4 q.h.

883. *Design of Water and Wastewater Systems.* An introduction to the theoretical and practical design of water distribution systems, wastewater collection and conveyance systems, storm water systems, and pumping systems for water and sewage applications. An actual design and cost analysis project for the water/wastewater systems of a model city will be included for each student to perform. Prereq.: CEEGR 610, CEEGR 717. 4 q.h.

884. *Solid and Hazardous Waste Management.* Sources, characteristics, and disposal options for municipal solid waste and potentially hazardous materials. Topics include potential environmental impacts and health effects, optimization of collection systems, recycling, energy recovery, design of land disposal sites, safety considerations, and clean-up of contaminated sites. Prereq.: At least one of the following: CEEGR 736, BIOL 780, CHEM 719, CHEGR 820, or GEOL 804. 4 q.h.

*885. *Pavement Construction.* Methods, equipment, and quality control for the production and placement of pavement materials. Materials covered include soils, granular layers, asphaltic concrete, surface treatments, and Portland cement concrete. Preparation of plans and specifications for each material are also included. Prereq.: CE 881. (W) 4 q.h.

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*Additional fee required.

## CURRICULUM FOR THE DEGREE OF BACHELOR OF ENGINEERING WITH A MAJOR IN CIVIL AND ENVIRONMENTAL ENGINEERING

### ENVIRONMENTAL OPTION

#### FIRST YEAR*

| Courses | Cr.Hrs. |
|---|---|
| ENGR 581 Intro to Engr | 2 |
| CEEGR 610 Surveying 1 | 4 |
| CEEGR 610L Surveying 1 Lab | 1 |
| MATH 571 Calc 1 | 5 |
| MATH 572 Calc 2 | 4 |
| MATH 673 Calc 3 | 5 |
| ENGL 550 Basic Comp 1 | 4 |
| ENGL 551 Basic Comp 2 | 4 |
| PHYS 510 Gen Physics 1 | 4 |
| GEOL 611 Geol for Engineers | 4 |
| SOCSC Elec | 4 |
| SOCSC Elec | 4 |
| HSC 590 Health Education | 3 |
| HPES Activity | 1 |
| | 49 |

#### SECOND YEAR

| Courses | Cr.Hrs. |
|---|---|
| CEEGR 601 Mechanics 1 | 4 |
| CEEGR 602 Mechanics 2 | 4 |
| CEEGR 603 Mechanics 3 | 4 |
| MATH 674 Calc 4 | 4 |
| MATH 705 Diff Equa 1 | 4 |
| ISEGR 642 Engr Comp | 4 |
| MECH 641 Dynamics | 4 |
| CEEGR 612 Cpt Mtd Civil Engrs | 3 |
| CHEM 515 Gen Chem 1 | 4 |
| CHEM 516 Gen Chem 2 | 4 |
| CHEM 517 Gen Chem 3 | 4 |
| MATH 743 Math Stats 1 | 4 |
| SPCH 651 Comm for Bus & Prof | 3 |
| HPES Activity | 1 |
| | 51 |

#### THIRD YEAR

| Courses | Cr.Hrs. |
|---|---|
| CEEGR 716 Fluid Mechanics | 3 |
| CEEGR 716L Fluid Mech Lab | 1 |
| CEEGR 720 Highway Engr | 4 |
| Basic Sci Elec | 4 |
| CEEGR 749 Structural Analy 1 | 4 |
| CEEGR 717 Hydraulic Engr | 4 |
| CEEGR 736 Environ Engr 1 | 4 |
| ELEGR 714 Circuits & Elec | 4 |
| MECH 603 Thermodynamics 1 | 4 |
| ISEGR 724 Engr Economy | 4 |
| Basic Sci Elec | 4 |
| HPES Activity | 1 |
| CEEGR 775 Hydrology | 4 |
| CMEGR 820 Ind Pol Control | 4 |
| | 49 |

#### FOURTH YEAR

| Courses | Cr.Hrs. |
|---|---|
| CEEGR 855 Struct Design 1 | 4 |
| CEEGR 881 Soil Mechanics | 3 |
| CEEGR 881L Soil Mech Lab | 1 |
| CEEGR 856 Struct Design 2 | 4 |
| CEEGR 751 Water Qual Analy | 4 |
| CEEGR 883 Design Wtr Systms | 4 |
| CEEGR 837 Environmtl Engr | 4 |
| CEEGR 884 Waste Managemt | 4 |
| CEEGR 863 Int Design Proj | 4 |
| HUMAN Elec | 4 |
| PHIL 625 Intro Prof Ethics | 4 |
| HUMAN Elec | 4 |
| SOCSC Elec | 4 |
| | 48 |

### STRUCTURAL OR TRANSPORTATION OPTION

#### FIRST YEAR*

| Courses | Cr. Hrs. |
|---|---|
| ENGR 581 Intro to Engr | 2 |
| CEEGR 610 Surveying 1 | 4 |
| CEEGR 610L Surveying 1 Lab | 1 |
| MATH 571 Calc 1 | 5 |
| MATH 572 Calc 2 | 4 |
| MATH 673 Calc 3 | 5 |
| ENGL 550 Basic Comp 1 | 4 |
| ENGL 551 Basic Comp 2 | 4 |
| PHYS 510 Gen Physics 1 | 4 |
| PHYS 610 Gen Physics 2 | 4 |
| SOCSC Elec | 4 |
| SOCSC Elec | 4 |
| HSC 590 Health Education | 3 |
| HPES Activity | 1 |
| | 49 |

#### SECOND YEAR

| Courses | Cr. Hrs. |
|---|---|
| CEEGR 601 Mechanics 1 | 4 |
| CEEGR 602 Mechanics 2 | 4 |
| CEEGR 603 Mechanics 3 | 4 |
| MATH 674 Calc 4 (P) | 4 |
| MATH 705 Diff Equa 1 | 4 |
| ISEGR 642 Engr Comp | 4 |
| MECH 641 Dynamics | 4 |
| CEEGR 612 Cpt Mtd for Civil Engrs | 3 |
| CHEM 515 Gen Chem 1 | 4 |
| CHEM 516 Gen Chem 2 | 4 |
| GEOL 611 Geol for Engineers | 4 |
| MATH 743 Math Stat 1 | 4 |
| SPCH 651 Comm for Bus & Profsn | 3 |
| HPES Activity | 1 |

#### THIRD YEAR

| Courses | Cr. Hrs. |
|---|---|
| CEEGR 716 Fluid Mechanics | 3 |
| CEEGR 716L Fluid Mechanics Lab | 1 |
| CEEGR 720 Highway Engr | 4 |
| CEEGR 877 Systems Engr | 4 |

*Students deficient in high school Mechanical Drawing must take MECH 500.

| | |
|---|---|
| CEEGR 749 Structural Anal 1 | 4 |
| CEEGR 717 Hydraulic Engr | 4 |
| CEEGR 736 Environ Engr 1 | 4 |
| ELEGR 714 Circuits & Elect | 4 |
| MECH 603 Thermodynamics 1 | 4 |
| ISEGR 724 Engr Economy | 4 |
| Basic Science Elec | 4 |
| HPES Activity | 1 |
| CEEGR Selective Course I* | 4 |
| CEEGR Engr Sci Elective** | 4 |
| | 49 |

**FOURTH YEAR**

| Courses | Cr. Hrs. |
|---|---|
| CEEGR 855 Structural Design 1 | 4 |
| CEEGR 881 Soil Mechanics | 3 |
| CEEGR 881L Soil Mechanics Lab | 1 |
| CEEGR 856 Structural Design 2 | 4 |
| CEEGR 882 Soil & Foundation Engr. | 4 |
| CEEGR Selective Course II* | 4 |
| CEEGR Selective Course III* | 4 |
| CEEGR Design Elective** | 4 |
| CEEGR 863 Integrated Design Project | 4 |
| HUMAN Elec | 4 |
| PHIL 625 Introduction to Professional Ethics | 4 |
| HUMAN Elec | 4 |
| SOCSC Elec | 4 |
| | 48 |

### Selective Course I

| | |
|---|---|
| Structural | CEEGR 849 |
| Transportation | CEEGR 835 |

### Selective Course II

| | |
|---|---|
| Structural | CEEGR 857 |
| Transportation | CEEGR 820 |

### Selective Course III

| | |
|---|---|
| Structural | CEEGR 858 |
| Transportation | CEEGR 885 |

NOTE: Only courses in the elective areas of the CEEGR curriculum may be taken on a credit/no credit basis with the exception of those elective courses taken within the CEEGR department.

*Civil Engineering Selective Courses: The student must choose at least one area of concentration (structure or transportation) and take all of the selective courses for that area with the written consent of his/her advisor.

**CEEGR electives are selected from 700 and 800 level civil engineering courses with the written approval of the students' advisor. One CEEGR elective must be designated as an ABET design oriented course while others must be designated in the engineering science area.

### Normal Day Offerings

| FALL | WINTER | SPRING |
|---|---|---|
| 601 | 601 | 602 |
| 603 | 602 | 603 |
| 610 | 716 | 612 |
| 610L | 716L | 717 |
| 716 | 749 | 820 |
| 716L | 751 | 736 |
| 720 | 775 | 752 |
| 835 | 837 | 849 |
| 855 | 856 | 857 |
| 877 | 858 | 863 |
| 881 | 882 | 883 |
| 881L | 885 | 884 |

### Normal Night Offerings

| | FALL | WINTER | SPRING |
|---|---|---|---|
| 95-96 | 601 | 602 | 603 |
| | 610 | 716 | 863 |
| | 610L | 716L | |
| | | 749 | |
| 96-97 | 601 | 602 | 603 |
| | 881 | 716 | |
| | 881L | 716L | |
| | 885 | 856 | |
| | | 882 | |
| 97-98 | 601 | 602 | 603 |
| | 720 | 716 | 711 |
| | 610 | 716L | 711L |
| | 610L | 751 | 736 |
| 98-99 | 601 | 602 | 603 |
| | 877 | 716 | 612 |
| | 835 | 716L | 883 |
| | | 855 | 884 |

## ELECTRICAL ENGINEERING

*Professors Foulkes, Munro, Pansino (Chair), Rost, Skarote; Associate Professor Jalali.*

### Laboratory Facilities

The Electrical Engineering Department maintains modern, well-equipped laboratory facilities for circuits, electronics, communications, electromagnetics, energy conversion, control systems, and digital systems. The department also maintains Intel Microprocessor Development Systems with sufficient capability for complete design of both software and hardware for microprocessor-based systems. Both mainframe and PC computing is available.

### Course Descriptions

555. *Computer Engineering.* Introduction to the personal computer, typical application software, technologies, microprocessors, microcomputer programming and applications. Basic operation of digital circuits, interfacing using integrated chips, and analog computers. Experiments will accompany the lectures, providing practical experience for the students.
4 q.h.

555H. *Honors Computer Engineering.* The personal computer, its components, and the role it plays in control applications, instrumentation, and engineering design. Basic experiments using digital circuits, microcomputers, integrated circuits, and design software integrated into a project with the personal computer and instrumentation. Prereq.: or concurrent: ENGL 550H and admission to the Honors program or permission of instructor and Director of Honors. 4 q.h.

601. *Basic Circuit Theory 1.* Basic principles of linear circuits, circuit concepts and laws, methods of analysis, network theorems. Power in DC circuits. Transients in RC and RL circuits. Magnetic circuits. Prereq. or concurrent: MATH 572. 3 q.h.

602. *Basic Circuit Theory 2.* Sinusoids, phasors, complex numbers. Analysis of AC circuits, phasor diagrams, impedance and admittance, resonance. Power in AC circuits. Magnetic circuits with AC signals. Prereq. or concurrent: MATH 673, Prereq.: ELEGR 601. 3 q.h.

603. *Basic Circuit Theory 3.* Mutual inductance and transformers. Frequency response and transfer functions. Three phase circuits. Fourier series applications to non-sinusoidal periodic signals. Fourier transforms and laplace transforms in circuit analysis. Prereq.: ELEGR 602. 3 q.h.

*611. *Instrumentation and Computation Laboratory 1.* Theory and applications of laboratory instruments. Laboratory experimentation. Digital computer techniques using modern CAD software such as SPICE. Prereq. or concurrent: ELEGR 601 or equivalent. 1 q.h.

*612. *Instrumentation and Computation Laboratory 2.* Theory and applications of laboratory instruments. Laboratory experimentation. Digital computer techniques using modern CAD software such as SPICE. Prereq.: ELEGR 611, ENGL 551. 1 q.h.

*613. *Instrumentation and Computation Laboratory 3.* Theory and applications of laboratory instruments. Laboratory experimentation. Digital computer techniques using modern CAD software such as SPICE. Prereq.: ELEGR 602, 612. 1 q.h.

702. *Fundamentals of Logic Circuit Design.* Introduction to digital design concepts: number systems, Boolean algebra, logic gates, and truth tables. Minimization and design of combinational circuits: maps, variable-entered mapping theory, and reduction techniques. Combinational arithmetic circuits, comparators, multiplexers, coders and decoders, and their practical applications. Prereq.: ELEGR 707. 3 q.h.

703. *Linear Control Systems.* Introduction to analysis and design of linear, continuous-time and discrete-time systems using transfer functions and state-variable methods. Must be taken concurrently with ELEGR 703L. Prereq.: ELEGR 603. 3 q.h.

*703L. *Control Systems Laboratory.* Laboratory experiments and exercises designed to accompany ELEGR 703. Must be taken concurrently with ELEGR 703. Prereq.: ELEGR 613. 1 q.h.

704. *Electromagnetic Fields 1.* The study of Coulomb's law and electric field intensity, electric flux density, Gauss' Law and divergence, energy and potential, conductors, dielectrics and capacitance, the steady magnetic field. Must be taken concurrently with ELEGR 704L. Prereq.: ELEGR 603, ELEGR 613, PHYS 611, 611L, CEEGR 601, MECH 501 and INEGR 642. Prereq. or concurrent with MATH 706. 3 q.h.

*704L. *Electromagnetic Fields Laboratory 1.* Laboratory experiments and exercises to demonstrate and verify theories by a variety of methods including graphical and numerical methods using digital computation. Three hours of laboratory per week. Must be taken concurrently with ELEGR 704. 1 q.h.

705. *Electromagnetic Fields 2.* The study of Poisson's and Leplace's equations, magnetic forces, magnetic materials, inductance, time-varying electric and magnetic fields and Maxwell's equations. Must be taken concurrently with ELEGR 705L. Prereq.: ELEGR 704 and ELEGR 704L. 3 q.h.

*705L. *Electromagnetic Fields Laboratory 2.* Laboratory experiments and exercises to demonstrate and verify theories by a variety of methods including numerical methods with an emphasis on finite element analysis using digital computation. Three hours of laboratory per week. Must be taken concurrently with ELEGR 705. 1 q.h.

706. *Transmission and Microwave Principles.* The uniform plane wave, transmission lines, waveguides and resonators, antennas and radiation. Must be taken concurrently with ELEGR 706L. Prereq.: ELEGR 705 and ELEGR 705L. 3 q.h.

*706L. *Transmission and Microwave Principles Laboratory.* Waveguide/transmission-line experiments and exercises to demonstrate and verify theories by a variety of methods including numerical methods with an emphasis on finite element analysis using digital computation. Research project and presentation. Three hours of laboratory per week. Must be taken concurrently with ELEGR 706. 1 q.h.

707, 708. *Electronic Circuit Analysis and Design 1, 2.* Terminal characteristics of electronic devices such as diodes, bipolar junction transistors, and field-effect transistors. Bias and small-signal models. Single- and multi-stage amplifiers. Power amplifiers. Frequency response. Feedback. Oscillators. Prereq.: ELEGR 603. 3+3 q.h.

*707L, *708L. *Electronic Circuit Laboratory 1, 2.* Laboratory experiments and exercises designed to accompany ELEGR 707 and 708. Should be taken concurrently with ELEGR 707 and 708, respectively. Prereq.: ELEGR 613. Prereq. or concurrent: ELEGR 707 for 707L, ELEGR 708 for 708L. 1+1 q.h.

*Additional fee required.

709. *Communication Systems.* Signal Analysis. Power spectral density. Design and analysis of modulation, detection, selection, and transmission circuits and systems. Must be taken concurrently with 709L. Prereq.: ELEGR 708. 3 q.h.

*709L. *Communication Systems Laboratory.* Laboratory experiments and exercises designed to accompany ELEGR 709. Must be taken concurrently with ELEGR 709. Prereq.: ELEGR 708L. 1 q.h.

710. *Electronic Circuit Design with Operational Amplifiers.* The ideal op amp; performance limitations of nonideal op amps. Large-signal, small-signal and dc amplifiers. Linear circuit applications, filter design. Frequency compensation and stability. Sensitivity and error analysis. Computer-aided design of op amp circuits. Prereq.: ELEGR 708, and INEGR 642. 3 q.h.

714. *Circuits and Electronics.* Basic circuit elements and laws: DC and AC circuit analysis, operational amplifiers, sinusoidal analysis, circuit and system concepts. Electronics: diodes, transistors, amplifiers, electronic circuits and applications. Prereq. or concurrent: MATH 674. 4 q.h.

715. *Electrical Devices.* Digital devices and applications: digital logic, devices, circuits, and systems. Electromagnetic devices: magnetics, transformers, circuit models. Electromechanical devices: transducers, generators, and motors. Prereq.: ELEGR 714. 4 q.h.

717. *Sensor Fundamentals.* Basic principles of sensors such as electro-chemical, -mechanical, -optical, and -thermal transducers. Signal conditioning and smart sensors. Applications in process control and environmental systems. Prereq.: MATH 705; and either PHYS 611 or ELEGR 714. 4 q.h.

800. *Special Topics.* Special topics, new developments in Electrical Engineering. Subject matter, special prerequisites, and credit hours to be announced in advance of each offering. May be repeated under different subject matter to a maximum of eight credit hours. Prereq.: Senior standing in Electrical Engineering. 1-4 q.h.

805R. *Quantum Electronics.* Electronic energy levels in quantum electronic devices; energy transitions in crystalline and gaseous media. Applications to semiconductors, maser, and lasers. Three hrs. lecture and 3 hrs. laboratory. Prereq.: ELEGR 706, ELEGR 708. 4 q.h.

807R. *Pulse, Digital and Switching Circuits.* The generation and processing of nonsinusoidal waveforms in active and passive devices and circuits. Pulse, digital, and switching waveforms. Prereq.: ELEGR 702, ELEGR 709. 4 q.h.

808R. *Electronic Circuits Signals and Systems.* A continuation of Electrical Engineering 709 with emphasis on problems arising from communications and electronics areas. Correlation of classical differential equations approach to time and frequency domain interrelationships with Fourier and Laplace methods, and applications of these concepts to problems in communications and control arts. Numerical methods, including impulse-train techniques. Prereq.: ELEGR 709. 4 q.h.

812R. *Molecular Engineering.* Treatment of materials of electrical engineering in terms of atomic, nuclear, and molecular phenomena. Interaction between electromagnetic fields and materials; classical treatment and quantum effects; particle statistics in thermal equilibrium. Conduction in metals, semiconductors, and super-conductors; electric and magnetic polarization; ferro-electricity and ferromagnetism; electromechanical and magnetic mechanical effects; influence of material properties on energy storage, conversion, and control. Three hrs. lecture and 3 hrs. laboratory. Prereq.: ELEGR 706, MECH 641. 4 q.h.

816. *Theory and Fabrication of Solid-state Devices.* An introductory study of physical theory, design, and fabrication of discrete devices and integrated circuits. Electronic properties of semiconductors such as carrier concentration, energy gap, mobility, lifetime. Techniques of fabrication such as oxidation, diffusion, alloying, ion implantation, metalization, masking. Prereq.: ELEGR 708, PHYS 510, ELEGR 705. 4 q.h.

817. *Sensor Design and Application.* Design and applications for measurement and control; includes electro-chemical, -mechanical, -optical, and -thermal transducers. Signal conditioning and smart sensors. Prereq.: ELEGR 704 and ELEGR 707. 4 q.h.

819R. *Plasma Dynamics.* The application of plasmakine tic theory; charged particle interaction; waves in plasma; plasma oscillation; magnetic fluid dynamics; plasma gyrations to electrical problems. Prereq.: ELEGR 706, MECH 641. 4 q.h.

823. *Microprocessor Design and Applications.* Analysis of modern storage devices, microprocessor architecture, potential applications and limitations, implementation, peripheral devices, interfacing, and typical microcomputer applications. Must be taken concurrently with ELEGR 823L. Prereq.: ELEGR 826, ELEGR 826L. 3 q.h.

*823L. *Microprocessor Design and Applications Laboratory.* Laboratory exercises to provide the students with hands-on-experience in the area of microprocessor programming and interfacing. Must be taken concurrently with ELEGR 823. Three hours laboratory. 1 q.h.

824. *Advanced Microprocessor Design and Applications.* Designs and applications based upon different microprocessors will be studied using microprocessor development systems. Must be taken concurrently with ELEGR 824L. Prereq.: ELEGR 823. 3 q.h.

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*Additional fee required.

*824L. *Advanced Microprocessor Design and Applications Laboratory.* Laboratory exercises in the area of microprocessor design and applications using microprocessor development systems. Three hours laboratory per week. Must be taken concurrently with ELEGR 824. Prereq.: ELEGR 823. 1 q.h.

825. *Sequential Logic Circuits Analysis and Design.* Sequential machine fundamentals: basic cell, flip-flops, timing and triggering considerations, and types of sequential machines. Traditional approaches to sequential analysis and design: state diagrams, basic design fundamentals, and registers and counters. Introduction to multi-input system controller design: controllers, design requirements, and clocks and power supply requirements. Must be taken concurrently with ELEGR 825L. Prereq.: ELEGR 702. 3 q.h.

*825L. *Combinational and Sequential Circuits Laboratory.* Laboratory exercises to accompany ELEGR 825. Must be taken concurrently with ELEGR 825. Three hours laboratory. 1 q.h.

826. *Advanced Logic Circuits Analysis and Design.* System controllers utilizing combinational MSI/LSI circuits: decoders, multiplexers, memories, and logic arrays. Introduction to programmable system controllers: types and general requirements. Asynchronous finite state machines: asynchronous circuits design, cycles and races, and hazards. Must be taken concurrently with ELEGR 826L. Prereq.: ELEGR 825 and 825L. 3 q.h.

*826L. *Advanced Logic Circuits Laboratory.* Laboratory exercises to accompany ELEGR 826. Must be taken concurrently with ELEGR 826. Three hours laboratory. 1 q.h.

840. *Electric Power Systems.* Power system engineering. Modeling of power system components, including synchronous generators, transformers, transmission lines, cables, and circuit breakers. Analysis and design of power system networks while considering power flow, faults, protection systems, and stability. Must be taken concurrently with ELEGR 840L. Prereq. or concurrent: ELEGR 845. 3 q.h.

840L. *Electric Power Systems Laboratory.* Laboratory experiments and exercises to accompany ELEGR 840, including application of digital computer methods for analysis and design. Must be taken concurrently with ELEGR 840. 1 q.h.

844, 845. *Electromagnetic Energy Conversion 1, 2.* An examination of lumped parameter electromechanics as related to electromagnetic field theory with development of theoretical and design parameters for electrical energy conversion devices such as transformers, dc motors and generators, synchronous motors and generators and induction motors including typical and special applications of each. Must be taken concurrently with ELEGR 844L, ELEGR 845L, respectively. Prereq. or concurrent MECH 641. Prereq.: ELEGR 603, ELEGR 613, ELEGR 705. 3+3 q.h.

*844L, *845L. *Electromagnetic Energy Conversion Laboratory 1 and 2.* Required experimental work designed to accompany the corresponding lecture courses. In addition to experiments for ELEGR 844L: Research project and presentation. Three hours lab each week. Must be taken concurrently with ELEGR 844, ELEGR 845, respectively. 1+1 q.h.

850. *Communications Systems 2.* Signal detection in noise. Averages, sampling spectral analysis, shot noise, the Gaussian process, linear systems, noise figures, optimum linear systems, nonlinear devices. The direct method. Nonlinear devices; the transform method, detection of signals. Prereq.: ELEGR 808R. 4 q.h.

860. *Energy Radiation and Propagation.* Examination of dipole, loop aperture, reflector, lens, surface wave, traveling wave, and other antennas; array theory; radiation resistance, directivity, and input impedance. Investigation of theoretical and practical applications of fiber optics. Prereq: ELEGR 706. 4 q.h.

879. *Computer-Aided Design of Electrical Networks and Systems.* The design, analysis, and modeling of linear and nonlinear networks and systems using a modern computer program. Development and use of library models of devices, subcircuits, and subsystems. The student will do at least one design project. Prereq.: ISEGR 642 and any two of ELEGR 703, 709, or 710. 4 q.h.

880. *Linear Control System Design.* Linear control system compensation techniques in both the time and frequency domains. Design of analog and digital compensators. Compensation to eliminate the effects of parameter variations. Prereq.: ELEGR 703. 4 q.h.

881. *Modern Control System Design.* Design of analog and digital compensators using state-variable techniques. Design of compensators for minimum fuel constraints and minimum mean square error. Prereq.: ELEGR 703. 4 q.h.

890. *Power Electronics.* The design and analysis of power circuits using solid state power devices. Topics include rectifiers, thyristor commutation techniques, phase-controlled rectifiers, applications of forced commutation techniques, AC voltage controllers, converters and inverters, and DC/AC drives. Prereq.: ELEGR 703, 705, and 708. 4 q.h.

## CURRICULUM FOR THE DEGREE OF BACHELOR OF ENGINEERING WITH THE MAJOR IN ELECTRICAL ENGINEERING

The Electrical Engineering Bachelor of Engineering degree requires 78 hours of Electrical Engineering coursework. In addition, 31 quarter hours of out-of-department Engineering; 26 quarter hours of Basic

*Additional fee required.

Science; 26 quarter hours of Mathematics (beyond Trigonometry); 24 quarter hours of Social Studies and Humanities (12 of which must be Humanities); 6 quarter hours of Health and Physical Education; 8 quarter hours of English (Basic Composition 1 and 2) are required.

A quarter-by-quarter arrangement of courses for each individual student is compiled and approved in consultation with the student's Electrical Engineering advisor. Students must carefully plan their program to meet time constraints in course scheduling and also to prepare for career goals.

The student must carefully plan the program as it is currently impossible to offer each course every quarter and many courses must follow specific sequences.

## ELECTRICAL ENGINEERING CURRICULA

### FIRST YEAR

| Courses | Cr. Hrs. |
|---|---|
| MATH 571, 572, 673 Calculus 1, 2, 3 | 14 |
| CHEM 515, 516 General Chemistry 1, 2 | 8 |
| MECH 501 Engineering Drawing | 3 |
| PHYS 510 General Physics 1 | 4 |
| PHYS 610 General Physics 2 | 4 |
| PHYS 610L General Physics 2 Laboratory | 1 |
| ISEGR 642 Engineering Computations | 4 |
| ENGR 581 | 2 |
| ENGL 550, 551 Basic Composition 1, 2 | 8 |
| Humanities Elective | 4 |
| HPES Activities | 1 |
| | 53 |

### SECOND YEAR

| Courses | Cr. Hrs. |
|---|---|
| MATH 674 Calculus 4 | 4 |
| MATH 705, 706 Differential Equations 1, 2 | 8 |
| CEEGR 601 Mechanics 1 | 4 |
| MECH 603 Thermodynamics | 4 |
| MECH 641 Dynamics | 4 |
| MTEGR 606 Engineering Materials | 4 |
| PHYS 611 General Physics 3 | 4 |
| PHYS 611L General Physics Laboratory | 1 |
| ELEGR 601, 602, 603 Basic Circuit Theory 1, 2, 3 | 9 |
| ELEGR 611, 612, 613 Instrumentation and Computation Laboratories 1, 2, 3 | 3 |
| PHIL 625 Introduction to Professional Ethics | 4 |
| | 49 |

### THIRD YEAR

| Courses | Cr. Hrs. |
|---|---|
| ELEGR 702 Fund. of Logic Circuit Design | 3 |
| ELEGR 703 Linear Control Systems | 3 |
| ELEGR 703L Control Systems Laboratory | 1 |
| ELEGR 704, 705, 706 Field Theory 1, 2, 3 | 9 |
| ELEGR 704L, 705L, 706L, Field Theory Laboratory 1, 2, 3 | 3 |
| ELEGR 707, 708 Electronic Circuit Analysis | 6 |
| ELEGR 707L, 708L Electronic Circuit Laboratory 1, 2 | 2 |
| ELEGR 709 Communication Systems | 3 |
| ELEGR 709L Communication Systems Laboratory | 1 |
| ELEGR 710 Elec. Circ. Desg.-Op. Amp. | 3 |
| Science Elective | 4 |
| Engineering Science Elective | 3 |
| ECON 530 Principles 1 | 4 |
| PSYCH 560 General Psychology | 4 |
| | 49 |

### FOURTH YEAR

| Courses | Cr. Hrs. |
|---|---|
| ELEGR 844, 845 Electromagnetic Energy Conversion 1, 2 | 6 |
| ELEGR 844L, 845L, Electromagnetic Energy Conversion Laboratory 1, 2 | 2 |
| ELEGR Electives | 24 |
| Engineering Science Elective | 3 |
| Social Studies Electives | 4 |
| HSC 590 Health | 3 |
| HPES Activities | 2 |
| HUMAN Elective | 4 |
| | 48 |

### Department Technical Electives

| Courses | Cr. Hrs. |
|---|---|
| ELEGR 800 Special Topics | 1-4 |
| ELEGR 805R Quantum Electronics | 4 |
| ELEGR 807R Pulse, Digital and Switching Circuits | 4 |
| ELEGR 808R Electronic Circuits Signals and Systems | 4 |
| ELEGR 812R Molecular Engineering | 4 |
| ELEGR 816 Theory and Fabrication of Solid-State Devices | 4 |
| ELEGR 819R Plasma Dynamics | 4 |
| ELEGR 823 Microprocessor Design and Applications | 4 |
| ELEGR 825 Sequential Logic Circuits Analysis and Design | 3 |
| ELEGR 825L Combinational and Sequential Logic Circuits Laboratory | 1 |
| ELEGR 826 Advanced Logic Circuits Analysis and Design | 3 |
| ELEGR 826L Advanced Logic Circuits Laboratory | 1 |
| ELEGR 840 Electric Power Systems | 4 |
| ELEGR 850 Communication Systems 2 | 4 |
| ELEGR 860 Energy Radiation and Propagation | 4 |
| ELEGR 879 Computer-Aided Design of Electrical Networks | 4 |
| ELEGR 880 Linear Control System Design | 4 |
| ELEGR 881 Modern Control System Design | 4 |
| ELEGR 890 Power Electronics | 4 |

# INDUSTRIAL AND SYSTEMS ENGINEERING

*Professors Driscoll (Chair), Mehri and Sorokach; Assistant Professor Cala.*

Industrial and Systems engineering is a broad professional discipline concerned with the effective use of the basic resources of production — people, equipment and materials. The industrial and systems engineer functions as a problem-solver, innovator, coordinator and agent of change in a wide variety of positions in the manufacturing industries, the service industries, and the government. The industrial and systems engineer's unique background combines a study of science, mathematics and management principles with the principles of engineering analysis and design to provide access to a wide variety of flexible technical and managerial careers.

The aim of the Industrial and Systems Engineering Department is to produce graduates who secure professional engineering positions, who practice the profession ethically and effectively, who maintain their professional competency through lifelong learning, and who advance in one of the many technical and managerial career paths available to industrial and systems engineers. The program prepares its students for these accomplishments by providing them with a broad scientific and engineering base via courses in mathematics, physics, chemistry and the engineering sciences. In addition, courses in the social sciences and the humanities develop a sensitivity to the social context within which the profession must be ethically practiced. Finally, industrial and systems engineering courses in the areas of manufacturing systems, human-machine systems, management systems, and management science develop the technical expertise required by professional practice.

The above areas–mathematics, communications, the physical sciences, the humanities and social sciences, and engineering topics– constitute over two-thirds of the ISE program at YSU. The areas provide the student with a requisite base of knowledge and technical expertise for both practicing the profession and contributing to society as conscientious citizens. However, the skills and abilities of the practicing professional industrial and systems engineer range far beyond mere technical expertise. They practice the profession in a social and cultural medium. Their work often impacts nontechnical people not only in their company but also in society at large. Consequently, in addition to providing technical expertise, ISEs employ a wide variety of non-technical skills in practicing the profession, including:

- critical thinking;
- problem-solving;
- written and oral communication;
- computer use;
- project management, including time management, teamwork or leadership;
- laboratory work, including design of experiments or data acquisitions; and
- data management and statistical analysis.

All of these skills contribute to the development of the ability to apply pertinent knowledge to the identification and solution of discipline-related problems of society. The industrial and systems engineering program at YSU aims to develop these skills throughout its program.

## Industrial and Systems Engineering Laboratories

The Industrial and Systems Engineering Laboratories in the Engineering Science Building include a computations laboratory, a facilities design laboratory, a manufacturing laboratory, and a methods laboratory.

The computations laboratory is equipped with microcomputers and auxiliary hardware and software. The available software includes assembly language, BASIC, FORTRAN, GPSS, Pascal, a spread sheet program and a word processing language.

The facilities design laboratory is equipped with drafting equipment, layout tables and miscellaneous scale models for facilities layouts.

The manufacturing laboratory contains injection molding machines, a compact CNC lathe with computer simulation capability, a compact CNC milling machine, and various assorted measurement devices.

The methods laboratory contains time study equipment, including a video tape recorder with time lapse capability, a conveyor system and several robots which can be controlled by computer.

In addition, Industrial and Systems Engineering facilities include Computer-Aided Design (CAD) and Computer-Aided Manufacturing (CAM) laboratories. The CAD laboratory includes over thirty IBM 386 CAD workstations, each with AutoCAD software for computer-aided drawing. The work stations are linked to the University's microcomputer network and to plotters and printers. The CAM laboratory includes a CNC lathe, a CNC milling machine, a conveyor system, two industrial robots and accessories.

## Industrial and Systems Engineering Courses

620. *Engineering Statistics.* Applications of data collection and analysis techniques to engineering problems. Techniques for data structuring, data modeling, parameter estimation, and design of experiments utilizing engineering data. Prereq.: ISEGR 642. 4 q.h.

625. *Industrial Organization and Management.* The general principles of industrial organization and management. 4 q.h.

636. *Methods Engineering.* Techniques for analysis of task performance, the use of process charts and various methods of work simplification, human-machine relation analysis. Theory and practice of time study and other methods of measuring and establishing performance level and productivity. Prereq.: ISEGR 620. 4 q.h.

*636L. *Methods Engineering Laboratory.* Practice in analyzing and recording tasks. Determination of time standards and productivity requirements. Analysis and evaluation of actual plant operations. Taken concurrently with ISEGR 636. Three hours of laboratory per week. 1 q.h.

*642. *Engineering Computations.* Flow diagramming, problem layout and problem structuring for the numerical solution of elementary engineering problems on a digital computer. Engineering problems will be solved by using a structured language on digital computers. Prereq.; MATH 572. 4 q.h.

714, 715. *Industrial Engineering Design 1, 2.* The engineering design process and application of quantitative methods of decision making techniques in the design and evaluation of industrial processes and systems for assuring reliability of performance. Emphasis on the philosophy of engineering design, problem definition, search for alternative solutions and specifications of the final solution. Prereq.: ISEGR 642 for ISEGR 714; ISEGR 714 for ISEGR 715. 4+4 q.h.

724. *Engineering Economy.* The analysis and evaluation of factors that affect the economic success of engineering projects. Topics include interest, depreciation, cost classification, comparison of alternatives, make-buy decisions, replacement models and after-tax analysis. Prereq.: MATH 673, ISEGR 642. 4 q.h.

725. *Manufacturing Engineering.* Techniques of metal cutting and a description of metal removing equipment along with an investigation of economical optimization of machining parameters. Associated topics include numerically controlled machine tool languages, computer aided manufacturing, metal forming and plastic molding. Prereq.: MATH 705, ISEGR 642. Prereq. or concurrent with MTEGR 606. 4 q.h.

*725L. *Manufacturing Engineering Laboratory.* Experimental work in measurement and gaging, practice in the operation and analysis of several machining, joining and molding processes. Operation of numerically controlled machines and simple NC programming. Taken concurrently with ISEGR 725. Three hours of laboratory. Prereq.: MATH 705, ISEGR 642. Prereq. or concurrent: MTEGR 606. 1 q.h.

*727. *Industrial Engineering Analysis.* Background and techniques for the use of descriptive mathematical models in solving complex engineering problems. Emphasis on the numerical solution of problems which cannot be solved analytically. Inventory, queueing, and material handling systems will be simulated. Prereq.: ISEGR 620, ISEGR 642, ISEGR 715. 4 q.h.

730. *Quality Control.* Tools for distinguishing between chance and assignable causes of quality variation in production processes. Introduction to the mean, standard deviation and range charts for variables and the P and C charts for attributes. A statistical approach to acceptance procedures. Applications of statistical process control to manufacturing operations, reliability and life testing. Prereq.: ISEGR 620. 4 q.h.

745. *Accounting for Engineers.* Fundamentals of financial and cost accounting as applied to engineering. Prereq.: ISEGR 724. 4 q.h.

750. *Introduction to Engineering Relations.* The interaction of engineering practices and society. Regulatory considerations in the preparation and criticism of contracts and specifications. Emphasis on the interrelationship of engineering systems with law, society, and ethics. Prereq.: Junior standing. 4 q.h.

801. *Linear Programming.* Formulation and solution of engineering problems using linear programming. Model formulation, the primal, dual and transportation simplex methods, duality theory, and sensitivity analysis. Prereq.: MATH 705. 4 q.h.

810. *Special Topics.* Special topics and new developments in Industrial Engineering. Subject matter, credit hours, and special prerequisites to be announced in advance of each offering. Prereq.: Senior standing in Industrial Engineering or consent of instructor. 1-4 q.h.

815. *Production Planning and Control.* The application of the fundamentals and techniques of forecasting, aggregate planning, material requirement planning, scheduling, machine assignment and inventory to the design of production control systems. Prereq.: ISEGR 620, ISEGR 801. 4 q.h.

821-822. *Facilities Design.* The application of engineering techniques to the analysis, design, and justification of production facilities which may be product and/or service oriented. Equipment selection, process flow, material flow and material handling will be considered in the design of facilities. The system design will involve field investigation, acquisition and analysis of data, use of computer-aided facilities planning and design software, preparation of drawings and writing a final report. Prereq.: ISEGR 636 and ISEGR 725. Prereq. or concurrent: ISEGR 850 and 150 hours of engineering degree credit completed. 4+4 q.h.

823. *Automation and Computer-Aided Manufacturing.* Fundamental concepts in manufacturing, automation and automation strategies. Analysis of high volume discrete parts production lines . Automated flow lines and line balancing. Introduction to numerical control, Computer-Aided Manufacturing/Design and Robotics. Fundamentals of manufacturing support systems, group technology and flexible manufacturing systems. Prereq.: ISEGR 725. 4 q.h.

*Additional fee required.

825. *Advanced Engineering Economy.* An extension of the topics in engineering economy. Analysis of rationale and norm of decision making, risk and uncertainty models, utility theory, measurement of productivity; and advanced project comparison methods. Prereq.: ISEGR 724. 4 q.h.

830. *Human Factors Engineering.* Various aspects of human factors in the design of human-machine systems and environments. Study of human sensory, perceptual, mental, psychomotor, and other characteristics; techniques of measuring human capabilities, limitations, safety, comfort, and produc tivity. Prereq.: ISEGR 620. 4 q.h.

840. *Reliability Engineering.* Introduction to reliability as a probabilistic concept, including: measurement, control, maintenance, repair and replacement, and life testing. Prereq.: MATH 705. 4 q.h.

841-842-843. *Industrial Engineering Thesis.* The student prepares a written report of at least 2,500 words on an investigation of a subject selected by the student and agreed upon by the major advisor and the department chair. Conferences scheduled as required. Prereq.: 150 hours of degree credit completed. 2+2+2 q.h.

850. *Operations Research.* Formulation and solution of industrial engineering problems using operations research models. Topics covered include queueing models and the specialization of linear models to equipment replacement, project planning, assignment, and transshipment problems. Prereq.: ISEGR 801. 4 q.h.

860. *Operations Engineering.* Application of analytical tools of operations research and linear programming to operational problems of industry. Emphasis on the practical aspects of applying the tools, including data collection, modeling, model verification, and the interpretation, documentation, and presentation of the results. Prereq. or concurrent: ISEGR 727. Prereq.: ISEGR 801, ISEGR 850. 4 q.h.

870. *Robotics.* Manipulator kinematics, robot dynamics and programming, sensors and machine vision, machine intelligence and robot planning. Prereq.: MATH 705. 4 q.h.

## CURRICULUM FOR THE DEGREE OF BACHELOR OF ENGINEERING WITH THE MAJOR IN INDUSTRIAL AND SYSTEMS ENGINEERING

### FIRST YEAR

| Courses | Cr. Hrs. |
|---|---|
| MATH 571, 572, 673 Calculus 1, 2, 3 | 14 |
| PHYS General 1 | 4 |
| ENGL Basic Composition 1, 2 | 8 |
| SOCST Elective* | 4 |
| MECH 501 Engineering Drawing | 3 |
| ENGR 581 | 2 |
| HPES Activity | 1 |
| CHEM General 1, 2 | 8 |
| HSC 590 | 3 |
| ISEGR 642 Engineering Computations | 4 |
| | 51 |

### SECOND YEAR

| Courses | Cr. Hrs. |
|---|---|
| MATH 674 Calculus 4 | 4 |
| MATH 705 Differential Equations 1 | 4 |
| MATH Elective | 4 |
| PHYS General 2, 3 | 8 |
| CEEGR 601, 602 Mechanics 1, 2 | 8 |
| MTEGR 606 Materials | 4 |
| ISEGR 620 Engineering Statistics | 4 |
| ISEGR 636 Methods Engineering | 4 |
| ISEGR 636L Methods Engineering Lab | 1 |
| ISEGR 724 Engineering Economy | 4 |
| SPCH 651 Business and Professional | 3 |
| HPES Activities | 2 |
| | 50 |

### THIRD YEAR

| Courses | Cr. Hrs. |
|---|---|
| ISEGR Elective* | 4 |
| ISEGR 714, 715 Design 1, 2 | 8 |
| ISEGR 727 Analysis | 4 |
| ISEGR 730 Quality Control | 4 |
| ISEGR 725 Manufacturing Engineering | 4 |
| ISEGR 725L Manufacturing Engineering Lab | 1 |
| ELEGR 714 Circuits and Electronics | 4 |
| ISEGR 801 Linear Programming | 4 |
| MECH 641 Dynamics | 4 |
| SOCST Electives* | 8 |
| HUMAN Elective* | 4 |
| | 49 |

### FOURTH YEAR

| Courses | Cr. Hrs. |
|---|---|
| Engineering Electives* | 8 |
| ISEGR Electives* | 8 |
| ISEGR 815 Production Planning | 4 |
| ISEGR 821, 822 Facilities Design 1, 2 | 8 |
| ISEGR 850 Intro to Operations Research | 4 |
| ISEGR 860 Operations Engineering | 4 |
| SCI Elective* | 4 |
| HUMAN Elective* | 8 |
| | 48 |

## MATERIALS ENGINEERING

*Professors Ahmed, Jones (Director), and McCoy.*

Materials Engineering Division unifies the basic concepts and engineering principles of ceramic, metallurgical, and polymer engineering, and includes the study of composite and electronics materials. In the program, emphasis is placed on the relationships between materials structures and materials properties.

*All electives must be selected with the consent of the student's departmental advisor.

Materials processing and their effects on materials structures are stressed. Materials studied include ferrous and non-ferrous metallics, ceramics and cermets, composites, polymers, and high tech electronic materials. The program prepares students for a wide range of industrial employment. Graduates of the program are employed by various industries including primary ferrous and non-ferrous metals producers, foundries, automobile and related industries, aircraft companies, electronic firms, petroleum and other major chemical companies, and nuclear-related companies. Students are also prepared for entrance to Graduate School for further studies.

Students from physical and biological sciences, mathematics, and other engineering disciplines may transfer to Materials Engineering at the beginning of the second year without loss of time or academic credit.

A graduate program leading to the Degree of Master of Science in Materials Science is available for students who wish to continue their graduate studies at YSU. This program is described in the Graduate School Bulletin.

The Materials Engineering laboratory facilities contain state-of-the-art equipment. Included are transmission and scanning electron microscopes. The SEM is equipped with a computer-controlled, energy dispersive x-ray analyzer unit. Atomic structures are studied by x-ray diffraction. A unique calorimetric laboratory is equipped to examine phase transformations in a wide range of materials. Modern metallographic and heat treatment laboratories complete the facilities.

601. *Introduction to Materials Science 1.* Discussions of the basic electronic structure and properties of materials, theory of binding in solids — metals, alloys, semiconductors, ceramics, and plastic materials; electrical and magnetic properties of materials. Electron emission; electronic specific heat. Prereq.: CHEM 515 or consent of instructor. 4 q.h.

602. *Introduction to Materials Science 2.* Discussion of crystallography, the elastic and plastic properties of materials, ductile and brittle behavior of metals, plastic deformation, imperfections in crystals, elementary ideas of point defects, dislocations and their basic crystallization, and grain growth. Prereq.: MTEGR 601 or consent of instructor. 4 q.h.

603. *Introduction to Materials Science 3.* Discussion of phase equilibria and phase diagrams. Kinetics of phase changes, diffusionless and diffusion-controlled phase transformation. Industrial metallurgy. Principles of heat treatment. Structural materials. Prereq.: MTEGR 602 or consent of instructor. 4 q.h.

606. *Engineering Materials.* Manufacturing processes, properties and uses of engineering materials such as ferrous and non-ferrous alloys, ceramics, concrete, polymers, and composites. Manufacturing processes to be covered are refining processes, heat treatments, and forming operations. Properties to be discussed are strength and strength-related properties such as hardness, ductility, creep, fatigue; corrosion resistance; and electrical properties. These properties will be related to the engineering applications and uses of various materials. An introduction to testing methods used to measure various properties of materials. Prereq.: For engineering students whose major is other than Materials Engineering. 4 q.h.

*630, *631. *Materials Engineering Laboratory 1, 2.* Preparation, examination, and analysis of metallographic samples. Experiments on heat treatments of ferrous and non-ferrous alloys; thermal treatments of ceramic materials. Written and oral reports required. Two hours lecture and six hours laboratory. Prereq.: MTEGR 601. 4 + 4 q.h.

*742. *Mechanical Behavior of Materials.* Discussion of elastic and plastic behaviors of materials including effects of temperature, strain rate, and state of stress. Evaluation of mechanical properties by tension, torsion, impact, and hardness tests. Yielding theories and use of Mohr's Circle applied to common deformation processes such as forging, rolling, extrusion and wire drawing. Written and oral reports required. Three hours lecture and three hours laboratory. Prereq.: MTEGR 603. 4 q.h.

751. *Polymer Materials.* Manufacture, structure, and properties of polymers. Emphasis on quantitative treatment of mechanical properties of polymers. Forming and shaping techniques included. Prereq.: MTEGR 603. 4 q.h.

752. *Ceramic Materials.* Atomic and crystalline structures, microstructures, and properties of ceramics and glasses. Emphasis on mechanical and physical properties including electric and magnetic characteristics. Prereq.: MTEGR 603. 4 q.h.

753. *Electronic Properties of Materials.* Theoretical aspects of solid state electronic, magnetic, and photonic materials. Processing and applications of solid state devices included. Prereq.: MTEGR 603. 4 q.h.

763. *Thermodynamics of Materials 1.* Principles of thermodynamics and their applications to materials, metallurgical systems, processes and alloys. Prereq.: MATH 674 and CHEGR 681. 4 q.h.

779. *Casting, Welding and Solidification.* General discussion of the engineering aspects of welding and solidification of ferrous and non-ferrous alloys. Prereq.: MTEGR 603. 4 q.h.

780. *Materials Processing.* Stoichiometric and thermodynamic principles applied to processing of materials. Production of steels, non-ferrous alloys, and ceramic materials included. Prereq.: CHEGR 681. 4 q.h.

781. *Powder Metallurgy.* Scope of powder metallurgy, production of powders, sintering powders, diffusion bonding, basic theories, application. Prereq.: MTEGR 603. 4 q.h.

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*Additional fee required.

782. *Phase Diagrams.* Discussion and interpretation of phase diagrams of multi-component systems. Prereq.: MTEGR 603. 4 q.h.

783. *Ferrous and Non-ferrous Alloys.* Basic scientific principles and theories applied to the design and heat treatment of alloys. Constitution, microstructure, heat treatment, phase distribution, and properties of ferrous and non-ferrous alloys. Prereq.: MTEGR 603. 4 q.h.

784. *Crystallography.* Study of the relationships between the external macroscopic symmetry and the internal atomic symmetry of crystalline materials. Application of stereographic projection techniques to the study of symmetry. Prereq.: MTEGR 603. 4 q.h.

820, 821. *Principles of Extractive Metallurgy 1, 2.* Unit operations approach to pyrometallurgical, hydrometallurgical, and electrometallurgical processes used to produce ferrous and non-ferrous metallic materials. Mass and thermal balances are used to analyze the various stages of the above processes. Included in these analyses will be primary and secondary treatments of ores, primary reduction methods, and refining techniques. Computer methods are used in the analyses. Prereq.: CHEGR 681; ISEGR 642 and MTEGR 780. 4+4 q.h.

855. *Composite Materials.* Structure and engineering properties of composite materials. Emphasis on numerical treatment of mechanical behavior. Case studies on design and manufacture of composite materials included. Prereq.: MTEGR 753. 4 q.h.

*861. *X-ray Diffraction and Electron Microscopy.* Theories, principles, and application of x-ray diffraction and electron microscopy techniques for examining and analyzing engineering materials. Written and oral reports required. Three hours lecture and three hours laboratory. Prereq.: MTEGR 753. 4 q.h.

*862. *Applied X-rays 2.* Application of X-rays in physical metallurgy to determine solubility, lattice structure, atom location, grain size, preferred orientation, phase diagrams. Two hrs. lecture + 3 hrs. laboratory. Prereq.: MTEGR 861. 3 q.h.

864. *Thermodynamics of Materials 2.* Applications of thermodynamics principles to materials systems theory of alloys. Prereq.: MTEGR 780. 4 q.h.

865. *Advanced Science of Materials.* Structure and properties of materials; theories of binding in solid-free electron theory, based theory, and zone theories, density of states; electrical and magnetic behaviors, theory of alloys phases; structure by alloys. Prereq.: MTEGR 753. 4 q.h.

866. *Special Topics.* Special topics in materials engineering which are of current research interest. Course may be repeated once with a different topic. Prereq.: Junior standing in engineering or consent of instructor. 4 q.h.

*867. *Fractography and Failure Analysis.* Most common modes of failure of engineering materials including overloading, impact loading, fatigue, wear, and corrosion. The causes of failure are diagnosed from the study of the macroscopic and microscopic features on the fracture surfaces. Analysis using the stereomicroscope, scanning electron microscope, and stereo-imaging will be covered in the laboratory section. Three hours lecture and three hours laboratory. Prereq.: Junior standing in engineering and MTEGR 741 or MTEGR 606. 4 q.h.

*868. *Scanning Electron Microscopy of Engineering Materials.* Theory and operation of the scanning electron microscope (SEM) and the energy dispersive x-ray analyzer. Individual term projects involve sample preparation, taking photomicrographs, and performing energy dispersive x-ray analysis. Three hours lecture and three hours laboratory per week. Prereq.: Junior standing in engineering and MTEGR 603 or MTEGR 606. 4 q.h.

871. *Physical Metallurgy 4.* Discussion on theories of corrosion, age-hardening; gases in metals. Prereq.: MTEGR 753. 4 q.h.

872. *Refractory Metals and Alloys.* Production and processing of refractory metals; physical and mechanical properties of the metals and their alloys; design of refractory alloys. Prereq.: MTEGR 753. 4 q.h.

887. *Metallurgical Design.* Application of design principles including the analysis of material property requirements for new or improved products. Selection techniques to find optimum cost effective materials and processes for various applications. Other topics included are manufacturing quality control procedures, product liability considerations and professional ethics. Prereq.: MTEGR 753. 4 q.h.

891-892-893. *Thesis 1, 2, 3.* The student carries out an investigation on an approved project under the major advisor. The project must be formally approved by the department head. Prereq.: Senior standing or 150 q.h. 2-4 q.h. each

## CURRICULUM FOR THE DEGREE OF BACHELOR OF ENGINEERING WITH A MAJOR IN MATERIALS ENGINEERING

### FIRST YEAR

| Courses | Cr. Hrs. |
|---|---|
| ENGR 581 | 2 |
| CHEM 515, 515L, 516, 516L, 517, 517L General Chemistry | 12 |
| MATH 571, 572, 673 Calculus | 14 |
| ENGL 550, 551 Basic Composition | 8 |
| Liberal Arts Elective | 8 |
| HSC Health 590 Health Education | 3 |
| HPES Activity | 2 |



*Additional fee required.

Note A: Students without background in Mechanical Drawing must enroll in MECH 500 Drawing Fundamentals.

**SECOND YEAR**

| Courses | Cr. Hrs. |
|---|---|
| MTEGR 601, 602, 603 Introduction to Materials Science | 12 |
| MTEGR 630, 631 Materials Engineering Laboratory 1, 2 | 8 |
| PHYS 510, 610, 610L, 611, 611L General Physics | 14 |
| MATH 674 Calculus | 4 |
| MATH 705 Differential Equations | 4 |
| CHEGR 681 Industrial Stoichiometry | 4 |
| ISEGR 642 Engineering Computations | 4 |
| HPES, Activity | 1 |
| | 51 |

**THIRD YEAR**

| Courses | Cr. Hrs. |
|---|---|
| MTEGR 742 Mechanical Behavior of Materials | 4 |
| MTEGR 751 Polymer Materials | 4 |
| MTEGR 752 Ceramic Materials | 4 |
| MTEGR 753 Electronic Properties of Materials | 4 |
| MTEGR 780 Materials Processing | 4 |
| MTEGR Elective | 4 |
| CEEGR 601, 602 Mechanics 1,2 | 8 |
| CHEGR 771 Chemical Engineering Thermodynamics | 4 |
| CHEGR 786 Transport Phenomena | 4 |
| ELEGR 714R Circuits and Electronics | 4 |
| MECH 641 Dynamics | 4 |
| ECON 530 | 4 |
| | 52 |

**FOURTH YEAR**

| Courses | Cr. Hrs. |
|---|---|
| MTEGR 855 Composite Materials | 4 |
| MTEGR 861 Applied X-rays | 4 |
| MTEGR 867 Fractography and Failure Analysis | 4 |
| MTEGR 887 Metallurgical Design | 4 |
| MTEGR Elective | 4 |
| MECH 751 Stress and Strain Analysis | 4 |
| Technical Electives | 12 |
| Liberal Arts Electives | 12 |
| | 48 |

# MECHANICAL ENGINEERING

*Professors Suchora, Tarantine (Chair); Associate Professors Kim, Kudav; Assistant Professors Ray, Torcellini.*

Mechanical engineering is the branch of the engineering profession that deals with the conversion and use of energy; the design of machines and engines of all types; and the instrumentation and control of physical processes, systems and environments. The challenge of mechanical engineering is to use the principles of mathematics and the physical and thermal sciences to design and construct what people need and want. Mechanical engineers are concerned with the practical purpose and function of a machine or system, as well as its design for strength, reliability, safety, economy and appearance.

The ongoing mission of the Department of Mechanical Engineering is to inspire students to attain their academic potential, to master the art of applying their knowledge, and to develop into mature professional individuals. In support of this mission, the faculty strive to maintain programs which are attuned to new knowledge and to the ever-changing needs of industry and society, thereby preparing graduates to be productive in a challenging career wherever the opportunities may arise.

The Department of Mechanical Engineering maintains eight experimental laboratories and two computer labs in the Engineering Science Building. A wide array of modern equipment, including instrumentation and computers, support academic and research activities in thermodynamics, heat power, finite element, analysis, heat transfer, fluid mechanics, kinematics and dynamic systems, stress analysis, mechanical vibrations and acoustics. The students and faculty also use the computer facilities in Harry Meshel Hall.

500. *Drawing Fundamentals.* Introduction to visualizing objects for engineering communication. Topics include freehand sketching, three dimensional representations, orthographic projection, auxiliary views, sectional views, and dimensioning. Intended for students who have not had the equivalent of one year of high school drawing or those students wishing to enhance their visualizing and sketching abilities. Not available for credit toward the Bachelor of Engineering degree. Six hours combined lecture and laboratory each week. Prereq.: High school geometry or equivalent. 4 q.h.

*501. *Engineering Communication with CAD.* Introduction to computer aided drawing (CAD) for engineering communications using commercially available software and state-of-the-art computers and output devices. Topics include review of sketching, Boolean operations for 2-D and 3-D solid modeling, computer-generated views and drawings and presentation of professional reports using computer tools. Final design project using these tools is required. Two hours lecture and three hours laboratory per week. Prereq.: MECH 500 or equivalent. 3 q.h.

504. *Graphic Science and Design.* Principles of conceptual design. Fundamentals of descriptive geometry including intersections and developments. Charts, graphs, monographs, graphical computations. Six hours of lecture/laboratory a week. Prereq. or concurrent: MECH 501. 4 q.h.

*Additional fee required.

603. *Thermodynamics 1.* Thermodynamic properties of gases and vapors and their relationships in energy transformations. The first law; equations of state; compression and expansion processes; entropy, the second law. Introduction to thermodynamic cycles and efficiencies of power plants and other devices. Prereq. or concurrent: MATH 673. 4 q.h.

604. *Thermodynamics 2.* Availability and irreversibility in thermodynamic processes and cycles; relations among thermodynamic properties. Mixtures and solutions; psychometry. Introduction to phase and chemical equilibrium. Prereq.: MECH 603. Prereq. or concurrent: CHEM 516. 4 q.h.

641. *Dynamics.* Basic relationships of the kinematics of particles and rigid bodies. Kinematics of particles, groups of particles, and rigid bodies, using Newton's laws of motion, work-energy and impulse-momentum techniques. Vector notation used where applicable. Prereq.: CEEGR 601. 4 q.h.

*680. *Mechanical Engineering Computations.* Applications of computer tools to solve problems in Mechanical Engineering. Topics include development of geometries to model mechanical systems using advanced computer tools; graphical solutions using structured programming languages; spreadsheets and symbolic solvers; and advanced methods of result presentation with an emphasis on display techniques. Two hours lecture and three hours laboratory per week. Prereq.: MECH 501 and ISEGR 642. 3 q.h.

*704L. *Applied Thermodynamics Laboratory.* Experiences involving basic measurement techniques, power and refrigeration cycles, and fossil fuels. Three hours of laboratory a week. Prereq.: MECH 604. 1 q.h.

725. *Heat Transfer 1.* The fundamentals of heat transfer by conduction, convection, and radiation; investigations of combinations of these modes of heat transfer. Prereq.: MATH 705, MECH 603, CEEGR 716; Prereq. or concurrent: ISEGR 642, MECH 604. 4 q.h.

726. *Thermal Fluid Applications.* Application of the principles of thermodynamics, fluid mechanics and heat transfer to design and evaluation of selection criteria of thermal fluid components. Components include those found in HVAC, pneumatic and hydraulic systems. Prereq.: MECH 725. 4 q.h.

*742. *Kinematics of Machines.* Graphical, analytical and computer position, velocity and acceleration analysis of mechanisms. Design of link and cam mechanisms to perform specific machine functions. Prereq.: MECH 641, MECH 680. 4 q.h.

751. *Stress and Strain Analysis 1.* Analysis (including Mohr Circle Representation) of two- and three-dimensional stresses and strains at a point. Application of theory to techniques of experimental stress analysis. Stress concentration factors. Energy methods; Castigliano's Theorem. Dynamic loading. Introduction to theories of failure. Prereq.: MATH 673, CEEGR 602; and CEEGR 603 or MTEGR 741. 4 q.h.

762. *Design of Machine Elements.* Parameters and design criteria of various elements found in machines. Elements considered include shafts, springs, curved beams and thickwalled cylinders, flywheels, belts and chains, clutches and brakes, bearings, lubrication and gears. Must be taken concurrently with MECH 762L. Prereq.: MECH 641 and MECH 751. 4 q.h.

*762L. *Design of Machine Elements Laboratory.* Practical design problems incorporating force analysis, material selection and sizing of machine elements. Three hours laboratory per week. Must be taken concurrently with MECH 762. 1 q.h.

781. *Dynamic Systems Analysis.* Theoretical study of the dynamics of linear lumped parameter models of mechanical, electrical, fluid, thermal, and mixed systems. Laplace transforms and input response concepts. Prereq.: MECH 641; MATH 705; ELEGR 714; ISEGR 642. 4 q.h.

800. *Special Topics.* Special topics and new developments in mechanical engineering. Subject matter, credit hours, and special prerequisites are announced in advance of each offering. May be repeated to a maximum of eight credit hours with different content. Prereq.: Junior standing in Mechanical Engineering, or consent of instructor. 1-4 q.h.

808-809. *Mechanical Systems Design I, II.* Design of an engineering system utilizing expertise normally expected of new mechanical engineering graduates in an industry setting. Alternate designs are explored in the light of design methodology factors such as feasibility, reliability, liability, safety, cost, etc. Prereq. for MECH 808: MECH 725, MECH 742, MECH 751, MECH 781, ISEGR 724, or consent of instructor. Prereq. for MECH 809: MECH 808; Prereq. or concurrent MECH 726, MECH 762. MECH 808 must be taken concurrently with MECH 808L. 4+4 q.h.

*808L. *Mechanical System Design Laboratory.* Supplemental activities related to MECH 808, such as discussions and seminars on industry practices and standards, computer software applications, experimental verification, etc. Three hours laboratory per week. Must be taken concurrently with MECH 808. 1 q.h.

810. *Introduction to Biomedical Engineering.* Applications of engineering principles to the human body and to body systems. Topics introduced include the respiratory, cardiovascular, and digestive systems, along with temperature regulation mechanisms and prosthetics. Prereq.: Senior standing or consent of instructor. 4 q.h.

811. *Solar Engineering.* Radiational characteristics of solar energy, glass materials and selective coatings. Analysis of flat plate collectors, concentrators and thermal storage. System simulation and economic analysis for optimization of basic solar systems. Prereq.: PHYS 610, MECH 725, ISEGR 724. 4 q.h.

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*Additional fee required.

815. *Energy Conversion Systems.* Conventional and nonconventional systems that convert primary forms of energy into mechanical and/or electrical energy. Analysis and design of equipment used in conventional systems with emphasis on reciprocating and rotating machinery. Prereq.: MECH 604, MECH 725, Prereq. or concurrent MECH 830. 4 q.h.

823. *Refrigeration and Air Conditioning.* The application of thermodynamic, fluid flow, and heat transfer principles to the design of domestic and industrial systems for material processes and human comfort. Design of equipment to meet required heating and cooling loads. Prereq.: CEEGR 716 and MECH 725. 4 q.h.

*825. *Heat Transfer 2.* A continuation of Heat Transfer 1 involving more advanced topics in conduction, convection, and radiation. Design problems solved analytically, numerically, and by computer methods. Prereq.: MATH 706, ISEGR 642, and MECH 725. 4 q.h.

*825L. *Heat Transfer 2 Laboratory.* Experiments involving conduction, convection, and radiation modes of heat transfer. Heat exchangers. Three hours of laboratory a week. Prereq.: MECH 725. 1 q.h.

830. *Fluid Mechanics.* The theory of one-dimensional compressible flow. The control volume approach to the conservation of mass, energy, and momentum integral equations. Differential analysis and nonviscous flow theory. Prereq.: CEEGR 716 and MATH 706. 4 q.h.

*830L. *Fluid Mechanics Laboratory.* Experiments on compressible fluid flow in the subsonic and supersonic regions. Three hours of laboratory a week.Prereq.: MECH 830 & CEEGR 716L. 1 q.h.

*843. *Kinetics of Machinery.* Three dimensional kinematics and dynamics of machinery. Dynamic analysis and design, and balancing of link and cam mechanical systems. Prereq.: MECH 742. 4 q.h.

*850L. *Stress and Strain Analysis Laboratory.* Transmission and reflection photoelasticity. Static and dynamic strain gage applications including computer aided data acquisition. Three hours laboratory per week. Prereq.: MECH 751. 1 q.h.

*852. *Stress and Strain Analysis 2.* Continuation of ME 751. Introduction to classical elasticity, inelastic behavior and high temperature creep. Emphasis is on design applications. Prereq.: MECH 751 and MATH 706. 4 q.h.

862. *Human Factors in Mechanical Design.* A mechanical design course emphasizing aesthetics, safety, and the comfort of the human body as criteria, and human sensory processes as design factors; topics such as vehicular safety devices, prosthetic devices, and household appliances are discussed. Prereq.: MECH 751. 4 q.h.

870. *Mechanical Vibrations.* The behavior of the lumped system with one and two degrees of freedom including applications (such as: vibration isolation, Seismic instruments, etc.). Methods of analyzing lumped systems with many degrees of freedom. Prereq.: CEEGR 603, MECH 781, or consent of instructor. 4 q.h.

*870L. *Mechanical Vibrations Laboratory.* Experiments involving mechanical systems and some electrical analogies. Analog computer simulation of vibration systems. Taken concurrently with MECH 870. Three hours of laboratory a week. 1 q.h.

872. *Engineering Acoustics.* The nature of sound and its propagation; analysis and control of sound and noise production in mechanical equipment; transmission and absorption of sound in engineering materials, ultrasonics, structural acoustics, basic measurements, and equipment. Prereq.: MECH 781. 4 q.h.

*872L. *Engineering Acoustics Laboratory.* Applications of acoustics instrumentations to problems involving room acoustics, sounds in pipes, noise barriers, and machinery noise. Taken concurrently with MECH 872. Three hours of laboratory a week. 1 q.h.

883. *Mechanical Engineering Measurements.* Fundamentals of measuring phenomena such as temperature, pressure, displacement, etc., including principles of operation and performance characteristics of instrumentation commonly used in mechanical engineering. Emphasis on generation, conditioning, and recording of time-varying signals. Prereq.: MECH 641, CEEGR 602, ELEGR 714. 4 q.h.

*884. *Finite Element Analysis Applied to Design.* Fundamental principles of finite element analysis with emphasis on applications to design in areas pertinent to mechanical engineering, including elasticity, vibrations, fluid mechanics and heat transfer. Use of interactive computer software. Prereq.: MECH 725, 751, 781. 4 q.h.

*892. *Control Theory.* Introduction to the principles of automatic control of electro-mechanical and hydraulic systems using Laplace transform methods. Discussion of system stability. Prereq.: MATH 706, MECH 781. 4 q.h.

## CURRICULUM FOR THE DEGREE OF BACHELOR OF ENGINEERING WITH THE MAJOR IN MECHANICAL ENGINEERING

### FIRST YEAR

| Courses | Cr. Hrs. |
|---|---|
| MATH 571, 572, 673 Calculus 1, 2, 3 | 14 |
| CHEM 515, 516 General Chemistry 1, 2 | 8 |
| PHYS 510 General Physics 1 | 4 |
| ENGL 550, 551 Basic Composition 1, 2 | 8 |
| ENGR 581 Introduction to Engineering | 2 |

*Additional fee required.

MECH 501 Engineering Drawing .....3
ISEGR 642 Engineering Computations .....4
HSC 590 Health Education .....3
HPES Activity .....2

48

**SECOND YEAR**

| Courses | Cr. Hrs. |
|---|---|
| MATH 674 Calculus 4 | 4 |
| MATH 705, 706 Differential Equations 1, 2 | 8 |
| PHYS 610, 611 General Physics 2, 3 | 8 |
| CEEGR 601, 602, 603 Mechanics 1, 2, 3 | 12 |
| MECH 603, 604 Thermodynamics 1, 2 | 8 |
| MECH 641 Dynamics | 4 |
| MECH 680 Engineering Computer Graphics | 3 |
| SPCH 651 Comm. for Business and the Profess. | 3 |
| HPES Activity | 1 |
| | 51 |

**THIRD YEAR**

| Courses | Cr. Hrs. |
|---|---|
| MTEGR 606 Engineering Materials | 4 |
| MECH 725 Heat Transfer 1 | 4 |
| MECH 726 Thermal Fluid Applications | 4 |
| MECH 742 Kinematics of Machines | 4 |
| MECH 751 Stress and Strain Analysis I | 4 |
| MECH 762, 762L Machine Design 1, Lab | 5 |
| MECH 781 Dynamic Systems Analysis | 4 |
| CEEGR 716, 716L Fluid Mechanics, Lab | 4 |
| ELEGR 714, 715 Circuits and Electronics, Electrical Devices | 8 |
| ISEGR 724 Engineering Economy | 4 |
| Elective (Social Studies) | 4 |
| | 49 |

**FOURTH YEAR**

| Courses | Cr. Hrs. |
|---|---|
| MECH 808, 809 Mechanical System Design I, II | 8 |
| MECH 808L Mechanical System Design Lab | 1 |
| MECH 830 Fluid Mechanics | 4 |
| Electives (Social Studies) | 8 |
| Electives (Humanities) | 12 |
| Electives (Mechanical Engineering) | 15 |
| Elective (Science) | 4 |
| | 52 |
| **TOTAL** | **200** |

**DEPARTMENTAL ELECTIVES**

| Courses | Cr. Hrs. |
|---|---|
| 704L Applied Thermodynamics Laboratory | 1 |
| 800 Special Topics | 1-4 |
| 810 Introduction to Biomedical Engineering | 4 |
| 811 Solar Engineering | 4 |
| 815 Energy Conversion Systems | 4 |
| 823 Refrigeration and Air Conditioning | 4 |
| 825 Heat Transfer 2 | 4 |
| 825L Heat Transfer 2 Laboratory | 1 |
| 830 Fluid Mechanics | 4 |
| 830L Fluid Mechanics Laboratory | 1 |
| 843 Kinetics of Machinery | 4 |
| 850L Stress and Strain Analysis Laboratory | 1 |
| 852 Stress and Strain Analysis 2 | 4 |
| 862 Human Factors in Mechanical Design | 4 |
| 870 Mechanical Vibrations | 4 |
| 870L Mechanical Vibrations Laboratory | 1 |
| 872 Engineering Acoustics | 4 |
| 872L Engineering Acoustics Laboratory | 1 |
| 883 Mechanical Engineering Measurements | 4 |
| 884 Finite Element Analysis | 4 |
| 892 Control Theory | 4 |

At least three ME laboratory courses are required as electives.

**Areas of Specialization**

Each student must concentrate at least ten (10) of the Mechanical Engineering elective hours in either of two areas of specialization, as follows:

Heat and Fluid Flow:

MECH 825; one from MECH 811, MECH 815, and MECH 823; two from MECH 704L, MECH 825L, and 830L.

Rigid and Deformable Solids:

MECH 870; one from MECH 843, MECH 852, and MECH 872; two from MECH 850L, MECH 870L, and MECH 872L.

## MECHANICAL ENGINEERING MINOR

The following courses are recommended for students seeking a minor in mechanical engineering:

MECH 501 - Engineering Drawing .....3 q.h.
MECH 603 - Thermodynamics 1 .....4 q.h.
MECH 641 - Dynamics .....4 q.h.
MECH 725 - Heat Transfer .....4 q.h.
MECH 751 - Stress and Strain Analysis 1 ...4 q.h.
MECH 604 - Thermodynamics 2 or .....
MECH 742 - Kinematics of Machines .....4 q.h.

**Total .....23 q.h.**

In cases where required courses in the student's major indicate significant duplication of subject matter with the above courses, appropriate course substitutions will be recommended by the department in consultation with the advisor in the student's major discipline.

# SCHOOL OF TECHNOLOGY

*Professors Barsch (Director), Crum, Gardner; Associate Professors Hankey, Krygowski, Messuri, Zupanic; Assistant Professors Bosela, Wood, Zenouzi; Instructor Slanina.*

The School of Technology offers "two-plus-two" programs in engineering technology. Students in these programs may work toward a two-year associate degree or a four-year bachelor's degree, as they prefer. The programs include both classroom and laboratory experiences which stress the application of established engineering and computer knowledge and methods to the solution of problems. They include study of the

sciences and mathematics necessary to support a technology, as well as study of the methods, processes, skills, and materials used in that technology. The programs are designed to prepare graduates for a cluster of job opportunities in industry. Demands developed by an expanding technology place graduates of these programs in one of the fastest-growing occupational groups in the country.

## Associate in Applied Science Degree

The school offers two-year programs in:

**Civil Engineering Technology**
**Drafting and Design Technology**
**Electrical Engineering Technology**
**Mechanical Engineering Technology**

Graduates of these programs are awarded the Associate in Applied Science degree and serve as engineering technicians.

Engineering technicians function as aides or professional associates in support of scientists and engineers. Their work is in the design, drafting (manual or CAD), development, testing, and production phases of engineering projects. Their tasks include laboratory testing, data gathering, evaluation, and instrument calibration. They may perform quality control tests, serve as technical sales representatives, or serve as technical writers in the formulation of specifications or trade manuals.

Drafting and design graduates work with engineers, architects, and technicians in converting ideas, designs, and sketches into workable plans and specifications using both manual and CAD techniques.

## Bachelor of Science in Applied Science Degree

The Civil, Electrical, and Mechanical Engineering Technology programs are based on the "two-plus-two" educational system which provides the student with the flexibility of earning an associate degree or a bachelor's degree according to the student's needs. After completing the requirements of the two-year associate degree, the student may elect to either enter industry or, through an added two years of full-time study or equivalent part-time, earn the Bachelor of Science in Applied Science degree. The student's career potential will then have increased to that of an engineering technologist.

In some instances technologists perform analysis and design under the direction of engineering professionals, but those assigned to production frequently work independently. They may develop specifications for materials and methods, serve as production supervisors, or serve as liaison among development, engineering, and production departments. Tasks related to the installation, operation, and maintenance of production machinery are often supervised by technologists.

Based on an evaluation of their work, transfer students who have a related associate degree from a regionally accredited institution will be admitted to the bachelor's degree program at the junior level.

## Accreditation and Registration

The Civil, Electrical, and Mechanical Engineering Technology associate and bachelor programs are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology. Graduates are qualified to sit for the National Institute for Certification in Engineering Technologies (NICET) Part A examination and are exempt from Part B. In many states, including Ohio and Pennsylvania, Bachelor degree graduates are qualified to take the Fundamentals of Engineering (FE) exam, and with sufficient work experience, the Professional Engineers (PE) exam.

## Admission Requirements

Admission to Civil, Electrical, and Mechanical Engineering Technology requires at least one year of high school algebra and one year of high school geometry with grades of C or better. In addition, transfer students must have at least a 2.3 point average.

Admission to Drafting and Design Technology, requires at least one year of high school algebra and one year of high school geometry with grades of C or better. In addition, transfer students must have at least a 2.0 point average.

Students not meeting the above admission requirements are enrolled as pre-majors in the College of Engineering and Technology. While advising is provided by professional advisors within the college, these students are also encouraged to see the coordinator of the program in which they are interested for further orientation.

Prospective engineering technology students are urged to enroll in the STECH 505 course. It is designed to acquaint students with the nature of this career area, and therefore assist prospective students in determining the level of their interest. STECH 505 is required of all Engineering Technology majors.

# SCHOOL OF TECHNOLOGY

*505. *Elements of Engineering Technology.* The role of the technician, technologist, and their relationships to the engineer; technical methods as applied to analysis, design, layout and testing; an introduction to BASIC programming on microcomputers; a study of the basic mathematical, scientific, computer, and communicative techniques as applied to the work of engineering technicians. Three hours lecture, three hours laboratory per week. Prereq. or concurrent: MATH 512. 4 q.h.

*Additional fee required.

615. *Design Project.* The student undertakes a project designed to utilize principal methods studied in previous courses. The subject of the project will be determined jointly by the student and instructor and developed formally by the student. The course is normally taken during the final stages of the student's program. Prereq.: Consent of instructor. 4 q.h.

# CIVIL ENGINEERING TECHNOLOGY

*Professor Crum (Program Coordinator); Associate Professor Zupanic; Assistant Professor Wood.*

The Civil Engineering Technology (CET) program is developed on the "two-plus-two" system. Students may choose to terminate their formal education after completing two years of study and earning the Associate in Applied Science degree, or they may continue full or part-time to a bachelor's degree.

## Associate Degree Program

The associate degree program prepares technicians to support civil engineers in structural design, public works, construction, transportation, and environmental engineering. Most graduates are hired by government agencies, consulting engineers, architects, and contractors.

## Bachelor's Degree Program

The bachelor's program in Civil Engineering Technology allows students to increase their potential to that of an engineering technologist and broaden their knowledge in several technical and non-technical areas. The student can also concentrate in urban planning, architecture, construction, or transportation as interests dictate. A co-op program with the Ohio Department of Transportation enables CET students to gain experience and income during their junior and senior years.

*604. *Properties and Strength of Materials.* Introduction to the physical and chemical properties of materials and their behavior under various loads and environments. Concepts of stress and strain. Use and care of testing equipment. Instruction in methods of data retrieval and reduction and report preparation. Three hours lecture and three hours laboratory per week. Prereq.: MET 515 and CHEM 501 or PHYS 501/503. 4 q.h.

607. *Solid Mechanics 1.* Elementary theory in the resistance of solids to external loadings. Relationships among load, deformation, stress and strain in the design of members in tension, compression, torsion, and bending. Three hours lecture and three hours computational laboratory per week. Prereq.: CET 604. 4 q.h.

610. *Structural Analysis 1.* Fundamental determination of member forces in trusses, beams, arches, frames and cables. Influence lines for moving loads. Deflection calculations. Three hours lecture and three hours computational laboratory per week. Prereq.: CET 607 or concurrent. 4 q.h.

611. *Specifications and Estimating.* Fundamentals of writing and interpreting specifications for materials and methods. Estimating material and labor costs for construction projects. Use of Timberline computer estimating packages. Prereq.: CET 617 or MET 630 or consent of instructor. 4 q.h.

612. *Structural Design and Drafting.* Familiarization with design using AISC, SJI, ACI and similar codes. Selection of members and connections in accordance with manuals and specifications. Design and drafting projects. Application of CADD. Prereq.: CET 610 and DDT 605 or equivalents. Three hours lecture and three hours laboratory per week. 4 q.h.

615. *Soil Mechanics.* Study of the properties of soils, soil classification, soil strength, bearing capacity. Consolidation, and compressibility. Seepage and frost action. Principles and procedures of soil testing. Prereq.: CET 604. (W) 3 q.h.

*615L. *Soil Mechanics Laboratory.* Practice in soil identification and soil properties. Use and care of basic soil testing equipment. Three hours per week. Concurrent with CET 615. (W) 1 q.h.

617. *Construction Methods and Materials.* Basic properties of construction materials. Processing and placement methods. Purchase, use and replacement of construction equipment. Application of engineering economics to construction. Use of building codes. Prereq.: CET 604. 3 q.h.

*617L. *Construction Methods and Materials Laboratory.* Physical testing of construction materials such as concrete, aggregates, wood, and bituminous materials. Field trips to construction sites. Practice in construction inspection procedures. Three hours per week. Concurrent with CET 617. 1 q.h.

624. *Environmental Analysis.* Analysis of problems in public works. Water supply and waste management and their impact on land use planning. Analysis of water distribution systems, drainage systems, and waste water treatment processes. Prereq.: MET 615, CHEM 501. (SP) 4 q.h.

*705. *Computing for Technologists.* Further development of computer techniques used in solutions to problems in all fields of engineering technology. Students will develop computerized solutions to problems with which they are familiar. Use of data base management, spreadsheets, etc. May be taken by non-CET majors. Three hours lecture and three hours laboratory per week. Prereq.: Junior standing or consent of instructor. 4 q.h.

707. *Advanced Steel Design.* A continuation of CET 612 with heavier emphasis on design applications in steel. Practical solutions to more complex members and load applications. Emphasis on understanding and applying AISC and AISI codes. Design projects are required. Three hours lecture and three hours laboratory per week. Prereq.: CET 710. 4 q.h.

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*Additional fee required.

710. *Structural Analysis 2.* A continuation of CET 610. Analysis techniques for common structures. Introduction to classical approaches to statistically indeterminant structures. Use of standard computer programs such as STRUDL, STAAD, etc. Practice in developing students own programs for special cases. Three hours lecture and three hours computational laboratory per week. Prereq.: CET 610, CET 705 (or concurrent). 4 q.h.

712. *Architectural Design Technology.* Overall planning, layout and design of building elements. Study of the use of architectual concepts and materials such as masonry and wood in design. Design projects in compliance with applicable building Codes. Three hours lecture and three hours design laboratory per week. Prereq.: CET 610 and CET 617. 4 q.h.

717. *Underground Construction.* Design and construction procedures for foundations, retaining walls, caissons, tunnels and other underground structures. Prereq.: CET 615, 610. 4 q.h.

724. *Public Works Technology.* Technological aspects of the functions and responsibilities of a public works department. Emphasis on the effective use, maintenance and renovation of water, wastewater, drainage systems and road and transit systems. Studies of current infrastructure problems and alternative methods of solution. Prereq.: CET 617 and CET 624. 4 q.h.

730. *Transportation Technology.* Introduction to transportation planning and highway system design. Familiarization with AASHTO manuals. Capacity analysis. Geometric design and signalization of highway and rail segments. Route selection. Cost-benefit analysis for transportation projects. Earthwork calculations. Prereq.: CEEGR 610 and CET 617. 4 q.h.

800. *Building Systems.* An overview of the relationships between the environmental systems and structural systems of buildings. Architecture, structural systems, plumbing systems, HVAC systems and electrical systems. Three hours lecture and three hours project laboratory per week. Prereq.: CET 604 and EET 625 or equivalent and junior standing. 4 q.h.

807. *Design Project Management.* Application of engineering skills to a total design project. Teaches and requires utilization of technical and management skills necessary to lead a project from proposal through design and preparation of bid plans and specifications. A design project is required. Three hours lecture and three hours design laboratory per week. Prereq.: MGT 604, CET 710 or CET 812. 4 q.h.

812. *Advanced Concrete Design.* A continuation of CET 607 and CET 612 with more emphasis on modern techniques in concrete. Applications of reinforced, prestressed and precast concrete. Three hours lecture and three hours design laboratory per week. Prereq.: CET 612. 4 q.h.

817. *Construction Management.* Design/Construction office techniques. Planning and scheduling. Computer methods for program planning and updating. Financial, labor and material resource allocation and tracking. Construction reports. Contracts, specifications and general conditions. Relationships among owner, architect/ engineer and constructor. Prereq.: MGT 604, CET 617 or equivalent. 4 q.h.

824. *Environmental Technology.* A continuation of CET 624 with emphasis on application of environmental principles to land planning and development. Wastewater treatment processes and system design. Application of water and wastewater management to specific sites. Permitting and endangerment assessment. Prereq.: CET 624, CET 724 or equivalent. 4 q.h.

## ASSOCIATE IN APPLIED SCIENCE DEGREE

### FIRST YEAR
### FIRST QUARTER

| Courses | Cr. Hrs. |
|---|---|
| MATH 513 Intensive Intermediate Algebra | 4 |
| ENGL 550 Basic Compostion 1 | 4 |
| STECH 505 Elements of Engineering Technology | 4 |
| CHEM 501 Survey of Chemistry | 4 |
| CHEM 510L Survey of Chemistry Lab | 1 |
| | 17 |

### SECOND QUARTER

| Courses | Cr. Hrs. |
|---|---|
| MATH 520 Trigonometry | 4 |
| ENGL 551 Basic Comp. 2 | 4 |
| ECON 520 Principles of Economics 1 | 4 |
| HSC 590 Health Education | 3 |
| MET 515 Mechanics 1 | 4 |
| | 19 |

### THIRD QUARTER

| Courses | Cr. Hrs. |
|---|---|
| MATH 570 Calc. for Engr. Tech. 1 | 5 |
| MET 516 Mechanics 2 | 4 |
| CET 604 Properties & Strength of Materials | 4 |
| DDT 605 CAD Technology 1 | 4 |
| | 17 |

### SECOND YEAR
### FOURTH QUARTER

| Coursess | Cr. Hrs. |
|---|---|
| MET 615 Fluid Mechanics | 3 |
| MET 615L Fluid Mechanics Lab | 1 |
| CET 607 Solid Mechanics 1 | 4 |
| CET 617 Construction Methods and Materials | 3 |
| CET 617L Construction Methods and Materials Lab | 1 |
| CEEGR 610 Surveying 1 | 4 |
| CEEGR 610L Surveying 1 Lab | 1 |
| | 17 |

**FIFTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| CET 610 Structural Analysis 1 | 4 |
| CET 615 Soil Mechanics | 3 |
| CET 615L Soil Mechanics Lab | 1 |
| MATH 670 Calc. for Engr. Tech. 2 | 4 |
| CET 611 Spec. and Estimating | 4 |
| | 16 |

**SIXTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| SOCST Elective* | 4 |
| CET 612 Structural Design and Drafting | 3 |
| CET 612L Structural Design and Drafting Lab | 1 |
| CET 624 Environmental Analysis | 4 |
| PHYS 502 Fundamentals of Physics 2 | 3 |
| PHYS 502L Fundamental of Physics 2 Lab | 1 |
| SPCH 651 Comm for Business & Professions | 3 |
| | 19 |
| **Total Credit Hours** | **105** |

## BACHELOR'S DEGREE PROGRAM

**THIRD YEAR**

**SEVENTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| ENGL 743 Technical Communications | 5 |
| MATH 770 Calculus for Engineering Technology 3 | 4 |
| CET 705 Computing for Technologists | 4 |
| CET 710 Structural Analysis 2 | 4 |
| HPES Activity Course Elective | 1 |
| | 18 |

**EIGHTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| MATH 785 Matrix Algebra & Numerical Methods | 4 |
| MGT 604 Legal Environment of Business | 4 |
| CET 707 Advanced Steel Design | 4 |
| CET Elective (700/800 Level) | 4 |
| | 16 |

**NINTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| HUMANITY Elective | 4 |
| PHYS 503 Fundamentals of Physics 3 | 3 |
| PHYS 503L Fundamentals of Physics Laboratory 3 | 1 |
| CET Elective (700/800 Level) | 4 |
| CET 717 Underground Construction | 4 |

**FOURTH YEAR**

**TENTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| HUMANITY Elective | 4 |
| EET 625 Electrical Systems 1 | 4 |
| CET 724 Public Works Tech | 4 |
| CET 730 Transportation Tech | 4 |
| HPES Activity Course | 1 |
| | 17 |

**ELEVENTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| GEOG 741 Transportation Geography or GEOG 830 Topics in City and Regional Planning | 4 |
| EET 810 Electrical Systems Design | 4 |
| CET 800 Building Systems | 4 |
| CET 812 Advanced Concrete Design | 4 |
| | 16 |

**TWELFTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| GEOG 765 Geographic Information Systems or GEOG 732 Advanced Cartography | 4 |
| CET 807 Design Project Management | 4 |
| CET 817 Construction Management | 4 |
| MET 870 Applied Finite Element Method | 4 |
| HPES Activity | 1 |
| | 17 |

**Total Credit Hours 4 Years** ..... **205**

*Social Studies Elective: Select Social Science courses from Geography (excluding physical geography), History, Political Science, Psychology, Sociology, Economics, or Black Studies.

## DRAFTING AND DESIGN TECHNOLOGY

*Associate Professor Zupanic (Program Coordinator).*

This program prepares students to function as design drafters in either the mechanical or civil-architectural field. They study design (the determination of size, form, and clearance) and CAD drafting (the conversion of ideas, sketches, and specifications into plans). They also become acquainted with cost of materials, estimating and specifications writing. Graduates earn the associate degree and are employable in industries relating to the fabrication and production of building structures and metal products. Graduates interested in further technical education should consider the "two-plus-two" bachelor's degree program in Civil or Mechanical Engineering Technology.

*602. *Civil and Architectural Drafting.* Drafting associated with environmental designs such as land surveys, highways, and plot plans. Architectural symbols, foundations, and floor, wall, and roof systems. Three hours of lecture and three hours of laboratory per week. Prereq.: DDT 605. 4 q.h.

*603. *Piping & HVAC CAD.* The basic principles and drafting techniques used to design and represent mechanical building systems and process piping. Application of techniques on computer-aided drafting system. Three hours lecture and three hours lab per week. Prereq.: DDT 605 or equivalent. 4 q.h.

*Additional fee required.

*605. *CAD Technology 1.* Basic instruction in the use of the AUTOCAD computer-aided drafting system. Includes primary 2D commands including layers, blocks, plotting and an introduction to attributes and 3D. Three hours lecture, three hours lab per week. Prereq.: MECH 500 or equivalent or permission of instructor. 4 q.h.

*606. *CAD Technology 2.* Includes more advanced features of AUTOCAD and some customizing. Scripts, menu creation, 3D entities, attributes, CDF and SDF extraction and introduction to LISP will be among topics covered. Three hours lecture, three hours lab per week. Prereq.: DDT 605 or equivalent. 4 q.h.

608. *Machine Elements.* Design and drafting of machine elements common to mechanical equipment, including bending, torsion and bearing concepts and practice. Three hours lecture and three hours lab per week. Prereq.: CET 604 or equivalent. 4 q.h.

*613. *Electronic & Elect. CAD.* The basic principles and drafting techniques used to design and represent electrical building systems and electronic systems. Layout of PC boards including integrated circuits. Application of techniques on a computer aided drafting installation. Two hours lecture; four hours lab per week. Prereq.: MECH 500 or equivalent or consent of instructor. 4 q.h.

## ASSOCIATE DEGREE PROGRAM

### FIRST YEAR
### FIRST QUARTER

| Courses | Cr. Hrs. |
|---|---|
| HSC 590 Health Education | 3 |
| STECH 505 Elements of Engr.Technology | 4 |
| MATH 513 Intensive Intermediate Algebra | 4 |
| SOCST Elective** | 4 |
| | 15 |

### SECOND QUARTER

| Courses | Cr. Hrs. |
|---|---|
| DDT 605 CAD Technology 1 | 4 |
| MET 515 Mechanics 1 | 4 |
| MATH 520 Trigonometry | 4 |
| Science Elective | 4 |
| | 16 |

### THIRD QUARTER

| Courses | Cr. Hrs. |
|---|---|
| COMM 651 Comm. for Business & Professions | 3 |
| SOCST Elective | 4 |
| ENGL 550 Basic Composition | 4 |
| CET 604 Properties and Strengths of Materials | 4 |
| SOCST Elective** | 4 |
| | 19 |

*Additional fee required.

**Social Studies Elective: Select one course from Geography (excluding Physical Geography), History, Political Science, Psychology, Sociology, Social Science, Economics or Black Studies.

### SECOND YEAR
### FOURTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| MET 630 Manufacturing Techniques | 3 |
| MET 630L Manufacturing Techniques Lab | 1 |
| DDT 606 CAD Technology 2 | 4 |
| CET 617 Construction Methods and Materials | 3 |
| CET 617L Construction Methods and Materials Lab | 1 |
| CET 607 Solid Mechanics 1 | 4 |
| | 16 |

### FIFTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| DDT 602 Civil & Architect Drafting | 4 |
| CET 611 Specifications & Estimating | 4 |
| Elective from CET, MET, DDT, EET, or CIS | 4 |
| DDT 603 Piping and HVAC CAD | 4 |
| | 16 |

### SIXTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| DDT 613 Electronic & Elect. CAD | 4 |
| CET 612 Structural Design and Drafting | 3 |
| CET 612L Structural Design and Drafting Lab | 1 |
| MET 620 Tool Design | 3 |
| DDT 608 Machine Elements | 4 |
| MATH/SCI Elective | 4 |
| | 19 |
| **Total Credit Hours** | **101** |

# ELECTRICAL ENGINEERING TECHNOLOGY

*Professor Gardner (Program Coordinator); Associate Professors Hankey, Messuri; Assistant Professor Bosela; Instructor Slanina.*

The Electrical Engineering Technology (EET) program is based on the "two-plus-two" concept. This provides students the opportunity to pursue two years of full-time study leading to the Associate in Applied Science degree, and then, if they desire, to continue for two more years of full-time study, at which time the Bachelor of Science in Applied Science degree is awarded.

## Associate Degree Program

Graduates of the two-year Electrical Engineering Technology program generally function as assistants to electrical engineers in the design, analysis, and laboratory testing of electrical and electronic systems and of rotating machinery. Most graduates are employed by electrical and electronic equipment manufacturers, utility companies, the aerospace industry, and manufacturing companies in general.

## Bachelor's Degree Program

The last two years in the Electrical Engineering Technology bachelor's program provide the student with broader technical and business management background. Graduates generally assume more responsibility in the design and testing of electrical systems, and may function independently in some areas.

501. *Circuit Theory 1.* Fundamental electrical definitions and units; electrical energy sources, Ohm's Law, Kirchoff's Laws; analysis of direct current circuits; network theorems; magnetic circuits and permanent magnets. Prereq.: MATH 512, STECH 505. 3 q.h.

*501L. *Circuit Theory 1 Laboratory.* The use of instruments; measurements of resistance; effect of length, cross section, and material on resistance; measurement of voltage, currents, and power in DC series and parallel circuits; network theorems. Three hours a week. Taken concurrently with EET 501. (W, SP) 1 q.h.

502. *Circuit Theory 2.* Analysis of elementary magnetic circuits; capacitance; inductance; analysis of simple RC and RL transient circuits; alternating current and voltage; average and effective values; phasor representation of sinusoidal waveforms; phasor algebra, impedance. Prereq.: EET 501. Prereq. or concurrent: MATH 520. 3 q.h.

502L. *Circuit Theory 2 Laboratory.* Experiments of the measurement of inductance and capacitance; simple transient circuits; hysteresis curves; average and effective values; AC impedance. Three hours of laboratory per week. Taken concurrently with EET 502. 1 q.h.

503. *Circuit Theory 3.* Analysis of AC circuits (steady state solution); phasor diagrams; network theorems; power, power factor; series and parallel resonant circuits; polyphase circuits; mutually coupled circuits. Prereq.: EET 502. Prereq. or concurrent: MATH 570. 3 q.h.

503L. *Circuit Theory 3 Laboratory.* The measurement of voltage, current and power in AC single-phase series and parallel circuits; resonant circuits mutually coupled circuits. Three hours a week. Taken concurrently with EET 503. 1 q.h.

600. *Measurements.* Measurement errors; basic meter in DC measurement; basic meter in AC measurement; DC and AC bridges; electronic voltage and current meters; cathode ray oscilloscope; counting and digital display instruments; transducers. Prereq.: EET 605. 3 q.h.

*600L. *Measurement Laboratory.* Experiments involving the use of basic and specialized equipment to obtain accurate measurements. Precision workmanship and techniques are emphasized. Three hours a week. Taken concurrently with EET 600. 1 q.h.

605. *Electronics 1.* The physical basis for semiconductor devices; the semiconductor diode and common diode circuits; the Zener diode and voltage regulator circuits; the bipolar-junction transistor and biasing circuits. Prereq.: EET 502. Concurrent with EET 605L. 3 q.h.

*605L. *Electronics Laboratory.* Instruction on the use of the oscilloscope and the volt-ohmmilliammeter; experiments involving semiconductor diodes, power supplies, clippers and clampers, and Zener diode regulators. Three hours of laboratory per week. Taken concurrently with EET 605. 1 q.h.

606. *Electronics 2.* Transistor h-parameters and the analysis of transistor amplifiers; decibels, frequency response, Miller effect and the transistor switch; circuits used in linear ICs; the design and analysis of IC operational-amplifier circuits. Prereq.: EET 503, EET 605. Concurrent with EET 606L. 3 q.h.

606L. *Electronics 2 Laboratory.* Experiments involving the measurement of transistor parameters; the construction and testing of several types of transistor amplifiers; time measurements of a switching circuit, and the uses of the modern IC operational amplifier. Three hours of laboratory per week. Taken concurrently with EET 606. 1 q.h.

607. *Electronics 3.* Linear oscillator circuits; the field-effect transistor-its parameters and common circuits; the SCR and its common circuits; optoelectronic devices; display technology; electronic noise; negative-feedback amplifiers; filters; cathode-ray tubes and switching regulators. Prereq.: EET 606. Concurrent with EET 607L. 3 q.h.

607L. *Electronics 3 Laboratory.* Experiments involving several types of oscillators; measurements of and use of the field-effect transistor; the voltage regulator and the SCR. Three hours of laboratory per week. Taken concurrently with EET 607. 1 q.h.

610. *Direct Current Machines.* Construction and principles of operation of DC motors and generators; characteristics, efficiency, control, and associated equipment; specialized DC machines. Prereq.: EET 502. 3 q.h.

*610L. *Direct Current Machines Laboratory.* Experiments with direct current machinery, characteristics, operation, efficiency, control. Three hours per week. Taken concurrently with EET 610. 1 q.h.

611. *Alternating Current Machines.* Transformer construction design; standards, operational characteristics; three-phase transformers; alternators; induction, synchronous, and single-phase motors. Prereq.: EET 503, 610. 3 q.h.

611L. *Alternating Current Machines Laboratory.* Experiments with transformers, alternators; induction and synchronous motors. Three hours per week. Taken concurrently with EET 611. 1 q.h.

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*Additional fee required.

620. *Digital Fundamentals.* An introductory study of number systems and conversions, codes, Boolean algebra, and logic gates. Includes Boolean function simplication, truth tables, Karnaugh maps, and combination circuits. Prereq.: MATH 570. 3 q.h.

*620L. *Digital Fundamentals Laboratory.* Experiments utilizing digital integrated circuits to implement various logic functions discussed in EET 620 lecture. Taken concurrently with EET 620. Three hours of lab per week. 1 q.h.

625 and *625L. *Electrical Systems 1 and Laboratory.* A survey of the major topics in electrical circuits, electronics, and electromechanics. Emphasis on AC/DC networks and magnetics. Three hours of lecture and three hours of laboratory per week. Prereq.: MATH 570. 4 q.h.

645. *Microprocessor Systems 1.* An introduction to microprocessor architecture and organization. Emphasis on machine/assembly language programming. Prereq.: EET 620 or CIS 500. Concurrent with EET 645L. 4 q.h.

*645L. *Microprocessor Systems 1 Laboratory.* Laboratory exercises utilizing a microcomputer to provide practical applications of concepts developed in EET 645. Three hours laboratory per week. Taken concurrently with EET 645. 0 q.h.

710. *Networks.* An introduction to the Laplace transform and its application to the analysis of electrical networks, including coupled circuits, filters, attenuators, and equalizers. Prereq.: EET 503; Prereq. or concurrent: MATH 770. Concurrent with EET 710L. 4 q.h.

710L. *Networks Laboratory.* Laboratory exercises dealing with applications of concepts developed in EET 710. Three hours of laboratory per week. Taken concurrently with EET 710. 0 q.h.

720. *Pulse Circuit Design.* A study in the analysis and design of active circuits employed in electronic switching applications and in the generation of nonsinusoidal waveforms. Prereq.: EET 607. Concurrent with EET 720L. 4 q.h.

*720L. *Pulse Circuit Design Laboratory.* Laboratory exercises dealing with applications of concepts developed in EET 720. Three hours of laboratory per week. Taken concurrently with EET 720. 0 q.h.

725. *Electrical Systems 2.* A continuation of EET 625 with emphasis on AC/DC machinery, electronics, and controls. Prereq.: EET 625. 4 q.h.

730. *Logic Systems Design.* To study the characteristics and applications of integrated circuit logic families and various memory devices. Emphasis on the design of digital systems with SSI, MSI, and LSI as system components. Prereq.: EET 605, EET 620. Concurrent with EET 730L. 4 q.h.

730L. *Logic Systems Design Laboratory.* Laboratory exercises dealing with applications of concepts developed in EET 730. Three hours of laboratory per week. Taken concurrently with EET 730. 0 q.h.

745. *Microprocessor Systems 2.* Continuation of EET 645 with emphasis on advanced programming techniques, memory mapping, I/O ports, and basic I/O interfacing. Prereq.: EET 645, EET 607. Concurrent with EET 745L. 4 q.h.

*745L. *Microprocessor Systems 2 Laboratory.* Laboratory exercises utilizing a microcomputer to provide practical applications of concepts developed in EET 745. Three hours laboratory per week. Taken concurrently with EET 745. 0 q.h.

750. *Industrial Controls.* Introduction to motor control principles and hardware. Examination of motor startup and speed control systems, as well as overload protection. Emphasis on solid-state logic control using programmable controllers as well as variable frequency ac motor drives. Prereq.: EET 607, 611, 620. Concurrent with EET 750L. 4 q.h.

*750L. *Industrial Controls Laboratory.* Laboratory exercises dealing with applications of concepts developed in EET 750. Three hours of laboratory per week. Taken concurrently with EET 750. 0 q.h.

780. *Communication System Fundamentals.* Audio signals, noise, untuned and R.F. amplifiers, amplitude, frequency, pulse modulation, transmission lines, antennas, and multiplexing of communication channels. Prereq.: EET 607. Concurrent with 780L. 4 q.h.

*780L. *Communication System Fundamentals Laboratory.* Laboratory exercises dealing with applications of concepts developed in EET 780. Three hours laboratory per week. Taken concurrently with EET 780. 0 q.h.

810. *Electrical System Design.* A course concerning the design and layout of electrical systems for power, light, heat, signals, and communications in commercial, industrial, and residential buildings. Three hours of lecture and three hours of laboratory per week. Prereq.: EET 607, 611. 4 q.h.

820. *Power Transmission.* An introduction to power systems analysis, transmission line parameters and calculations, and steady-state power system representation. Prereq.: EET 611. 4 q.h.

845. *Microprocessor Systems 3.* Continuation of EET 745 with emphasis on real data acquisition, A/D and D/A conversions, and industrial applications. Prereq.: EET 745, EET 730. Concurrent with EET 845L. 4 q.h.

845L. *Microprocessor Systems 3 Laboratory.* Laboratory exercises utilizing a microcomputer to provide practical applications of concepts developed in EET 845. Three hours laboratory per week. Taken concurrently with EET 845. 0 q.h.

850. *Integrated Circuit Applications.* An introduction to integrated circuits technology and typical application. Prereq.: EET 607. Concurrent with EET 850L. 4 q.h.

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*Additional fee required.

850L. *Integrated Circuit Applications Laboratory.* Laboratory exercises dealing with applications of concepts developed in EET 850. Three hours of laboratory per week. Taken concurrently with EET 850.
0 q.h.

870. *Process Controls Technology.* An introduction to process control technology. Topics include control system components, transfer functions, and the analysis of linear control systems. Prereq.: EET 611, EET 710.
4 q.h.

## ASSOCIATE DEGREE PROGRAM

### FIRST YEAR
### FIRST QUARTER

| Courses | Cr. Hrs. |
|---|---|
| MATH 513 Intensive Intermediate Algebra | 4 |
| ENGL 550 Basic Composition 1 | 4 |
| Drawing/CAD Elective | 4 |
| STECH 505 Elements of Engineering Technology | 4 |
| HSC 590 Health Education | 3 |
| | 19 |

### SECOND QUARTER

| Courses | Cr. Hrs. |
|---|---|
| MATH 520 Trigonometry | 4 |
| ENGL 551 Basic Composition 2 | 4 |
| SOCST Elective* | 4 |
| EET 501 Circuit Theory 1 | 3 |
| EET 501L Circuit Theory 1 Laboratory | 1 |
| | 16 |

### THIRD QUARTER

| Courses | Cr. Hrs. |
|---|---|
| MATH 570 Calc. for Engr. Tech 1 | 5 |
| PHYS 501 Fundamentals of Physics 1 | 4 |
| SPCH 651 Comm. for Business and Professions | 3 |
| EET 502 Circuit Theory 2 | 3 |
| EET 502L Circuit Theory 2 Laboratory | 1 |
| | 16 |

### SECOND YEAR
### FOURTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| MATH 670 Calc. for Engr. Tech. 2 | 4 |
| EET 503 Circuit Theory 3 | 3 |
| EET 503L Circuit Theory 3 Lab | 1 |
| EET 605 Electronics 1 | 3 |
| EET 605L Electronics 1 Lab | 1 |
| EET 620 Digital Fundamentals | 3 |
| EET 602L Digital Fundamentals Lab | 1 |
| | 16 |

### FIFTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| PHYS 503 Fundamentals of Physics 3 | 3 |
| PHYS 503L Fundamentals of Phys. 3 Lab | 1 |
| EET 600 Measurements | 3 |
| EET 600L Measurements Lab | 1 |
| EET 606 Electronics 2 | 3 |
| EET 606L Electronics 2 Lab | 1 |
| EET 610 Direct Current Machines | 3 |
| EET 610L Direct Current Machines Laboratory | 1 |
| | 16 |

### SIXTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| ECON 520 Principles of Economics 1 | 4 |
| EET 607 Electronics 3 | 3 |
| EET 607L Electronics 3 Lab | 1 |
| EET 611 Alternating Current Machines | 3 |
| EET 611L Alternating Current Machines Lab | 1 |
| EET 645 Microprocessor Sys 1 | 4 |
| EET 645L Microprocessor Sys 1 Lab | 0 |
| | 16 |
| **Total Credit Hours** | **99** |

*Social Studies Elective: Select courses from Economics, Geography (excluding Physical Geography), History, Political Science, Psychology, Sociology or Black Studies.

## BACHELOR'S DEGREE PROGRAM

### THIRD YEAR
### SEVENTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| MATH 770 Calc. for Engr. Tech. 3 | 4 |
| CIS 601 Scientific Programming 1 | 4 |
| CET 604 Properties & Strength of Materials | 4 |
| EET 720 Pulse Circuit Design | 4 |
| EET 720L Pulse Circuit Design Lab | 0 |
| | 16 |

### EIGHTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| MATH 785 Matrix Alg. & Num. Methods | 4 |
| MET 630 Manufacturing Techniques | 3 |
| MET 630L Manufacturing Techniques Lab | 1 |
| SCI Elective* | 4 |
| EET 730 Logic Systems Design | 4 |
| EET 730L Logic Systems Design Lab | 0 |
| HPES Activity Course | 1 |
| | 17 |

### NINTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| ECON 624 Economics & Social Statistics 1 | 4 |
| HUMAN Elective | 4 |
| SOCST Elective | 4 |
| EET Elective (700/800 Level) | 4 |
| EET 710 Networks | 4 |
| EET 710L Networks Lab | 0 |
| | 20 |

### FOURTH YEAR
### TENTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| ENGL 743 Technical Communications | 5 |
| CET 800 Building Systems | 4 |
| EET 745 Microprocessor Sys. 2 | 4 |

*Science elective to be selected from Chemistry (excluding CHEM 500) or Physics (excluding PHYS 500).

EET 745L Microprocessor Sys. 2 Lab .....0
EET Elective (700/800 Level) .....4
HPES Activity Course .....1

18

**ELEVENTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| MGT 725 Fundamentals of Management | 4 |
| MET 700 Physical Measurements | 4 |
| EET Elective (700/800 Level) | 4 |
| EET 810 Electrical Systems Design | 4 |
| HPES Activity Course | 1 |
| | 17 |

**TWELFTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| Technical Elective (700 level or above) | 4 |
| HUMAN Elective | 4 |
| MGT 789 Operations Management 1 | 4 |
| EET 820 Power Transmission | 4 |
| | 16 |

**Total Credit Hours 4 Years .....203**

# MECHANICAL ENGINEERING TECHNOLOGY

*Professor Barsch; Associate Professor Krygowski (Program Coordinator); Assistant Professor Zenouzi.*

The Mechanical Engineering Technology (MET) program is designed as a "two-plus-two" program. Students completing the first two years of the program are awarded the Associate in Applied Science degree and are prepared to support engineers as technicians in various industrial activities including drafting, design, and production. Graduates are employed in a wide variety of industries, most often by manufacturers of industrial components or consumer products.

## Bachelor's Degree Program

Students completing the associate degree program may elect to complete the remaining two years on either a full- or part-time basis. Upon successful completion of the second two years of the program, students are awarded the Bachelor of Science in Applied Science degree and are prepared to function as technologists in industrial positions of greater responsibility and potential.

515. *Mechanics 1.* Study of forces as vector quantities; resultant of force systems; principles of mechanical equilibrium; application of basic principles to problems involving trusses, frames, machine elements; friction, and internal forces. Prereq.: STECH 505, concurrent: MATH 520. 4 q.h.

516. *Mechanics 2.* Continuation of MET 515 with applications of basic principles of statics, introduction to dynamics of solids, study of various types of motion, Newton's second law, concept of work and energy, impulse, and momentum. Prereq.: MET 515. 4 q.h.

605. *Thermodynamics.* Fundamental concepts and definitions, first law of thermodynamics, physical properties, ideal and real gases, second law of thermodynamics, application to thermodynamic cycles involving power plants and cyclic machinery. Three hours of lecture and three hours of laboratory per week. Prereq.: MATH 570, MET 516. 4 q.h.

606. *Machine Design 1.* Fundamental principles of stresses and deflections, combined stresses, fatigue and theories of failure. Application of these principles to design of machine components. Three hours of lecture and three hours of laboratory per week. Prereq.: MECH 501 or equivalent. Concurrent: CET 607. 4 q.h.

607. *Machine Design 2.* Continuation of 606, applying fundamental principles to the design of machine elements such as gears, belts, clutches, chains, bearings, welded and bolted joints. Three hours lecture and three hours laboratory per week. Prereq.: MET 606. 4 q.h.

610. *Heat and Power Cycles.* A continuation of Thermodynamics, including the study of heat transfer, the Rankine cycle, the Otto cycle, the Deisel cycle, and the performance of pumps and heat exchangers. Three hours lecture and three hours laboratory per week. Prereq.: MET 605, MET 615. 4 q.h.

615. *Fluid Mechanics.* Fundamental concepts: fluid statics; the basic laws of fluid mechanics and their application to incompressible flow in pipes and channels; dimensional analysis, fluid measurements. Prereq.: MET 516. 3 q.h.

*615L. *Fluid Mechanics Laboratory.* Tests and applications of concepts covered in MET 615. Three hours laboratory per week. Concurrent with MET 615. 1 q.h.

620. *Tool Design.* Practice and procedure in design and selection of tools such as cutting tools, jigs, fixtures, and dies used in industry. Prereq.: MET 630. 3 q.h.

630. *Manufacturing Techniques.* The study of manufacturing methods, tooling, equipment and processes, including casting, heat treatment, welding, hot and cold working. 3 q.h.

*630L. *Manufacturing Techniques Laboratory.* Practice and procedures of machine tool operation including lathes, drill presses, shapers, and milling machines. Three hours laboratory per week. Concurrent with MET 630. 1 q.h.

*700. *Physical Measurements.* Practice in the use and selection of instruments measuring pressure, temperature, strain, force and flow rate including the interpretation of data and the fundamentals of Statistical Quality Control. Three hours lecture and three hours laboratory per week. Prereq.: EET 625 and ECON 624 or MATH 714. 4 q.h.

*Additional fee required.

*715. *Fluid Power Systems.* Principles of fluid power systems, including the practices of device selection and application. Typical industrial systems are constructed and tested. Three hours of lecture and three hours laboratory per week. Prereq.: MET 615. 4 q.h.

720. *Mechanisms.* Graphical and analytical solution of problems involving displacement, velocity, and acceleration in machine mechanisms. Design of linkages to provide required motions of machine members. Three hours of lecture and three hours laboratory per week. Prereq.: MET 607, MATH 570. 4 q.h.

810. *Manufacturing Systems Analysis.* Study of manufacturing systems including process, design value analysis, manufacturing process analysis, selection, and sequencing; machine tool cost and functions, manufacturing economics, system characteristics, and post production analysis. Prereq.: MET 700. 4 q.h.

*812. *Numerical Control.* A study of the programming of numerically-controlled machine tools. Students prepare and verify programs for controlling NC machines using manual and computer assisted techniques. Three hours of lecture and three hours of laboratory per week. Prereq.: DDT 605, MET 630 or consent of instructor. 4 q.h.

820. *Machine Systems.* Analysis and design of complex machine systems incorporating electrical, pneumatic, hydraulic sub-systems. Students work on comprehensive projects. Three hours of lecture and three hours of laboratory per week. Prereq.: MET 715, MET 720, EET 725. 4 q.h.

830. *Advanced Tool Design.* Advanced tool design projects including the design of bending, forming, and drawing dies, inspection and gauging and associated subsystems and material feed mechanisms. Three hours of lecture and three hours of laboratory per week. Prereq.: MET 620. 4 q.h.

840. *Mechanisms 2.* Computer-aided techniques of analysis and design of mechanisms to perform desired machine motions. Consideration of elementary complex number methods, atlas techniques, and algebraic design procedures. Prereq.: MET 720, CIS 601. 4 q.h.

*850. *Air-Conditioning Principles and Practices.* The practical techniques used in the design of heating, ventilating, and air-conditioning systems, including load calculations, unit selection, and duct system layout. The laboratory work includes the use of design charts and manufacturer's catalogs in a project. Three hours of lecture and three hours of laboratory per week. Prereq.: MET 610. 4 q.h.

860. *Robotics Technology.* An application oriented course on the technology and use of industrial robots, including classification, tooling, sensors, workcell design, safety, and programming. Prereq.: MET 820. Concurrent with MET 860L. 3 q.h.

*860L. *Robotics Technology Laboratory.* Practice in the programming and application of industrial robots and associated equipment. Construction of simulated robotic workcells using actual industrial robots, programmable controllers, sensors and grippers. Three hours laboratory per week. Concurrent with MET 860. 1 q.h.

*870. *Applied Finite Element Method.* Basic concepts of the finite element method and their application to the analysis of plane structures and two-dimensional continuum problems in heat transfer, fluid flow, and elasticity. Computer-aided techniques of analyzing the problems in heat transfer, structural analysis, and mechanical design. Three hours lecture and three hours laboratory per week. Prereq.: MATH 785, DDT 605, and MET 607 or CET 610, or permission of instructor. 4 q.h.

## BACHELOR'S DEGREE PROGRAM

### FIRST YEAR

#### *FIRST QUARTER

| Courses | Cr. Hrs. |
|---|---|
| MATH 513 Intensive Intermediate Algebra | 4 |
| MECH 501 Engineering Drawing | 3 |
| STECH 505 Elements of Engineering Technology | 4 |
| CHEM 501 Survey of Chem. 1 | 4 |
| CHEM 510 Survey of Chem. Lab | 1 |
| | 16 |

#### SECOND QUARTER

| Courses | Cr. Hrs. |
|---|---|
| MATH 520 Trigonometry | 4 |
| ENGL 550 Basic Composition 1 | 4 |
| SOCST Elective** | 4 |
| MET 515 Mechanics 1 | 4 |
| | 16 |

#### THIRD QUARTER

| Courses | Cr. Hrs. |
|---|---|
| MATH 570 Calc. for Engr. Tech. 1 | 5 |
| ENGL 551 Basic Composition 2 | 4 |
| MET 516 Mechanics 2 | 4 |
| CET 604 Properties/Strength of Materials | 4 |
| | 17 |

### SECOND YEAR

#### FOURTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| MET 630 Manufacturing Techniques | 3 |
| MET 630L Manufacturing Techniques Lab | 1 |
| MET 615 Fluid Mechanics | 3 |
| MET 615L Fluid Mechanics Laboratory | 1 |
| CET 607 Solid Mechanics | 4 |
| MATH 670 Calc for Engr. Tech. 2 | 4 |
| | 16 |

*Additional fee required.

**Social Studies Elective—Select courses from Economics, Geography (excluding Physical Geography), History, Political Science, Psychology, Sociology or Black Studies.

**FIFTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| MET 605 Thermodynamics | 4 |
| MET 606 Machine Design 1 | 4 |
| DDT 605 CAD Technology 1 | 4 |
| PHYS 502 Fundamentals of Physics 2 | 3 |
| PHYS 502L Fundamentals of Physics 2 Laboratory | 1 |
| HSC 590 Health Education | 3 |
| | 19 |

**SIXTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| MET 610 Heat and Power Cycles | 4 |
| MET 607 Machine Design 2 | 4 |
| MET 620 Tool Design | 3 |
| SPCH 651 Comm. for Business and Professions | 3 |
| SOCST Elective* | 4 |
| | 18 |
| **Total Credit Hours** | **102** |

**THIRD YEAR**
**SEVENTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| MATH 770 Calc for Engr. Tech 3 | 4 |
| ENGL 743 Technical Communication | 5 |
| EET 625 Electrical Systems 1 | 4 |
| ECON 624 Economics & Social Statistics | 4 |
| HPES Activity Course | 1 |
| | 18 |

**EIGHTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| MET 700 Physical Measurements | 4 |
| Computer Elective** | 4 |
| EET 725 Electrical Systems 2 | 4 |
| SOCST Elective* | 4 |
| HPES Activity Course | 1 |
| | 17 |

**NINTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| MET 715 Fluid Power Systems | 4 |
| MET 720 Mechanisms | 4 |
| MATH 785 Matrix Alg. & Num. Methods | 4 |
| PHYS 503 Fundamentals of Physics 3 | 3 |
| PHYS 503L Fundamentals of Physics 3 Lab | 1 |
| HPES Activity Course | 1 |
| | 17 |

**FOURTH YEAR**
**TENTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| MET 820 Machine Systems | 4 |
| MGT 725 Funds of Management | 4 |
| MET 810 Manufacturing Systems Analysis | 4 |
| CET 800 Building Systems | 4 |
| | 16 |

**ELEVENTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| MGT 789 Operations Management 1 | 4 |
| MET Elective (Upper Division) | 4 |
| MET Elective (Upper Division) | 4 |
| HUMAN Elective | 4 |
| | 16 |

**TWELFTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| MET 860 Robotics Technology | 3 |
| MET 860L Robotics Technology Lab | 1 |
| MET 830 Advanced Tool Design | 4 |
| HUMAN Elective | 4 |
| Free Elective | 4 |
| | 16 |
| **Total Credit Hours 4 Years** | **202** |

*Social Studies Elective: Select courses from Economics, Geography (excluding Physical Geography), History, Political Science, Psychology, Sociology or Black Studies.

**Computer Elective: Select from CET 705, CIS 601, CIS 602.

*Social Studies Elective: Select courses from Economics, Geography (excluding Physical Geography), History, Political Science, Psychology, Sociology or Black Studies.

# The College of Fine and Performing Arts

*David Sweetkind, Dean*

## ORGANIZATION AND DEGREES

The College of Fine and Performing Arts consists of the Department of Art, the Department of Communication and Theater, and the Dana School of Music. The degrees granted are the Bachelor of Arts (A.B.), Bachelor of Fine Arts (B.F.A.), Bachelor of Music (B.M.), and, in conjunction with the College of Education, the Bachelor of Science in Education (B.S. in Ed.).

The activities of the college are conducted primarily in the Fine and Performing Arts Center, Bliss Hall. This structure houses the administrative offices of the College as well as classrooms, studios, laboratories and performance areas serving most of the curricular and co-curricular programs in art, speech communication/theater, and music. Additional activities are held in the John J. McDonough Museum of Art, The Butler Institute of American Art, Stambaugh Auditorium, Meshel Hall, and Kilcawley Center.

The College holds as its major objective the highest quality of instruction, including pre-professional training in areas such as studio art, applied music, organizational communication, telecommunications, and theatre; the training of teachers; and the offering

of a wide variety of courses to non-majors from all areas of the University.

The major programs in the College constitute an excellent basis for a liberal education. Individuals who do not necessarily wish to pursue a major should consider taking courses in art, music or communication and theater to develop themselves personally and to compliment whatever major they do choose.

Another important objective of the College is to provide the University community maximum opportunity for experiencing the fine arts.

## REQUIREMENTS FOR DEGREES

## PRE-COLLEGE SUBJECTS

| | HIGH SCHOOL UNITS | | | |
|---|---|---|---|---|
| | B.F.A. | B.M. | B.A. | B.S. in ED. |
| English | 4 | 4 | 4 | 4 |
| U.S. History | 1 | 1 | 1 | 1 |
| U.S. Government | ½ | ½ | ½ | ½ |
| Other Social Science | ½ | ½ | ½ | ½ |
| Laboratory Science | 1 | 1 | 1 | 1 |
| Other Science | 1 | 1 | 1 | 1 |
| Other Science or Social Science | 1 | 1 | 1 | 1 |
| Foreign Language* | 2 | 2 | 2 | 2 |
| Algebra | 2 | 2 | 2 | 2 |
| Geometry | 1 | 1 | 1 | 1 |
| Fine or Performing Arts | 1 | 1 | 1 | 1 |
| Others* | 1 | 1 | 1 | 1 |

Musical performance ability adequate for undertaking college-level music courses.

**In the University Course Requirements for the B.F.A., B.M., and A.B. Degrees**

(Those Fine and Performing Arts students pursuing the B.S. in Ed. Degree should consult the General Requirements and Regulations and the School of Education sections of this catalog.)

| BASIC COURSES | QUARTER HOURS OF CREDIT | | |
|---|---|---|---|
| | B.F.A. | B.M. | B.A. |
| English 550, 551, Basic Composition 1, 2 | 8 | 8 | 8 |
| Health Science 590, Health Education | 3 | 3 | 3 |
| Human Performance and Exercise Science Activity Courses | 3 | 3 | 3 |
| **AREA COURSES** | | | |
| HUMANITIES<br>Courses in two or more of the following areas: literature courses in English or foreign language, philosophy and religious studies; or history and/or appreciation courses in the College of Fine and Performing Arts. | 8-18 | 8-18 | 16 |
| SOCIAL STUDIES<br>Courses in two or more of the following subjects: economics, geography (excluding Geog. 503, 603, 630, and 730, which are applicable to the science requirement), history, political science, psychology, sociology, black studies 600, and social science. | 16-22 | 16-22 | 20 |
| SCIENCE/MATHEMATICS<br>This requirement includes a minimum of 8 hours of science. | 12-22 | 12-22 | 16 |
| **FOR THE DEGREE** | | | |
| FOREIGN LANGUAGE | 0 | 0-24** | 8-20*** |

## PROFESSIONAL COURSES

These are listed under the appropriate department or school curriculums.

*French, German or Italian is recommended for the student intending to major in voice.

**This requirement is for voice majors only. Part of it may be met by two units of high school study in French, Italian, or German, in which 16 hours are required (eight hours in each of the two languages not previously studied).

***The eight-hour requirement assumes the continued study of the same language in which two units of high school credit were earned. If a different language is studied, or if more than two units of high school credit were earned, the requirement is different. See proficiency in a foreign language for details.

## REQUIREMENTS IN ADDITION TO COURSES

Upper division status (including completion of any specified preparatory units lacking at entrance)

Major and minor requirements

Course-level requirements

Point index requirement

Resident requirement

Completion of quarter hours required for the degree

Application for graduation

The student should be familiar with the course numbering system and its significance, as well as the abbreviations used to indicate the amount of credit. (See General Requirements and Regulations section of this catalog.)

## COURSES OF INSTRUCTION AND CURRICULA

### ART

*Professors Babisch, Bright, Glasser, Lepore, Lucas, Maddick, Mitchell, Walusis, Zona; Associate Professors Kornbluth, Moseley, Russo (Chair); Assistant Professors Chan, Krasner, Ulrich.*

The Department of Art offers courses which satisfy major requirements in art for the degrees of Bachelor of Fine Arts, Bachelor of Arts and Bachelor of Science in Education.

For the Bachelor of Fine Arts degree, the programs in studio art are designed to familiarize the student with the basic concepts in art and the language of visual form. Concentration is on the development and involvement of the student with the processes and practices of art. A minimum of 186 quarter hours is required for the B.F.A. degree. In addition, B.F.A. students are expected to exhibit in a senior show at the John J. McDonough Museum of Art. The curriculums for studio art are listed below.*

For the Bachelor of Arts degree, the curricula in art history is listed below. The Art History major is required to complete a minimum of 49 quarter hours in art history beyond the 500 level, plus 8 hours of studio art electives.

Students majoring in art who wish to qualify for the provisional special certificate in art are required to complete a minimum of 78 quarter hours, at least 18 of them in art history. These students, after completing two years of study with a point average of at least 2.40, may apply for admission to the College of Education. (Other requirements for admission are listed under the College of Education section.) No minor is required for the special certificate.

*Not all emphases or programs are available in the evening. Students seeking a degree in art through an evening program should consult with the department chiar to determine if it is possible.

Students wishing to acquire credentials for a teaching field in art which will qualify them for high school teaching only will find a curriculum of courses listed below. Education requirements for this teaching field may be acquired from the College of Education.

### BACHELOR OF FINE ARTS CURRICULUM

The areas of studio art emphasis for the B.F.A. degree are: general art, graphic design, painting, photography, printmaking and spatial arts.

The general requirements for this degree are listed at the beginning of the College of Fine and Performing Arts section.

Please note that a $20.00 lab fee is charged for many studio classes and a $35.00 lab fee is charged for any computer intensive class.

All studio majors should take ART 800 in the term closest to graduation to prepare for the senior show.

### STUDIO ART: GENERAL STUDIO EMPHASIS

| Courses | | Cr. Hrs. |
|---|---|---|
| 500 | Introduction to the Visual Arts | 1 |
| 501 | Drawing 1 | 4 |
| 502 | Design 1 | 4 |
| 503 | Design 2 | 4 |
| 504 | Design 3 | 4 |
| 521 | Survey of Western Art 1 | 4 |
| 522 | Survey of Western Art 2 | 4 |
| 523 | Survey of Western Art 3 | 4 |
| 550 | Computer Graphics for the Artist | 4 |
| 600 | Theory of Art | 3 |
| 601 | Drawing 2 | 4 |
| 602 | Drawing 3 | 4 |
| 604 | Watercolor Painting | 3 |
| 606 | Painting 1 | 4 |
| 611 | Woodblock/Mono Print | 4 |
| 612 | Silk Screen | 4 |
| 618 | Graphic Design Fundamentals | 4 |
| 701 | Life Drawing | 4 |
| 703 | Painting 2 | 5 |
| 705 | Drawing 4 | 4 |
| 723 | Weaving 1 | 3 |
| 725 | Ceramics 1 | 4 |
| 726 | Ceramics 2 | 4 |
| 730 | Sculpture 1 | 4 |
| 770 | Jewelry 1 | 4 |
| 780 | Photography 1 | 4 |
| 800 | Studio Problems | 10 |
| 808 | 20th Century Art to 1945 | 4 |
| 809 | 20th Century Art from 1945 | 4 |
| | Art History electives (700/800 level) | 4 |
| | Studio Art electives (700/800 level) | 16 |

## STUDIO ART: GRAPHIC DESIGN EMPHASIS:

| Courses | | Cr. Hrs. |
|---|---|---|
| 500 | Intro to Visual Arts | 1 |
| 501 | Drawing 1 | 4 |
| 502 | Design 1 | 4 |
| 503 | Design 2 | 4 |
| 504 | Design 3 | 4 |
| 521 | Survey of Western Art 1 | 4 |
| 522 | Survey of Western Art 2 | 4 |
| 523 | Survey of Western Art 3 | 4 |
| 550 | Computer Graphics for the Artist | 4 |
| 600 | Theory of Art | 3 |
| 601 | Drawing 2 | 4 |
| 602 | Drawing 3 | 4 |
| 606 | Painting 1 | 4 |
| 612 | Silk Screen | 4 |
| 650 | Computer Graphics for the Artist 2 | 4 |
| 655 | Graphic Design 1 | 4 |
| 656 | Typography 1 | 4 |
| 657 | Desktop Publishing | 4 |
| 725 | Ceramics | |
| OR | | 4 |
| 730 | Sculpture 1 | |
| 728 | Illustration | 4 |
| 749 | History of Graphic Design | 4 |
| 755 | Graphic Design 2 | 4 |
| | ------ PORTFOLIO REVIEW ------ | |
| 756 | Typography 2 | 4 |
| 757 | Identity Systems | 4 |
| 758 | Informational Graphics | 4 |
| 780 | Photography 1 | 4 |
| 782 | Photography 2 | 4 |
| 830 | Pre-Press Production | 4 |
| 841 | 3-Dimensional Graphics | 4 |
| 842 | Publication Design | 4 |
| **Professional Practices:** | | |
| 800C | Studio Problems (3+3) | |
| OR | | 6 |
| 840 | Graphic Design Internship (3+3) | |
| 845 | Business Skills for the Artist | 4 |
| 846 | Senior Portfolio/Seminar | 4 |
| Art History Elective (two 700/800 level) | | 8 |
| ENGL 743 Tech. Comm. | | 5 |
| | | 142* |

NOTE: If a student is not proficient in typing, BIS 520 (Typewriting/Keyboarding, 2 q.h.) is advised.

## STUDIO ART: PAINTING EMPHASIS

| Courses | | Cr. Hrs. |
|---|---|---|
| 500 | Intro to Visual Art | 1 |
| 501 | Drawing 1 | 4 |
| 502 | Design 1 | 4 |
| 503 | Design 2 | 4 |
| 504 | Design 3 | 4 |
| 521 | Survey of Western Art 1 | 4 |
| 522 | Survey of Western Art 2 | 4 |
| 523 | Survey of Western Art 3 | 4 |
| 550 | Computer Graphics for the Artist | 4 |
| 600 | Theory of Art | 3 |
| 601 | Drawing 2 | 4 |
| 602 | Drawing 3 | 4 |
| 604 | Watercolor Painting | 3 |
| 606 | Painting 1 | 4 |
| 611 | Woodblock & Monoprinting | 4 |
| 612 | Silk Screen | 4 |
| 701 | Life Drawing | 4 |
| 703 | Painting 2 | 5 |
| 705 | Drawing 4 | 4 |
| 725 | Ceramics 1 | 4 |
| 730 | Sculpture 1 | 4 |
| 790 | Special Topics: Painting | 10 |
| 800D | Studio Problems/Painting (5+5) | 10 |
| 803 | Painting 3 | 5 |
| 804 | Painting 4 | 5 |
| 805 | Painting 5 | 5 |
| 808 | 20th Century Art to 1945 | 4 |
| 809 | 20th Century Art from 1945 | 4 |
| Studio Art electives (700/800 level) | | 9 |
| | | 132 |

## STUDIO ART: PHOTOGRAPHY EMPHASIS

| Courses | | Cr. Hrs. |
|---|---|---|
| 500 | Into to Visual Art | 1 |
| 502 | Drawing 1 | 4 |
| 502 | Design 1 | 4 |
| 503 | Design 2 | 4 |
| 504 | Design 3 | 4 |
| 521 | Survey of Western Art 1 | 4 |
| 522 | Survey of Western Art 2 | |
| OR | | 4 |
| 515 | Survey of Non-Western Art | |
| 523 | Survey of Western Art 3 | 4 |
| 550 | Computer Graphics for the Artist | 4 |
| 600 | Theory of Art | 3 |
| 601 | Drawing 2 | 4 |
| 606 | Painting 1 | 4 |
| 612 | Silk Screen | 4 |
| 618 | Graphic Design Fundamentals | 4 |
| 650 | Computer Graphics for the Artist 2 | 4 |
| 722 | Photo Silk Screen | 4 |
| 725 | Ceramics 1 | 4 |
| 730 | Sculpture 1 | 4 |
| 747 | History of Still Photography to 1925 | 4 |
| 748 | History of Still Photography from 1925 | 4 |
| 780 | Photography 1 | 4 |
| 781 | Photography 2 | 4 |
| 782 | Photography 3 | 4 |
| 783 | Photography 4 | 4 |
| 784 | Photography 5 | 4 |
| 790 | Special Topics/Photo | 4 |
| 800E | Studio Problems/Photography | 8 |
| 808 | 20th Century Art to 1945 | |
| OR | | 4 |
| 809 | 20th Century Art from 1945 | |

*This includes the requirements of 21 q.h. for a minor.

824 Photo Silk Screen 2 ..... 4
845 Business Skills for the Artist ..... 4
880 Photography 6 ..... 10
885 Photography Internship ..... 6

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## STUDIO ART: PRINTMAKING EMPHASIS

| Courses | | Cr. Hrs. |
|---|---|---|
| 500 | Intro to Visual Arts | 1 |
| 501 | Drawing 1 | 4 |
| 502 | Design 1 | 4 |
| 503 | Design 2 | 4 |
| 504 | Design 3 | 4 |
| 521 | Survey of Western Art 1 | 4 |
| 522 | Survey of Western Art 2 | 4 |
| 523 | Survey of Western Art 3 | 4 |
| 550 | Computer Graphics for the Artist | 4 |
| 600 | Theory of Art | 3 |
| 601 | Drawing 2 | 4 |
| 602 | Drawing 3 | 4 |
| 606 | Painting 1 | 4 |
| 611 | Woodblock & Monoprinting | 4 |
| 612 | Silk Screen | 4 |
| 701 | Life Drawing | 4 |
| 705 | Drawing 4 | 4 |
| 721 | Lithography 1 | 4 |
| 722 | Photo Silk Screen | 4 |
| 725 | Ceramics 1 | |
| OR | | 4 |
| 730 | Sculpture 1 | |
| 734 | Woodblock & Monoprinting 2 | 4 |
| 735 | Silk Screen 2 | 4 |
| 780 | Photography 1 | 4 |
| 821 | Lithography 2 | 4 |
| 824 | Photo Silk Screen 2 | 4 |
| 800F | Studio Problems/Printmaking | 10 |
| 808 | 20th Century Art to 1945 | 4 |
| 809 | 20th Century Art from 1945 | 4 |
| 870 | Advanced Printmaking (4+4) | 8 |
| Studio Art Electives(700/800 level) | | 10 |

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## STUDIO ART: SPATIAL ARTS EMPHASIS

| Courses | | Cr. Hrs. |
|---|---|---|
| 500 | Intro to Visual Art | 1 |
| 501 | Drawing 1 | 4 |
| 502 | Design 1 | 4 |
| 503 | Design 2 | 4 |
| 504 | Design 3 | 4 |
| 521 | Survey of Western Art 1 | 4 |
| 522 | Survey of Western Art 2 | 4 |
| 523 | Survey of Western Art 3 | 4 |
| 600 | Theory of Art | 3 |
| 601 | Drawing 2 | 4 |
| 602 | Drawing 3 | 4 |
| 606 | Painting | 4 |
| 611 | Woodblock & Monoprinting | |
| OR | | 4 |
| 612 | Silk Screen | |
| 701 | Life Drawing | 4 |
| 705 | Drawing 4 | 4 |
| 725 | Ceramics 1 | 4 |
| 726 | Ceramics 2 | 4 |
| 730 | Sculpture 1 | 4 |
| 731 | Sculpture 2 | 5 |
| 800 | Studio Problems (Ceramics or Sculpture) | 10 |
| 808 | 20th Century Art to 1945 | 4 |
| 809 | 20th Century Art from 1945 | 4 |
| 810 | Ceramics 3 | 4 |
| 811 | Ceramics 4 | 4/8 |
| 812 | Sculpture 3 | 5/10 |
| Studio Electives (700/800 level) | | 10 |
| Art Minor | | 21 |

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Either 811 or 812 must be repeated once (for a total of 8/10 hours).

## BACHELOR OF ARTS CURRICULUMS

**SEE GENERAL REQUIREMENTS AT THE BEGINNING OF THE ARTS AND SCIENCES SECTION.**

## ART HISTORY

| Courses | | Cr. Hrs. |
|---|---|---|
| 515 | Survey of Non-Western Art | 4 |
| 521 | Survey of Western Art 1 | 4 |
| 522 | Survey of Western Art 2 | 4 |
| 523 | Survey of Western Art 3 | 4 |
| 630 | The Art Research Paper | 1 |
| ONE of the following: | | 4 |
| 706 | Renaissance Art | |
| 707 | 17th/18th Century American Art | |
| 708 | Baroque and Rococo Art | |
| 813 | Northern Renaissance Art | |
| ONE of the following: | | 4 |
| 713 | 19th Century European Art | |
| 719 | 19th Century American Art | |
| 744 | African-American Art | |
| 747 | History of Still Photography to 1925 | |
| 748 | History of Still Photography from 1925 | |
| 808 | 20th Century Art to 1945 | |
| 809 | 20th Century Art from 1945 | |
| ONE of the following: | | 4 |
| 714 | Ancient Art 1 | |
| 715 | Ancient Art 2 | |
| ONE of the following: | | 4 |
| 741 | Chinese and Japanese Art | |
| 742 | African Art | |
| 745 | Pre-Columbian Art | |
| 806 | Indian Art | |
| ONE of the following: | | 4 |
| 831 | Early Christian/Byzantine Art | |
| 832 | Early Medieval Art | |
| 833 | Late Medieval Art | |
| 850 | Seminar in Art History | 4 |
| 890 | Problems in Art History | 4 |
| Art History Electives (700/800 level) | | 8 |
| Studio Art Electives | | 8 |

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## BACHELOR OF SCIENCE IN EDUCATION CURRICULUMS

**SEE GENERAL REQUIREMENTS AT THE BEGINNING OF THE COLLEGE OF EDUCATION SECTION.**

### Provisional Special Certificate in Art Education

REQUIRED COURSES: 500, 501, 502, 503, 504, 521, 522, 523, 550, 600, 601, 602, 604, 606, 611 or 612, 618 or 655, 662, 725, 730, 762, 763, 770, 780, 801, 822 or 723, 808 or 809; 8 hrs. of Art History Electives. (ART 801 must be taken concurrently with EDUC 843).

### Provisional High School Certificate in Art Education

REQUIRED COURSES: 500, 501, 502, 503, 504, 521, 522, 523, 602, 611 or 721, 606 or 618, 770, 762, 780, 725, 730; 3 hrs. of Studio Electives. ART 763 (School Arts — Secondary) substitutes for EDUC 800 as the Special Methods Course; counted as a professional course.

### Lower Division Courses

500. *Introduction to the Visual Arts.* An introduction and orientation course for the disciplines of studio art, art education, and art history. The course concentrates on departmental programs, policies, practices, and facilities. Emphasis is placed on various aspects of artistic education leading to a successful career in the visual arts. 1 q.h.

501. *Drawing 1.* A foundation course concerned with developing perceptive and motor skills in fundamental media. Problems, restricted to the two-dimensional format, that stress the visual organization of line, shape and value. One hour of lecture and five hours of lab per week. 4 q.h.

502. *Design 1.* An investigation of the structural properties of two-dimensional shape for the beginning student. Four hours lab and two hours lecture. 4 q.h.

503. *Design 2.* An exploration of fundamental color relationships as a basis for visual organization. Two hours lecture and four hours of lab per week. Prereq.: ART 502. 4 q.h.

*504. *Design 3.* Three-dimensional experiments with various materials. Use of the formal elements in three dimensional design. Eight hours lab per week. Prereq.: ART 503. 4 q.h.

515. *Survey of Non-Western Art 1.* A survey of the arts of Africa, Oceania and the Pre-Columbian Americas. 4 q.h.

516. *Survey of Non-Western Art 2.* Survey of the art of the Far East including India, China, Korea, Japan and Southeast Asia. 4 q.h.

517. *Introduction to Music and Art.* An introduction to and survey of the elements in musical and artistic genre and the influences on philosophy, religion, politics, etc. Particular examples will be drawn from various periods, styles, and movements within the historical framework of art and music. Materials for the course will include slides, field trips, recordings, performances, and lectures. Will not fulfill music literature requirement for the music major or art hisorty requirement for the art major. Cross listed with MUSIC 517. 4 q.h.

521. *Survey of Western Art 1.* Art in western cultures from pre-historic to late Roman (4th century AD). Includes architecture, painting, and sculpture. Introduces key concepts, methods, and vocabulary for the historical study of art. 4 q.h.

522. *Survey of Western Art 2.* Western art from Early Christian (3rd century AD) to late Gothic (15th century). Includes architecture, painting, sculpture, and the luxury arts. Introduces key concepts, methods, and vocabulary for the historical study of art. 4 q.h.

523. *Survey of Western Art 3.* Art in Europe and the United States from the early Renaissance (13th century AD) to the present. Includes architecture, painting, and sculpture. Introduces key concepts, methods, and vocabulary for the historical study of art. 4 q.h.

*550. *Computer Graphics for the Artist.* To provide a fundamental understanding of microcomputer hardware and software in a two-dimensional design context. Students will be expected to operate a computer and its peripheral devices to generate visual images. Two hours lecture, four hours lab. Prereq.: ART 503. 4 q.h.

600. *Theory of Art.* The theories and philosophical implications of form in the visual arts, with emphasis on contemporary thought. Prereq.: ART 521, 522 or 523. 3 q.h.

*601. *Drawing 2.* A Continuation of Drawing 1 with more emphasis on spatial organization. Wider attention to process and technique as well as pictorial content. One hour of lecture and five hours of lab per week. Prereq.: ART 501 and 502. 4 q.h.

*602. *Drawing 3.* Course work intended to provide a wider and more unusual format in the drawing process. Students will be introduced to concepts and philosophical ideas. Use of color dynamics and different experimental materials as well as increased scale and gestural action. One hour of lecture and five hours of lab per week. Prereq.: ART 601. 4 q.h.

603. *Appreciation of Contemporary Art: A Humanities Approach.* A slide/lecture approach to the visual arts of this century, with the ideas that influenced them and the impact made on related humanities fields. Satisfies the University's area requirement in the humanities. 4 q.h.

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*Additional fee required.

*604. *Watercolor Painting.* An introduction to opaque, transparent, and inventive procedures with watercolor. Emphasis is on expressive use of the medium and development of personal style. Six hours lab. Prereq.: ART 601 or 602. 3 q.h.

*606. *Painting 1.* Exploration of old and new techniques. The student is encouraged to see significantly rather than imitatively, and to develop an explorative interest in techniques. Eight hours lab. Prereq.: ART 601 or 602. 4 q.h.

*611. *Woodblock & Mono Printing.* Experimenting with woodblock and mono printing techniques. One hour of lecture; seven hours of lab. Prereq.: ART 601 or ART 602. 4 q.h.

*612. *Silk Screen.* Print-making experiments using various silk screen techniques. Eight hours lab. Prereq.: ART 601 or 602. 4 q.h.

*618. *Graphic Design Fundamentals.* A lecture and studio overview of graphic design emphasizing the role of design in communication, the history of graphic design and the utilization of visual communication in a variety of areas such as publications, corporate identity, computer graphics and advertising. *Not applicable for graphic design or advertising art major.* Two hours lecture, four hours lab. Prereq.: ART 501, 502, and 503. 4 q.h.

630. *Methods for the Art Research Paper.* Basic methods for library research in art. Includes narrowing paper topics; using text-book notes and bibliographies, *The Encyclopedia of World Art, The Art Index,* annotated bibliographies; writing footnotes and endnotes; writing preliminary and final bibliographies; Youngstown Area resources. Prereq.: ART 521 or 522 or 523. 1 q.h.

*650. *Computer Graphics for the Artist 2.* An advanced application for the computer to visual composition with the addition of typography to images. Students will solve various problems of both IBM and Macintosh platforms. Two hours lecture, four hour lab. Prereq.: ART 550. 4 q.h.

*655. *Graphic Design 1.* The basic concepts of graphic design theory including layout and organization of space, the elements of visual communication (typography, images), the use of graphic tools excluding the computer, and the process of presentation from thumbnails through comprehensives. Must achieve a 'B' grade or better to progress in core. Two hours lecture, four hours lab. Prereq.: ART 501, 502, and 503. 4 q.h.

*656. *Typography 1.* The basic concepts of letterforms including classification, anatomy, legibility, readability, and specification. Study incorporates use of headlines, subheads, text and visual dynamics. Must achieve a 'B' grade or better to progress in core. Two hours lecture, four hours lab. Prereq.: ART 550 or equivalent, ART 655. 4 q.h.

*657. *Desktop Publishing for the Designer.* Introduction to the computer as a design tool with emphasis on image capturing and manipulation, type usage, and page layout. The design focus will be on the interaction between type and images. Two hour lecture, four hours lab. Prereq.: ART 550, 656. 4 q.h.

*662. *Art Appreciation for Classroom Teachers.* Focus on the visual arts as related to students majoring in education and the ways the visual arts can be taught to children. Emphasis on aesthetics, criticism, history and the creation of art. Four hours lecture and two hours of lab per week. 4 q.h.

680. *Basic Photography.* A basic non-lab, lecture and critique course emphasizing essential photographic camera skills, techniques, and aspects of visual organization, vocabulary, and seeing photographically. Students must provide 35mm camera and film for class assignments and pay to have color slide film and b&w negative film processed commercially. Some demonstrations will be provided. Prereq.: ART 502 or consent of instructor. 4 q.h.

## Upper Division Courses

*701. *Life Drawing.* Students will develop sound compositon based upon accuracy of observation of the human figure. Understanding of proportion and the detailed study of skeletal and muscular systems will be addressed. One hour of lecture and five hours of lab per week. Prereq.: ART 601. 4 q.h.

*703. *Painting 2.* Continuation of individual exploration of techniques and development of personal tendencies. Ten hours of lab. Prereq.: ART 606. 5 q.h.

*705. *Drawing 4.* A continuation of Drawing 3 with more complexity in pictorial relationships. Further expansion of conceptual solutions and more personalized imagery. Attention to more in-depth exploration of the drawing process. One hour of lecture and five hours of lab per week. Prereq.: ART 602. 4 q.h.

706. *Renaissance Art.* Italian painting, sculpture, and architecture from 1300 to 1575. Examines the work of Michelangelo, Leonardo da Vinci, and others in relation to the history and philosophy of the time. Prereq.: ART 523 or consent of the instructor. 4 q.h.

707. *Seventeenth and Eighteenth Century American Art.* Covering all aspects and media of painting, sculpture, architecture, and the decorative arts of the 17th and 18th centuries. Prereq.: ART 523 or consent of the instructor. 4 q.h.

708. *Baroque and Rococo Art.* European art from 1575 to 1800; styles and trends developed from the Renaissance. The academic, eclectic, natural, and classicist movements. Prereq.: ART 523 or consent of the instructor. 4 q.h.

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*Additional fee required.

709, 710, 711. *History and Appreciation of Art and Music 1, 2, 3 (General).* Illustrated lectures on art and music to develop the cultural growth of the non-art and non-music student. Art and music forms, comparisons of compositional styles, and discussion of the developments, influences, and experiments of the important periods to date. No prior training in art or music required. (Not intended for art majors.) Listed also as MUSIC 709, 710, 711. Satisfies the University's area requirement in the humanities. 4+4+4 q.h.

713. *Nineteenth Century European Art.* European painting and sculpture of Neo-classicism, Romanticism, and Realism. Includes Impressionism and related movements. Art as part of social and political developments, and the foundations of modern formalism. Prereq.: ART 523 or consent of the instructor. 4 q.h.

714. *Ancient Art 1.* Art of the ancient Near East (Mesopotamia, Egypt, Aegean). Includes painting, sculpture, and architechture. Prereq.: ART 521 or consent of instructor. 4 q.h.

715. *Ancient Art 2.* Art of Ancient Greece and Rome. Includes painting, sculpture, and architecture. Prereq.: ART 521 or consent of the instructor. 4 q.h.

719. *Nineteeth Century American Art.* Covering all aspects and media of painting, sculpture, architecture and the decorative arts of the 19th century. Prereq.: ART 523 or consent of the instructor. 4 q.h.

*721. *Lithography.* Concentrated printmaking techniques from a flat stone or metal plate. Eight hours lab. Prereq.: ART 601 or 602. 4 q.h.

*722. *Photo Silk Screen.* Experiments in various photo silk screen methods of printmaking. Two hours of lecture and six hours of lab per week. Prereq.: ART 612. 4 q.h.

*723. *Weaving 1.* Exploration of simple beginning weaving techniques on a four-harness loom. Emphasis on the actual making of yarns on the spinning wheel and dyeing with natural dyes. Off-loom techniques such as basketry, macrame, simple and inkle loom weaving, finger weaving, and shaped loom weaving (such as circles and triangles). Six hours lab. Prereq.: ART 502 or 503 or permission of instructor. 3 q.h.

*725. *Ceramics 1.* Introduction to handbuilding methods, low-fire glaze application, pit-firing, and firing procedures. Two hours of lecture, four hours of lab per week. Prereq.: ART 504, 601. 4 q.h.

*726. *Ceramics 2.* Continuation of handbuilding methods; introduction to wheel-thrown ceramics. Two hours of lecture, four hours of lab per week. Prereq.: ART 725. 4 q.h.

*728. *Illustration.* Visual expression through various media, both electronic and traditional. Emphasis is on problem-solving through the exploration of technique, creative process and the development of personal styles. Two hours of lecture, four hours of lab. Prereq.: ART 602, 657. 4 q.h.

*730. *Sculpture 1.* Problems dealing with form in space. Experiments with wood, plaster, or stone techniques. Eight hours of lab per week. Prereq.: ART 504. (W) 4 q.h.

*731. *Sculpture 2.* Problems dealing with form in space. Exploration and application of various contemporary materials, techniques and ideas. Eight hours of lab per week. Prereq.: ART 730. 4 q.h.

*734. *Woodblock & Mono Printing 2.* Continued experimentation with relief and monotype printmaking techniques. Eight hours of lab per week. Prereq.: ART 611. 4 q.h.

*735. *Silk Screen 2.* Continued experimentation using various silk screen techniques. Eight hours of lab per wek. Prereq.: ART 612. 4 q.h.

742. *African Art.* Study of African tribal art forms and their relationship to the historical period in which they were created. The impact and influence of African art on the development of contemporary Western art trends. Prereq.: BLKST 601 or ART 515 or consent of instructor. Satisfies the University's area requirement in the humanities. 4 q.h.

744. *African-American Art.* A survey of Black American art history from the 17th century through the 20th century. Prereq.: BLKST 601 or ART 515 or consent of instructor. Satisfies the University's area requirement in the humanities. 4 q.h.

745. *Pre-Columbian Art.* An examination of the various cultural and tribal arts in the Americas. The course concentrates on the high cultures of middle-America, such as Olmec, Maya and Aztec, and surveys artistic expression in North and South America. Prereq.: Sophomore standing. Satisfies the University's area requirement in the humanities. 3 q.h.

747. *The History of Still Photography to 1925.* A lecture course in the history of still photography from its beginning to 1925, with emphasis on the evolution of photography as a fine art. Three hours of lecture and one hour of group museum experience per week. Prereq.: ART 523. 4 q.h.

748. *Still Photography 1925 to Present.* A lecture course in the history of still photography from 1925 to the present. Emphasis is placed on the evolution of photography as a fine art. Three hours of lecture and one hour of group museum experience per week. Prereq.: ART 523. 4 q.h.

749. *History of Graphic Design.* A chronological survey of graphic design from ancient to modern times. An emphasis will be placed on specific designers who influenced the field as well as the relationship between visual communication and historical/cultural events. Prereq.: ART 523. 4 q.h.

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*Additional fee required.

*755. *Graphic Design 2.* Type and image. A continuation of the design principles of Art 655, Graphic Design 1, with emphasis on the integration of type with photography and illustration in visual communication. Includes study of informational systems. Must achieve a 'B' grade or better in this class to proceed in core. Two hours lecture, four hours lab. Prereq.: ART 657, 728, 780. 4 q.h.

*756. *Typography 2.* Expressive typography. The creative use of type in visual communications. Emphasis on interpretive, symbolic and metaphoric solutions to typographic problems. 'B' or better grade required to progress in core. Two hours lecture, four hours lab. Prereq.: ART 755. 4 q.h.

*757. *Identity Systems.* Concentrated development of logos and their applications within identity systems. Emphasis on clear, creative integration of type and symbols within a wide range of uses. Two hours lecture, four hours lab. Prereq.: ART 756. 4 q.h.

*758. *Informational Graphics.* The visual interpretation of data through typography and illustration. Includes charts, graphs, maps and data presentation. Two hours lecture, four hours lab. Prereq.: ART 657, 728 and ENGL 743. 4 q.h.

*761. *Art Strategies for Preschool and Kindergarten Teachers.* Designed for the prekindergarten associate and kindergarten validation program with emphasis on establishing attitudes and philosophies through classroom experiences. Two hours of lecture and four hours of laboratory per week. Prereq.: ART 662 or permission of instructor. 4 q.h.

*762. *Art Strategies for Classroom Teachers.* A study of the artistic needs of students from grades one through eight and the exploration of the creative process in relation to classroom experiences. Two hours of lecture and four hours of laboratory per week. Prereq.: ART 662. 3 q.h.

*763. *Strategies for Teaching Secondary School Art.* An exploration of the needs of students from grades nine through twelve and the methods used in providing creative art experiences. Two hours of lecture and four of laboratory per week. Prereq.: ART 762. 3 q.h.

*769. *Fiber Exploration.* Individual manipulation of the processes of dyeing, printing of fibers, and creative stitchery, wrapping, macrame, soft sculpture, creative knitting, and crocheting. Eight hours of lab. Prereq.: ART 504. 4 q.h.

*770. *Jewelry 1.* The basic methods of fabrication used in the creation of jewelry. Design as applied to the hand processes in the shaping of various metals. Eight hours of lab per week. Prereq.: ART 504. 4 q.h.

*771. *Jewelry 2.* The casting process used in the creation of jewelry. Eight hours of lab per week. Prereq.: ART 504. 4 q.h.

*780. *Photography 1.* Photographic fundamentals; developing, copy enlarging. Technical and visual knowledge relating to the photograph as an expressive art form. Students provide their own cameras and supplies. Two hours of lecture; six hours of lab. Prereq.: ART 502 or permission of instructor. 4 q.h.

*781. *Photography 2. Color.* Color printing, color films; exposure, developing. Students provide their own cameras and supplies. Eight hours of lab. Prereq.: ART 780. 4 q.h.

*782. *Photography 3.* Continued development of photographic craft and vision, in black and white and/or color photography. Introduction to large-format films; sheet film development and printing; multi-media visual communication. Students provide their own cameras and supplies. Eight hours of lab. Prereq.: ART 780. 4 q.h.

*783. *Photography 4.* A continuation of photography 780 with emphasis on refinement of the student's creative and technical abilities. One hour of lecture; seven hours of lab. Students provide cameras and supplies. Prereq.: ART 780. 4 q.h.

*784. *Photography 5.* A continuation of photography 781 with emphasis on competence in color theory, technique, and creative manipulation of recent color processes. One hour of lecture; seven hours of lab. Students provide their own cameras and supplies. Prereq.: ART 781. 4 q.h.

*790. *Special Topics in Studio Art.* Study in one of the many areas of the visual arts. May be taken three times for credit if topic is not repeated. Prereq.: Art 503 and/or ART 504, or consent of instructor. 2-4 q.h.

791. *Special Topics in Art History.* Study in one of the many areas of art history. May be taken up to three times for credit if topic is not repeated. Prereq.: Permission of the instructor or sophomore standing. 4 q.h.

*800. *Studio Problems.* Continued independent experiments in any two- or three-dimensional studio discipline. A portfolio or slides of the student's previous work in the elected area of study must be presented to the department chair no later than the fifth week of the previous quarter. A committee of art faculty appointed by the chair will review the student's work and make its recommendation to the chair. May be repeated for maximum of 10 hours of credit. Students completing ten hours of studio problems are required to exhibit their work in the department gallery. Prereq.: Permission of department chair and completion of all previous courses in the chosen area. 1-10 q.h.

801. *Seminar.* Discussions of problems of the prospective teacher which involve plant facilities, tools, and supplies. Planning individual exhibits on site and on campus. Assembly of comprehensive portfolio and portfolio review. Required of all art education students and must be taken concurrently with student teaching. Two hours of lab. 1 q.h.

*803. *Painting 3.* Concentration of individual investigation of imagery and technique. Ten hours of lab per week. Prereq.: ART 703. 5 q.h.

*Additional fee required.

*804. *Painting 4.* A continuation of individual investigation of imagery and technique. Ten hours of lab per week. Prereq.: ART 803. 5 q.h.

*805. *Painting 5.* Painting 5. A continuation of individual investigation of imagery and technique. Ten hours of lab per week. Prereq.: ART 803. 5 q.h.

808. *Twentieth Century Art to 1945.* Important movements in painting, sculpture, and architecture from 1900 to 1945, and the artists involved in these movements. Prereq.: ART 523 and junior standing. 4 q.h.

809. *Twentieth Century Art from 1945.* Important movements in painting, sculpture, and architecture from 1945 to the present, and the artists involved in these movements. Prereq.: ART 523 and junior standing. 4 q.h.

*810. *Ceramics 3.* Emphasis on clay as a means of personal expression through handbuilt and wheel-thrown ceramics. Two hours of lecture, four hours of lab per week. Prereq.: ART 726. 4 q.h.

*811. *Ceramics 4.* Designed for advanced ceramics students. Course will include study of kiln types, ceramic raw material, the nature and properties of clay and non-clay materials used in ceramic construction and calculation, formulation and firing of clay bodies, slips, engobes and glazes. May be repeated once for maximum of 8 q.h. credit. Two hours of lecture, four hours of lab per week. Prereq.: ART 810. 4 q.h.

*812. *Sculpture 3.* Concentrated exploration of techniques developed in ART 730 or 731. Ten hours of lab. Prereq.: ART 731. 5-10 q.h.

813. *Northern Renaissance Art.* Painting, sculpture and graphic arts of Germany, France and the Netherlands. Examines the work of Jan van Eyck, Hieronymous Bosch, Albrecht Durer and others. Prereq.: ART 706; or ART 523 and junior standing; or consent of the instructor. 4 q.h.

816. *Introduction to Museum Practices.* An exploration of museum history, administration, acquisitions, preservation, conservation, connoisseurship, exhibition procedures, physical plant, and security. Weekly seminars and practical experience at the Butler Institute of American Art and the Arms Museum. Two hours of seminar and six hours of museum practicum weekly. Prereq.: 12 hours of art history and junior standing. 5 q.h.

817. *Museum Internship.* The student experiences the day-to-day operations of the museum through observation and hands-on applications. Experiences will include registration and computer cataloguing, art preparation and preservation, basic conservation techniques, elementary curatorial research and the general work of museologists in the small museum. Student is required to spend six clock-hours per week. May be repeated for a maximum of 4 q.h. Prereq.: ART 816. 2 q.h.

*821. *Lithography 2.* Continued experimentation with print-making techniques from a flat stone or metal plate. Eight hours lab. Prereq.: ART 721. 4 q.h.

*822. *Puppetry and Stage Construction.* Concentrated exploration of puppetry, stage design, and construction, and a survey of the historic development of puppetry. Prereq.: ART 762 or consent of instuctor. 3 q.h.

*823. *Weaving 2.* The more advanced loom techniques of pattern-weaving, tapestry, ripsmatta, rugmaking, double weave, open weave, simple garment making, and Ikat dyeing. Continuation of more complicated off-loom techniques. Prereq.: ART 723. 3 q.h.

*824. *Photo Silk Screen 2.* Continued experimentation in various photo silk screen methods of printmaking. Ten hours lab. Prereq.: ART 722. 5 q.h.

*830. *Pre-Press Production.* Traditional and electronic production for printed materials, emphasizing pre-press software. Printing and paper specifications, as well as current printing technology, will be addressed. Two hours lecture, four hours lab. Prereq.: ART 657, 756. 4 q.h.

831. *Early Christian and Byzantine Art.* Christian art from its origins to about 500 AD in the Latin West and to 1453 in the Greek East. Includes architecture, painting, sculpture, and the luxury arts. Stresses change in art as part of social and religious developments. Prereq.: ART 522 and ART 630 and Junior standing or consent of the instructor. 4 q.h.

832. *Early Medieval Art.* Irish, English, and continental European art of the Migration period (Franks, Visigoths, etc.), Hiberno-Saxon, Carolingian, Anglo-Saxon, Viking, and Ottonian cultures (about 500 to 1100 AD). Includes jewelry, painting, sculpture, and architecture. Interaction between Celtic, Germanic, and Mediterranean cultures. Prereq.: ART 522 and ART 630 and Junior standing or consent of the instructor. 4 q.h.

833. *Late Medieval Art.* Romanesque and Gothic architecture, painting, sculpture, and the luxury arts (about 1100 to 1500 AD). Examines the great cathedrals and other arts as aspects of pilgrimage and feudalism, reflecting new developments in Christianity. Prereq.: ART 522 and ART 630 and Junior standing or consent of the instructor. 4 q.h.

840. *Graphic Design Internship.* An application of Graphic Design theory and practices within a professional work experience. Students are selected on the basis of preparation, portfolio, GPA and competitive interview. Enrollment is contingent upon the availability of internship positions. 20 hours of student time is expected weekly. Students must enroll for two consecutive quarters. Prereq.: ART 727 and permission of instructor. Course may be repeated for up to 6 q.h. 3 q.h.

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*Additional fee required.

*841. *Three-Dimensional Graphics.* The application of graphic design concepts to three-dimensional problems in packaging, environmental graphics, signage and exhibition design. Two hours lecture, four hours lab. Prereq.: ART 504, 757. 4 q.h.

*842. *Publication Design.* The coursework is based on the use of type and visual elements in publication format. Assignments in newspaper design, newsletters, magazines, direct mail, annual reports, specialty publications and book design. Will include a major project. 4 q.h.

*845. *Business Skills for the Artist.* Focus is on preparation for business world, galeries and museums as well as on obtaining free lance work. Content covers legal issues, taxes, and copyrights as well as portfolio preparation, and professional practices. Prereq.: permission of instructor. 4 q.h.

*846. *Senior Portfolio/Graphics Seminar.* Portfolio development including self-promotion materials. Preparation for Senior Show. Course also includes seminars on current issues in graphic design. Four hours lecture. Prereq.: ART 842. 4 q.h.

850. *Seminar in Art History.* A seminar on problems in art history. Topics will be drawn from all periods and media. Prereq.: Senior standing or consent of instructor. May be repeated with different topics up to 12 q.h. 4 q.h.

*860. *Advanced Computer Graphics.* Concentration on individual independent study in computer imagery. Encompasses both color systems and desktop publishing. Prereq.: ART 650 or permission of instructor. May be repeated for a maximum of 12 q.h. 1-4 q.h.

*870. *Advanced Printmaking.* Advanced methods in a selected printmaking discipline. May be repeated for a maximum of eight hours of credit. Eight hours of lab per week. Prereq.: ART 734 or 735 or 821 or 824. 4 q.h.

*880. *Photography* 6. Selected technical and aesthetic photographic problems to enrich the student's abilities and knowledge of photography. May be repeated for a maximum of 10 q.h. credit. Eight hours of lab. Prereq.: ART 784 and acceptance of photo portfolio by instructor. 5-10 q.h.

885. *Photography Internship.* Application of photographic knowledge and skills in the professional work environment. Competitive admission to course based on preparation, portfolio, G.P.A., competitive interview, and the availability of positions. Ten contact hours per week. Prereq.: ART 784. May be repeated once. 3 q.h.

890. *Problems in Art History.* Studies in bibliography, descriptive and interpretative terminology, iconography, research methods and objectives, forms and structures of critical performances. May be repeated for a maximum of nine quarter hours. Prereq.: Senior standing and permission of instructor and department chair. 1-9 q.h.

*Additional fee required.

# COMMUNICATION AND THEATER

*Professors Castronovo, Henneman, Hugenberg, Hulsopple, Kougl, O'Neill, Owens (Chair), Robinson; Associate Professor LaLumia; Assistant Professors Hagin, Mathews, McFarland, Murphy, Nolan, Shanabarger.*

The Department of Communication and Theater offers coursework which satifies major requirements for the degrees of Bachelor of Arts, Bachelor of Fine Arts, and, in conjunction with the College of Education, Bachelor of Science in Education.

## Bachelor of Arts

The Bachelor of Arts degree for speech communication or telecommunication studies requires 60 credit hours within the department. Communication majors may emphasize general speech, organizational communication, or theater. For further information about departmental requirements, including a meeting with a faculty member who will discuss the requirements with you, check in the departmental office, located in Bliss Hall, Room 2000.

## MAJOR IN SPEECH COMMUNICATION

The BA degree in Speech Communication has three areas of study, emphasizing either Speech Communication, Organizational Communication, or Theater.

### Speech Communication

The speech communication emphasis provides a unique liberal arts experience through its focus on the theoretical and practical study of communication in its various forms. Coursework is designed to develop students' communication skills and to foster critical thought about what happens when people and organizations communicate. This emphasis is a good foundation for all careers and graduate study.

A second goal is to contribute to a liberal arts education. Studying communication includes an understanding of and appreciation of communication as critical thought. To help students meet these goals, they take a core set of courses in public speaking, communication theory, group communication, research and argumentation. In addition to this core, students will take courses in rhetoric, oral interpretation, interpersonal communication and advanced public speaking.

### Organizational Communication

The organizational communication emphasis provides students with knowledge and skills necessary to pursue careers dependent on human interaction in business, industry or government. Bridging the gap between the classroom and the workplace is an objective of the organizational communication sequence.

To help students achieve these objectives, classroom work recognizes communication as a critical tool for organizational success. Students take courses in interviewing, organizational communication, writing skills, human behavior and more. Internship opportunities for outstanding students are available.

**Theater**

The Theater emphasis provides a sound academic approach and extensive practical training in the techniques of theatre. Theater students work with their instructors not only in the classroom but in a practical and/or laboratory setting on a highly personal basis. This basic liberal arts program provides students with a broad general education and gives them opportunities to develop special skills in theater. A detailed curriculum guide is available in the communication department office.

## MAJOR IN TELECOMMUNICATION STUDIES

A major in the Telecommunication studies curriculum provides in-depth knowledge and intellectual challenge in electronic communication. Students receive practical orientation to the skills and techniques of broadcasting. Further, they explore contemporary theories and problems which are central to telecommunications media, as well as examine new communication media.

From a liberal arts perspective, the Telecommunication Studies curriculum is designed to aid the student in pursuit of careers not only in broadcasting but also in recently expanding avenues of communication such as non-commercial broadcasting, corporate communications, industrial communications, cablecasting, and independent production. Internships are available in media organizations to students of superior academic achievement.

## TEACHING CERTIFICATION

Students wishing to teach on the secondary level may seek either the Comprehensive Communication Certificate, Speech 7-12 Certificate, Drama/Theater 7-12 Certificate or Drama/Theater K-12 Certificate. These certificates may be completed as part of either a Bachelor of Arts degree, plus the education requirements, or the Bachelor of Science in Education degree. For the Speech Certificate the appropriate methods course is Speech 800C. The Comprehensive certificate requires 800C and 800E. For the Drama/Theater Certificates the appropriate methods course is 800G. For further information about certification requirements in Education, see Administration and Secondary Education. Detailed curriculum guides are available in the Department Office.

# Bachelor of Fine Arts

## THEATER

The Bachelor of Fine Arts program is designed to provide more intensive theater work preparing students for careers in professional, community, or academic theater, and is available by audition and/or interview only. Youngstown State University offers two tracks in the B.F.A. program — one emphasizing non-musical theater, the other musical theater. Students electing this program will receive general and intensive academic and co-curricular training and experience in theater integrating both performance (acting, dance, directing) and design (lighting, costume, scenic design) areas.

Curriculum guides detailing the production/performance and musical theater tracks of the B.F.A. program are available in the department office.

To facilitate admission, retention and guidance in the B.F.A. Theater (and Musical Theater) program, the following three-level check system is administered by the theater faculty.

## PRODUCTION/PERFORMANCE TRACK

Level I: Matriculation Diagnostic Audition.
This audition would evaluate the skill level of the entering freshman.

Level II: Advanced Standing Audition.
This audition would evaluate the progress of the individual student in the program. The audition would be given when a minimum of 90 hours have been earned including:

560 Introduction to Theater
561 Stagecraft
661 Play Production
662 Practicum in Theater
668 Fundamentals of Acting
670 Oral Interpretation
664 Tap and Jazz

Level III: Senior Project.
The evaluation of this project will help advise the student concerning subsequent career goals. The project will consist of a creative performance enterprise designed to demonstrate the student's accumulated skills.

## MUSICAL THEATER TRACK

Level I: Matriculation Diagnostic Audition.
(See Level I for B.F.A.-Theater)

Level II: Advanced Standing Audition.
This audition would evaluate the progress of the individual student in the program. The audition would be given when a minimum of 90 hours has been earned including:

Survey of Musical Theater
Music History and Literature (4 hours)
Musical Theater Dance
Voice (10 hours)
Keyboard (3 hours)
Music Theory 572
Opera Workshop (3 hours)
Play Production
Acting Fundamentals
Stagecraft

Level III: Senior Project.
(See Level III-Senior Project, B.F.A.-Theater)

# Professional Societies

## Alpha Epsilon Rho

The YSU Chapter of Alpha Epsilon Rho, the National Honorary Broadcasting Society, conducts field trips, seminars, and workshops in cooperation with local and national broadcasters. Members produce and host WKBN-TV's "Talk-Back" program.

## Alpha Psi Omega

The University Theater is a member of Alpha Psi Omega, the National Honorary Dramatics Fraternity. Students may become members of the local chapter by (1) achieving the prescribed cumulative grade average, and (2) earning a prescribed number of points through participation in dramatic activities. Membership requires sophomore standing.

## Pi Kappa Delta

Students who are active participants in the Forensics program may apply for membership in Pi Kappa Delta, the National Honor Society for students involved in extracurricular speech activities.

# Speech Communication

## Lower Division Courses

500. *Introduction to Speech Communication and theater.* Survey of departmental programs, policies, practices and facilities. Emphasis on various aspects of speech communication, telecommunications, and theater leading to success in the field. To be taken within the first 45 hours of course work. 1 q.h.

525. *Building Communication Confidence.* Intensive work for students having difficulty with fundamental communication skills. In consultation with instructor, students set individual goals and perform practical exercises. Prereq.: Permission of the instructor. Not applicable to speech communication major. 4 q.h.

530. *Introduction to Communication.* Survey of significant communication models, systems, and theories. The communication process will be discussed and applied as it occurs on the interpersonal, small-group, organizational and public levels. 4 q.h.

545. *Fundamentals of Communication.* Introduction to theories and techniques of preparing for, participating in and evaluating interpersonal, group and public communication. Application exercises included for student practice. 4 q.h.

*550. *Public Speaking.* Designed to improve speech skills through the application of communication principles to varying audience situations. 4 q.h.

600. *Speech Improvement Lab.* Designed to help students develop clearer, more distinct and expressive speech, so they can meet their personal and professional communication requirements more effectively. Individualized goals set with instructor. Repeatable once with instructor's recommendation. Students will be screened to determine if they could benefit from course. 4 hours per week. 2 q.h.

615. *Competitive Public Speaking 1.* An introduction to forensics competition. Practice with the coach(es) for a minimum of one hour per week and participation in at least two forensics tournaments each quarter is required. COMM 615 may be taken up to 8 hours. Prereq.: Permission of instructor. 2 q.h.

640. *Introduction to Rhetoric.* An introduction to the ideas and writings of thinkers concerned with communication as a practical art. Concepts from lecture and discussion sections will be applied in practical experience. 4 q.h.

651. *Communication for Business and the Professions.* The principles and practices of speech communication in business, industrial and professional settings. Emphasis on presentational speaking. Two hours of lecture plus two hours of lab per week. 3 q.h.

652. *Business and Professional Speaking.* The principles of speech communication in business and professional settings. Emphasis on presentational speaking and group communication. 4 q.h.

*653. *Small-Group Communication.* Small-group interaction and participation from a communication systems perspective. Includes an examination of group processes and leadership in group interaction. 4 q.h.

656. *Interpersonal Communication.* An examination of the skills necessary to develop, maintain, and evaluate one-to-one relationships. Through practical experiences from everyday life, the class examines what occurs when one person communicates with another. 4 q.h.

657. *Organizational Communication 1.* A general survey of traditional and interpretive approaches to organizational communication as well as career applications. Explores the relationship between communication and organizational effectiveness. Prereq.: 550 or 652 or Junior standing in Speech Communication. 4 q.h.

670. *Oral Interpretation.* The development of skills necessary for the oral interpretation of various types of literature — prose, poetry, and drama. The thorough analysis of each literary work and communication of the work to an audience. Prereq.: Sophomore standing. 4 q.h.

## Upper Division Courses

710. *Intercultural Communication.* Intercultural communication issues that affect interpersonal and group communication across cultural boundaries. Prereq.: COMM 530, 550, or 652; Junior standing. 4 q.h.

730. *Communication Theories.* An in-depth study of key historical and contemporary theories, concepts, models and pertinent literature in communication. Prereq.: COMM 530. 4 q.h.

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*Additional fee required.

740. *Special Topics in Speech Communication.* An in-depth analysis of topics of relevance and interest in classical through contemporary speech communication. Prereq.: COMM 530 or 640 or junior standing with permission of instructor. 4 q.h.

745. *Individual Studies.* The student selects a special problem or issue in communication to research in detail. Repeatable to a maximum of eight hours. Prereq.: COMM 530 or 640 or Junior standing in Speech Communication; acceptance of Individual Study Proposal Form by coordinating faculty member and department chair. 1-4 q.h.

*750. *Advanced Public Speaking.* Advanced theoretical principles in the practice of public speaking and persuasive discourse. Prereq.: COMM 550 or 654 or 652. 4 q.h.

754. *Argumentation.* Developing critical thinking through the systematic evaluation of theories, principles and practices of argumentation. Prereq.: COMM 550 or 652 or 654 or ENGL 551. 4 q.h.

755. *Free Speech and Censorship.* Problems, issues and rationales for prior restraint of discourse, focusing primarily on the United States. Prereq.: ENGL 551. 4 q.h.

756. *Interviewing.* Theories of communication applied to interview situations with a special concern for developing student understanding of and skills needed to participate in one-to-one and panel interviews. Prereq.: COMM 550 or 652 or Junior standing in Speech Communication. 4 q.h.

757. *Organizational Communication 2.* Examines the traditional structures and functions of communication in organizations emphasizing the interdependence of organizational goals and communication. Focuses on recognizing , understanding, assessing, and designing communication systems in organizations. Prereq.: COMM 657; COMM 653 recommended for students in Organizational Communication emphasis. 4 q.h.

770. *Advanced Oral Interpretation.* A study of the problems involved in presenting oral readings of some length and difficulty in fiction, poetry, and drama. When possible, opportunities are given to members of the class to present programs outside the classroom. Prereq.: COMM 670. 4 q.h.

776. *Practicum in Organizational Communication.* A directed field experience in organizational settings requiring two hours per week in the field placement for each credit hour taken. Weekly meetings with the faculty supervisor are required. Repeatable to a maximum of 8 q.h. Prereq.: COMM 757; or both COMM 657 and 756; and approval of Practicum Proposal Form by department chair. 1-4 q.h.

*Additional fee required.

798. *Understanding Communication Research.* Designed to prepare students to review, understand, and use the results of research resulting from qualitative and quantitative communication research methodologies. Prereq.: COMM 530, 653, 657; ENGL 743; and COMM 550 or 652 or 654. 4 q.h.

810. *Intercultural Organizational Communication.* An examination of the theories, models and research in intercultural organizational communication. Course will explore communication dimensions of intercultural management and coordination, and the effects of increased intercultural work on communication between organizations. Prereq.: COMM 757. 4 q.h.

815. *Competitive Public Speaking 2.* Advanced forensic competition. Practice with the coach(es) must be scheduled for a minimum of one hour per week and participation in at least two forensics tournaments each quarter is required. Open to Juniors and Seniors. COMM 815 may be taken up to 8 hours. Prereq.: COMM 615 and permission of instructor. 2 q.h.

852. *Decision Making.* Analysis of communication variables influencing decision making in groups. Includes a survey of relevant literature, observation of decision making groups, and participation in decision making processes. Prereq.: COMM 653. 4 q.h.

856. *Communication Training and Development.* Designed to teach students various methodologies available to assess communication in organizations. Based on results of assessments, students will design appropriate communication training programs. Prereq.: COMM 798, COMM 756, COMM 757. 4 q.h.

857. *Organizational Cultures.* The interpretive approach to organizational communication, utilizing culture as a dominant metaphor, emphasizing the relationship between organizational realities and communication behaviors. Prereq.: COMM 757, COMM 798; also SPCH 756 or permission of instructor. 4 q.h.

858. *Practicum in Speech Communication Research.* Experiences in designing, validating, and/or using methods and instruments of qualitative or quantitative research appropriate to the study of communication. Prereq.: COMM 798; or equivalent research course and consent of instructor; and approval of Practicum Proposal Form by department chair. 1-4 q.h.

859. *Advanced Studies in Organizational Communication.* An in-depth analysis of communication topics in modern organizations. Students will examine communication processes as they influence organizational development outcomes. May be repeated for credit as long as a specific topic is not repeated. Prereq.: COMM 757; or COMM 657 and permission of instructor 4 q.h.

896. *Internship in Speech Communication.* An application of communication theories and practices within organizational settings. Weekly field workload: 3 q.h.—15 hours; 4 q.h.—20 hours. Repeatable to a maximum of 8 q.h. Prereq: For Speech emphasis:

COMM 657, upper division status, approval by internship committee and permission of department chair; for Organizational Communication emphasis: COMM 757, approval by internship committee and permission of department chair. 3-4 q.h.

898. *Seminar in Speech Communication.* A cooperative exploration of topics in communication not covered in course offerings. May be repeated for credit if the seminar topic changes. Prereq.: COMM 798; Junior standing or permission of instructor. 4 q.h.

## Speech Education

603. *Physical Aspects of Speech.* A fundamental study of the voice mechanism, vocal sound, and elementary phonetics. Includes a functional familiarization with the International Phonetic Alphabet. 2 q.h.

606. *Introduction to Speech Pathology.* An examination and observation of the nature and severity of speech communication problems; their identification, characteristics, and possible remediation. 4 q.h.

654. *Speech Communication in the Classroom.* A speech fundamentals course adapted to the special needs of teachers. Emphasis on improving interpersonal communication skills, group discussion techniques, and skill in the extemporaneous style of classroom presentation. Required of all students seeking certification in education. Prereq.: EDUC 501. 4 q.h.

705. *Speech Problems of Children.* A consideration of speech improvement for all pupils and of speech correction for pupils with speech and/or hearing problems in kindergarten primary, and intermediate grades. Types of difficulties, techniques, and materials for development and continued use of good voice and acceptable speech. Prereq.: COMM 654 or permission of instructor. 3 q.h.

800C. *Special Methods: Speech Communication.* Exploration of the content and methodology involved in the handling of traditional speech subjects. Emphasis on the identification of core concepts, planning, instructional strategies, and evaluation. Prereq.: SEDUC 706/706L unless taken concurrently with consent of instructor. Same as SEDUC 800C. 3 q.h.

801. *Co-curricular Programs in Speech and Theater.* Practical aspects of setting up and directing high school forensics and theatrical events. Significant elements of co-curricular programming: underlying philosophy, budget, recruiting students, developing student skills and scheduling. Prereq.: Senior standing. 4 q.h.

## Telecommunication Studies

### Lower Division Courses

*580. *Introduction to Telecommunication Studies.* A survey course designed to familiarize students with the principles and practices involved in radio and television broadcasting and other electronic mass media. Includes three hours of lecture plus two hours group lab per week. 4 q.h.

*581. *Survey of American Mass Communication.* A rhetorical examination of the development, operation and functions of radio, television, film and print media in America. Television documentaries and films will illustrate the implications of mass communication. The student will be expected to examine how a person may be individually affected by mass communication. Satisfies the University's area requirement in the humanities. 4 q.h.

682. *Scriptwriting for Electronic Media.* Fundamentals of telecommunication media writing with emphasis on the theory, analysis, and practices in the preparation of continuity, news, and documentaries. Prereq.: ENGL 550 and TCOMM 580 with a C or better in both. 4 q.h.

*683. *Media Operations and Performance.* An introduction to practices and procedures basic to media production facilities. The equivalent of three hours lecture plus two hours lab per week. Prereq.:ENGL 550 and TCOMM 580 with a grade of C or better in both. 4 q.h.

*684. *Broadcast News Practices.* Organization, preparation, and presentation of radio and television news programs. Includes study of journalistic requirements of broadcast media and broadcast newsroom operation. Includes the equivalent of three hours lecture plus two hours lab per week. Prereq.: TCOMM 682 and 683, with a grade of C or better in both. 4 q.h.

*685. *Studio Operations 1.* A supervised application of operations and performance skills to audio programming. Repeatable to a maximum of 3 hours. Prereq.: TCOMM 682 and 683, with a grade of C or better in each. 1 q.h.

*686. *Studio Operations 2.* A supervised application of operations and performance skills to video programming. Repeatable to a maximum of 3 hours. Prereq.: TCOMM 682 and 683, with a grade of C or better in each. 1 q.h.

### Upper Division Courses

720. *Current Issues in Telecommunication.* An examination of contemporary issues in telecommunication. The course will focus on social, economic and technological questions. Prereq.: TCOMM 682 and 683 with a grade of 'C' or better. 4 q.h.

725. *Implementing Telecommunication Systems.* The course examines implementation from planning to evaluation of telecommunication systems in business and social settings. Specific planning and evaluation techniques are emphasized. Prereq.: TCOMM 682 and 683 with a grade of 'C' or better. 4 q.h.

*780. *Principles and Practices of Media Announcing.* A study of the announcer's role in electronic mass media. Students will examine theories, techniques, and major styles of media announcing. Three hours lecture, two or more hours of individualized lab per week. Prereq.: TCOMM 682 and 683 with a grade of C or better in both. 4 q.h.

*Additional fee required.

*781. *Audio Production.* Study of the concepts of audio production, including student production of various types of programs. The equivalent of three hours lecture plus two hours lab per week. Prereq.: TCOMM 682 and 683, with a grade of C or better in both. 4 q.h.

*782. *Video Production.* Study of studio production elements such as equipment, lighting, scene design, graphics, and special effects. Includes the equivalent of three hours lecture plus two hours lab per week. Prereq.: TCOMM 682 and 683, with a grade of C or better in both. 4 q.h.

783. *Telecommunication Regulation.* Responsibilities of electronic media communicators as prescribed by law and administrative agency policies, and court decisions. Analysis of the regulatory environment of broadcasters, common carriers, and cable. Prereq.: TCOMM 682 and 683, with a grade of C or better in both. 4 q.h.

784. *Telecommunication Programming.* A study of contemporary broadcast and cable programming, including development, scheduling, and competitive strategies. Prereq.: TCOMM 682 and 683, with a grade of C or better in both. 4 q.h.

*785. *Studio Operations 3.* Individual projects or assignments in planning, coordinating and assessing production and programming related to studio procedures. Repeatable to a maximum of 3 hours. Prereq.: TCOMM 685 or 686 with a grade of C or better; acceptance of Project Proposal Form by coordinating faculty member and department chair. 1 q.h.

*786. *Video Production 2.* A study and application of the television production elements. Production values of composition, transition, and sequence are explored from a communication perspective. Students produce, videotape, and critique several field-based productions. Equivalent of three hours of lecture plus two hours of lab per week. Prereq:: TCOMM 782. 4 q.h.

787. *Practicum in Telecommunication.* Individual study and practical application of communication principles to various telecommunication problems. Repeatable for a maximum of eight hours. Prereq.: TCOMM 682 and 683, with a grade of C or better in both. 2-4 q.h.

788. *Electronic Media Sales and Promotion.* An examination of the principles and practices of selling electronic media. Analysis of rating-based sales and promotion strategies, as well as relations with agencies and station representatives. Prereq.: TCOMM 682 and 683, with a grade of C or better in both. 4 q.h.

*789. *Electronic Media Interviewing.* A study and application of interviewing and reporting techniques, emphasizing the local news interview and public affairs reporting. Includes the equivalent of three hours lecture plus two hours of lab per week. Prereq.: TCOMM 682 and 683, with a grade of C or better in both. 4 q.h.

881. *Telecommunication Management.* A study of the relationships of communication management with government, networks, ownership and other groups. Organization and procedures of typical units; common planning models. Prereq.: TCOMM 682 and 683, with a grade of C or better in both. 4 q.h.

*882. *Studio Operations Management 4.* Advanced individual projects or assignments in planning, coordinating and assessing production and programming related to studio procedures. Repeatable for a maximum of 6 hours. Prereq.: TCOMM 785; acceptance of Project Proposal Form by coordinating faculty member and department chair. 2 q.h.

883. *Telecommunication Industries and Public Policy.* A study of the relationship between the telecommunication industry and public policy. The course will focus on industrial organization and examine how public policy is formulated. Prereq.: TCOMM 783. 4 q.h.

*884. *Video Production Direction.* A study and application of the communication roles and skills associated with video directing. Emphasis on audience analysis. Includes the equivalent of three hours lecture and two hours lab per week. Prereq.: TCOMM 782. 4 q.h.

*885. *Developments in Telecommunication Media.* Study and application of uses of telecommunication media apart from commercial broadcasting. Study of new technologies and their potential. Prereq.: TCOMM 682 and 683, with a grade of C or better in both. 4 q.h.

886. *Audience and Market Measurement.* Methods of collecting, analyzing and using information about media markets. Includes quantitative and nonquantitative techniques. Prereq.: TCOMM 682 and 683, with a grade of C or better in both. 4 q.h.

887. *Theories and Criticism of Telecommunication.* Study of contemporary theories and research in telecommunication. Prereq.: TCOMM 682 and 683, with a grade of C or better in both. 4 q.h.

888. *Internship in Telecommunication.* An application of telecommunication theory and practices within organizations professionally concerned with telecommunication. Students are selected on the basis of special qualifications, including GPA, courses taken, and competitive interview. Enrollment is contingent on the availability of internship positions. Twenty hours a week of student time is expected. May be repeated for a total of six hours. Prereq.: Junior standing in telecommunications and permission of internship committee. 3 q.h.

897. *Seminar in Telecommunications.* This course is designed to investigate contemporary aspects of telecommunications. May be repeated for credit as long as specific seminar subjects are not repeated. Prereq.: TCOMM 682 and 683, with a grade of C or better in both. 4 q.h.

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*Additional fee required.

# Theater

## Lower Division Courses

*512. *A Survey of Musical Theater.* A study of the development of musical theater from its 17th century beginning to the present day. As an inter-disciplinary course, it will place emphasis on the evolution of the American Musical with special attention paid to the problems of integrating drama, music, dance, and design. Also listed as MUSIC 512. Satisfies the University's area requirement in the humanities. 4 q.h.

*560. *Introduction to Theater Arts.* The theory, history, cultural role, and physical characteristics of the theater as an institution in human society. Satisfies the University's area requirement in the humanities. 4 q.h.

561. *Stagecraft.* The technical elements of play production, with emphasis on stage mechanics, set construction, and scene painting. The course includes the equivalent of two hours of lecture and four hours of laboratory a week. 4 q.h.

563. *Costume Construction.* Introduction to stage costuming through the study and application of costume construction techniques and costume crafts, the use of appropriate equipment, and costume maintenance through various projects involving the special techniques used for stage costuming. The course includes the equivalent of two hours lecture and four hours of laboratory a week. 4 q.h.

566. *Summer Theater Workshop.* Participation in the summer theater program involving all aspects of theatrical production including acting, scenery construction, lighting, costume, promotion, etc. Active involvement in the program is mandatory. 1-4 q.h.

568. *Ballet 1.* Theory and practice of classical ballet with emphasis on body placement and muscular awareness. Stressing fundamentals of vocabulary, structure, and placement. This course may be applied as 2 q.h. credit toward the University HPES activity requirement. Identical with HPES 572. 2 q.h.

569. *Ballet 2.* Continuation of SPCH 568, expanding upon vocabulary and establishing patterns of balletic movement. Prereq.: Ballet I or consent of instructor. This course may be applied as 2 q.h. credit toward the University HPES activity requirement. Identical with HPES 573. 2 q.h.

*590. *History of the Motion Picture.* The history of the motion picture from its beginning to the present, with emphasis on the milestones of the film as a performing art. Viewing of significant films from various periods and countries. Satisfies the University's area requirement in the humanities. 4 q.h.

661. *Play Production.* An introduction to the process of analyzing, directing, staging, and producing plays; demonstration and practice. Includes the equivalent of two hours of lecture and four hours of technical theater laboratory a week. 4 q.h.

662. *Practicum in Theater.* Practical application of theater skills through participation in University Theater productions and supervised theater laboratories. Students should expect the equivalent of three hours of lab per week. Repeatable for a maximum of six (6) quarter hours. Prereq.: THTR 561 or 661. 1 q.h.

663. *Tap and Jazz 1.* Principles and practices of the basic techniques of tap dance, soft shoe, jazz, and combinations of the fundamental forms of movement. Designed to introduce the student to various forms of dance and movement combinations performed in musical theater. Prereq.: HPES 540 or consent of instructor. This course may be applied as 2 q.h. credit toward the University HPES activity requirement. Identical with HPES 570. 2 q.h.

664. *Tap and Jazz 2.* Emphasizes basic tap combinations and routines. Continuation of THTR 663. Prereq.: THTR 663 or consent of instructor. This course may be applied as 2 q.h. credit toward the University HPES activity requirement. Identical with HPES 571. 2 q.h.

665. *Theater Graphics.* Introduce students to the theory and practice of translating theatrical ideas and concepts into standard graphic conventions. Practical experience with basic drafting tools and materials; exercises in scale, proportion and perspective; introduction to computer-assisted drafting for theater. Recommended for students planning to take Scene Design or State Lighting. Prereq.: THTR 561 or 661 or permission of the instructor. 4 q.h.

668. *Fundamentals of Acting.* The fundamental theories and techniques of acting. Major emphasis will be placed upon theater acting, but consideration will be given to radio and television acting. Two hours lecture and four hours laboratory per week. 4 q.h.

*690. *The Art of Motion Pictures.* Analysis of the structure of the motion picture, the development of the script, the function of editing, the approach to acting in film production, and the problems faced by a director in film production. Criteria of artistic film making are studied. Examples from motion pictures are screened and discussed. May be applied to the University's area requirement in the humanities. 4 q.h.

## Upper Division Courses

761. *Stage Makeup.* Design and application of makeup for the stage including techniques for character and age makeup, making and applying facial hair, and other specialized makeup procedures. The course includes the equivalent of two hours of lecture and four hours of laboratory per week. Prereq.: THTR 661 or permission of the instructor. 4 q.h.

762. *Play Direction.* An intensive study of the process of directing plays. Whenever possible, students direct the equivalent of a one-act play for public presentation. Laboratory hours by arrangement. Prereq.: THTR 661 or permission of instructor. 4 q.h.

*Additional fee required.

763. *Scene Design.* The history of design in terms of stage scenery; an investigation of current trends, techniques, and media; practical execution of models and sketches by the student. Prereq.: THTR 561 and 661, or consent of instructor. 4 q.h.

764. *History of Stage Costuming.* A survey of stage costumes based on western styles from the ancient Egyptians to the present with emphasis on periods in which the theater has flourished. May be counted toward the University humanities area requirement. Prereq.: THTR 560 or permission of the instructor. 4 q.h.

765. *Stage Lighting.* This course includes a study of historical development, basic electrical theory, switchboards and lighting instruments; color theory, principles and practices in stage lighting. Laboratory hours to be arranged. Prereq.: THTR 561 and 661, or consent of the instructor. 4 q.h.

766. *Stage Combat.* A specialized approach to armed and unarmed combat for the stage. Safety factors in stage fighting will be stressed. Instruction will be given in armed and unarmed stage combat and the safe use of rapier and dagger. Performance in a public will be required. Class is scheduled for six contact hours per week, two hours lecture, and four hours recital lab. Prereq.: THTR 668 or MUSIC 012 (Theatrical Fencing Unit) or HPES 514 or 515 or permission of instructor. Also listed as HPES 716. 4 q.h.

768. *Dance for the Musical Theater.* Principles and practices of the basic techniques of tap dance, soft shoe, jazz and combinations of the fundamental forms of movement. Designed to introduce the student to various forms of dance and movement combinations performed in musical theater. Prereq.: HPES 540 (Modern Dance) or consent of instructor. 2 q.h.

769. *Costume Design for Stage.* Costume design for the stage through a study of script analysis, design concepts and principles, and costume rendering techniques. Prereq.: THTR 661 or permission of instructor. 4 q.h.

*790. *Motion Picture Artists.* In-depth analysis of significant motion picture creative artists and their contributions to motion picture art. Screenings and discussions of selected motion pictures. May be applied to the University's area requirement in the humanities. Prereq.: THTR 590 or ENGL 665. 4 q.h.

791. *Rehearsal and Performance 1.* Faculty-supervised study and practical application of the performance aspects of a play. Credit given for significant acting roles, assistant directing, or stage managing assignments in University Theater productions. For students with appropriate experience. Prereq.: Sophomore standing and theater faculty committee approval. 1-3 q.h.

*Additional fee required.

792. *Projects in Production Design 1.* Faculty supervised study resulting in the design and/or execution of scenery, lighting, or costumes for public performance. For students with appropriate experience. Prereq.: Sophomore standing and theater faculty committee approval of proposed project. 1-3 q.h.

860. *Drama 1.* A study of dramatic texts in performance from antiquity through the 19th century. Study of performance histories with emphasis on how the scripts could be produced as period pieces and/or adaptations for the modern stage. Prereq.: THTR 762 or consent of the instructor. 4 q.h.

861. *Drama 2.* A study of 20th century dramatic texts in performance. Includes a study of production histories with an emphasis on the production company's role as interpreter in terms of style, text, etc. Prereq.: THTR 762 or consent of instructor. 4 q.h.

862. *Dramatic Writing and Criticism.* Includes a study of the history of dramatic criticism and outstanding critics as well as a study of the elements of dramatic structure and the writing of dramas. Prereq.: THTR 661 or ENGL 746 or permission of the instructor. 4 q.h.

863. *Advanced Acting.* A study of specific theories, techniques, and approaches to creating the various styles of acting. Emphasis will be placed on scene study featuring important historical styles of performance. Two hours lecture and four hours laboratory per week. Prereq.: THTR 661 and 668. 4 q.h.

864. *Advanced Directing.* A study of specific theories, techniques, and various important styles in play directing. Prereq.: THTR 661 and 762. 4 q.h.

865. *Rehearsal and Performance II.* Independent study at an advanced level involving practical application of the performance aspects of a play. Credit given for major acting or directing assignments in University Theater productions. Prereq.: THTR 791 and theater faculty committee approval. 1-3 q.h.

866. *Advanced Summer Theater Workshop.* Participation in the summer theater program involving all aspects of theatrical production. Positions of significant responsibility will be required. Prereq.: THTR 566. 1-4 q.h.

867. *Projects in Production Design 2.* Independent study at the advanced level involving design and/or execution of scenery, lighting, or costumes for public performance. Prereq.: THTR 792 and theater faculty committee approval of proposed project. 1-3 q.h.

868. *Children's Theater.* A study of the process of theater production by and for elementary school children, including theory, objectives and methods. Prereq.: THTR 762 or senior standing in Elementary Education with permission of the instructor. 4 q.h.

869. *Creative Dramatics.* Basic elements of playmaking, improvisation, story dramatization, pantomime, dialogue, and characterization. Experiences with area school children provided when possible. Intended for elementary education majors and drama certification. Prereq.: Junior standing with 12 hours of theater courses (including 661 and 668) or Junior standing in Elementary Education with permission of instructor. 4 q.h.

891. *History of the Theater 1.* A history of the physical theater and written drama from antiquity through the Renaissance. Emphasis on theater architecture and stagecraft, including scenery, costumes, and lighting. Prereq.: Upperclass standing with a minimum of 12 hours of theater courses, or consent of instructor. Satisfies the University's area requirement in the humanities. 4 q.h.

892. *History of the Theater 2.* A history of the physical theater and the written drama from the post-renaissance period to the present. Emphasis on theater architecture and stagecraft, including scenery, costumes and lighting. Prereq.: Upperclass standing with a minimum of 12 hours of theater courses completed or consent of the instructor. Satisfies the University's area requirement in the humanities. 4 q.h.

895. *Arts in Education Internship: Theater.* A practical application of drama/theater in education theories and skills in a field-based laboratory experience in the schools. Students will submit project proposals geared either to the elementary or secondary level. Proposals must be approved by a theater faculty committee. Repeatable for a maximum of 8 q.h. Prereq.: Commitee approval and THTR 561, 661 and 762 or THTR 661, 761 and 868. 1-4 q.h.

899. *Seminar in Theater.* Exploration of areas in theater not covered in the regular course offerings. Subjects studied may include: advanced scene design, advanced stage lighting, theater styles, theater organization and management, and modern techniques and procedures in the contemporary American theater. Prereq.: Senior standing in theater or permission of instructor. May be repeated for credit as long as specific seminar subjects are not repeated. May satisfy the University's area requirement in the humanities depending on topic. 3 q.h.

# The Dana School of Music

*Joseph Edwards, Director*

## OBJECTIVES

The Dana School of Music began in 1869 as Dana's Musical Institute in Warren, Ohio. It was merged with Youngstown College in 1941.

The purpose of the school is to complement the general objectives of the University by providing intensive professional training in music based on a thorough understanding of the fundamental skills and theory upon which all music rests, and to provide an opportunity for the non-music major to develop a background of musical knowledge.

The requirements for entrance and for graduation are in accordance with the published regulations of the National Association of Schools of Music, of which the Dana School of Music is a member.

The curriculums may be divided into five components: music education, music history, music theory, performance, and liberal arts. Courses are available leading to the degree of Bachelor of Music with the major in piano, organ, voice, standard string or wind instruments, percussion, music theory, composition and music education. In addition, it is possible to obtain the degree of Bachelor of Arts with majors in music history, music theory and applied music.

In cooperation with the College of Education, the Music Education department prepares students for certification as music teachers in the public schools and also provides other courses necessary for general elementary teaching certificates. Music education students have a variety of opportunities for observation and practice teaching through excellent cooperation between the University and all area schools.

Credit in music is allowed in varying amounts toward other degrees granted by the University.

## FACILITIES

The school is one of three departmental units in the College of Fine and Performing Arts. Housed in Bliss Hall, there are 80 acoustically controlled practice rooms, 30 faculty studios, 8 classrooms, rehearsal rooms and a recital hall with a seating capacity of 237. Additional use is made of Stambaugh and Powers auditoriums.

## EQUIPMENT

Equipment includes 32 Steinway pianos, 68 other pianos, harpsichords by Dowd and Sperrhake, two Schlicker pipe organs, three Flentrop pipe organs, consorts of recorders and krummhorns, a cornetto, and a comprehensive collection of standard band and orchestral instruments.

## MULTIMEDIA CENTER (2031)

Bliss Hall Multimedia Center offers students the opportunity to work with state-of-the-art music computer software and hardware, including advanced music notation, music sequencing (composition/arranging) and automatic accompaniment applications. The Center features Macintosh and IBM workstations, each fully MIDI-equipped with Roland synthesizer modules, Roland and Yamaha keyboards and a networked laser printer.

## ELECTRONIC MUSIC LABORATORY (3142/3143)

The Dana Electronic Music Laboratory is equipped with sophisticated hardware and software offering the advanced student of music technology the opportunity to experience such applications as hard-disk recording,sampling, digital editing, and advanced sequencing. Additionally a complete analog music synthesis area offers students fundamental experiences in analog electronic music techniques and composition.

Many University-owned instruments are available for use by students enrolled in related courses. There is no charge for use of these instruments, although failure to comply with check-in deadlines will result in a $5.00-a-day fine for each instrument.

## LIBRARIES

The library of band, orchestral, and choral music is extensive and representative of musical periods from the Renaissance to the present. The Maag Library contains books, music, records and CD's for study by students in music literature, music education and theory classes.

## SCHOLARSHIPS AND LOANS

The Dana School of Music offers a wide range of scholarships, which are awarded, after competitive auditions, on the basis of talent and academic achievement. Applications should be submitted to the Director of the Dana School of Music. For other scholarships, see *Loans and Scholarships* in the General Information section.

## MUSICAL ACTIVITIES

The Dana School of Music supplements the concerts of the Monday Musical Club and the Youngstown Symphony Orchestra with the *Dana Concert Series*. This series brings to the University and to the public artistic solo and ensemble programs featuring faculty members and guest artists, composers, and musicologists.

Graduation recitals and informal student recitals afford additional training through experience in public performance. Music majors are required to attend 30 recitals during their freshman and sophomore years as well as a minimum of 6 convocations per quarter (36 in two years) for a total attendance requirement of 68.

The School has several major performing ensembles: the Dana Chorale, the University Chorus, the Wind Ensemble, the Concert Band, the Marching Band, and the Dana College-Community Orchestra.

In addition, chamber ensemble experience is possible through the Opera Workshop; the Madrigal Singers; the Women's and Men's Chorus; the Jazz Ensemble; Woodwind, Brass, and Percussion Ensembles; the Chamber Orchestra; and the String Ensemble, Collegium Musicum and Composer's Ensemble.

## PROFESSIONAL FRATERNITIES

Alpha Nu chapter of Sigma Alpha Iota, international professional music fraternity for Women, is chartered to the Dana School of Music.

## OTHER STUDENT ACTIVITIES

Music students may participate in all Youngstown State University student activities. In addition, the School sponsors student chapters of the Music Educators National Conference, the Youngstown Chapter of Composers, Authors, Artists of America, Kappa Kappa Psi (Honorary Band fraternity), and the Jazz Society. The School and the Youngstown Chapter of the American Guild of Organists jointly sponsor a guild student group.

## FEES

See *Fees and Expenses* in the General Requirements and Regulations section.

## APPLICATION AND ADMISSION EXAMINATIONS

An applicant for admission to the Dana School of Music must satisfy the general requirements for admission to the University (see the General Requirements and Regulations section).

Applicants are required to pass entrance auditions in their performance area and to take placement examinations in music theory and piano. These auditions and examinations are on announced dates preceding the commencement of classes in the fall.

### ADMISSION TO COURSES FOR THE DEGREE OF BACHELOR OF MUSIC

The applicant's high school courses should include the preparatory courses specified under requirements for degrees.

### MUSICAL PROFICIENCY

It is expected that the applicant will have developed a certain proficiency in one or more branches of applied music before entering the University, as certain standards in technique and repertory must be met. Qualifications are determined by the placement tests mentioned above; the student not qualifying for the first regular course in a major branch of applied music must take preparatory work until ready to undertake the regular courses.

The Dana School of Music theory placement examination is used to determine theory proficiency. Those scoring less than the 50th percentile will be assigned to Music 520, while those scoring above the 50th percentile will be assigned to Music 530.

Prospective composition majors must present evidence of ability to handle the materials of music by placing at or above the 70th percentile of the Dana

School of Music theory entrance examination. Proficiency on a musical instrument sufficient for admission to the freshman level of applied music must be demonstrated before the appropriate applied faculty.

### ADMISSION FROM OTHER INSTITUTIONS

The general policy is stated in the General Requirements and Regulations section. Advanced standing in musical performance and in music theory is granted tentatively and must be validated by examinations.

### REQUIREMENTS FOR THE DEGREE BACHELOR OF MUSIC

It is the student's responsibility to see that all the graduation requirements for the degree sought are satisfied. For the Bachelor of Music degree, these consist of:

1. Pre-college or preparatory study, of two kinds:
   A. Academic. The specific courses are listed in the General Requirements and Regulations section under the College of Fine and Performing Arts. These courses are normally taken in high school. Deficiencies must be overcome prior to completing 90 quarter hours.
   B. Musical. An entrant lacking suitable proficiency must develop it before undertaking the required college-level music courses.

2. The non-music courses and other requirements to be completed in the University are listed in the General Requirements and Regulations section.

A. Curricula. Curricula leading to Music degrees require from 189 to 203 quarter hours of credit and are designed to be completed in four academic years.

B. R.O.T.C. students are allowed certain modifications of the requirements as explained in the General Requirements and Regulations Section.

### FOR TWO MAJORS, IN MUSIC AND IN MUSIC EDUCATION

Students who wish to complete a major (Bachelor of Music degree) in an instrument or in voice, theory, or composition, and also a major in music education, should consult the director of the Dana School of Music.

## COURSES OF INSTRUCTION AND CURRICULA

### FACULTY

*Professors Edwards (Director), Funk, Gould, Largent, Raridon, Rollin, Slocum, Starkey, Turk; Associate Professors Gelfand, Harris, Leonardi, Parlink, Rudnytsky; Assistant Professors Andrew, Ausmann, Buch, Crist, Cage, Mosher, Perkins, Umble, Wilcox; Instructors Englehardt, Krummel, Oltmanns.*

## PERFORMANCE

Acceptance into a performance area is contingent upon an audition. The student not qualifying for Music 501 or 504 may take the relevant course 500 until the deficiency is corrected.

Advanced standing in performance may be granted tentatively after an examination given by members of the faculty. The final classification is made at the end of the first quarter of resident study.

Enrollments in applied music will be accepted in the following order:

1. Full-time music majors
2. Non-music majors in ensembles
3. Other students in the University
4. Continuing Education students

*TEACHER ASSIGNMENT.* Assignment of students to teachers is made by the area coordinator. Requests for change of teacher should be addressed to the coordinator in writing. A student's choice of teacher will be respected as far as possible, but final assignment rests with the director of the School of Music.

*LESSONS.* Students registered for 4 q.h. courses receive individual instruction and one 50-minute seminar weekly. They are required to practice three hours daily. Students registered for 2 and 3 q.h. courses receive individual instruction and one 50-minute seminar weekly; they are required to practice two hours daily. Students registered for A, B and C applied courses receive individual instruction and are required to practice one hour daily.

No credit will be given in a performance course if the student misses more than three lessons in any one quarter. Lessons missed due to legal holidays or school closings will not be made up. In case of prolonged illness the lessons may be made up at the discretion of the teacher.

*RECITALS.* Recognizing that performing before an audience plays a vital role in musical development, the Dana School offers its students many opportunities to appear in public as a way to foster that development. Attendance at 30 recitals is mandatory in the first two years.

*CONVOCATION.* The Assistant Director of the School arranges weekly programs of lectures, student and faculty performances. Attendance at 36 convocations is mandatory in the first two years.

*CONCERTO/ARIA CONCERT.* An annual concert by the Dana Symphony Orchestra features student soloists chosen by competition.

*DEGREE AND NON-DEGREE RECITALS.* Each candidate for the degree Bachelor of Music must present a senior recital in partial fulfillment of the graduation requirements; performance majors must present a one-hour recital; music education majors must present a half-hour recital. Performance majors must also present a half-hour junior recital. Outstanding students

may present non-degree recitals, subject to certain conditions (for particulars consult the coordinator of the Dana Concert Series). Planning for all these recitals should include selection of varied and balanced repertory, preparation of properly detailed copy for the printed program and program notes, and consideration of performance aspects such as attire, stage deportment, and ways to attract an audience. A recital hearing will be held no later than 21 days prior to the projected recital date. During that time a student who plans to present a degree recital must be prepared to perform the recital program for faculty approval.

*EXAMINATIONS.* During examination week of each quarter performance faculty members convene to determine whether or not students may proceed to the next higher proficiency level (performance course number). Frequency of required examinations differs among the various performance areas (for specifics consult the syllabus of the performance area concerned). Transfer students are examined at the end of their first or second quarter of study, as established by the individual performance area. Students presenting an approved degree recital are granted a waiver of examination for the quarter of the recital. Students may be retained in the same proficiency level with a grade of C or lower or with a grade of PR. Students who fail to meet the standards of the examining faculty may be required to reduce the number of quarter hours' credit for which they register in subsequent quarters; or they may be required to withdraw completely from the course sequence.

Each applied area (keyboard, brass, etc.) may vary the above to meet certain needs. Consult with area coordinator for details.

*Change in Credit Hours.* Students may transfer from minor or major courses in accordance with the performance course equivalency table, subject to approval by the appropriate performance faculty.

## Major/Jazz or BA

The following courses differ only in degree from those listed under Major/Performance according to the credit hours earned. A high standard of proficiency is expected. For the jazz major, junior and senior recitals are required.

504, 505, 506. See Major/Performance
3+3+3 q.h.

604, 605, 606. See Major/Performance
3+3+3 q.h.

704, 705, 706. See Major/Performance
3+3+3 q.h.

804, 805, 806. See Major/Performance
3+3+3 q.h.

## Major/Music Education

The following courses differ only in degree from those listed under Major/Performance according to the credit hours earned. Concentration in the development of basic technics relative to teaching in the elementary and secondary school systems. A high standard of proficiency is expected. Senior recital required.

501, 502, 503. See Major/Performance
2+2+2 q.h.

601, 602, 603. See Major/Performance
2+2+2 q.h.

701, 702, 703. See Major/Performance
2+2+2 q.h.

801, 802, 803. See Major/Performance
2+2+2 q.h.

## Minor*

The following courses are for the student who has a requirement of study on a secondary instrument or voice or who does not meet the standards required in the major courses. No seminar is required. Initial enrollment is contingent upon successful completion of an audition.

*(In voice for minor/music theater).

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|---|---|
| 500 A,B,C. | 1+1+1 q.h. |
| 600 A,B,C. | 1+1+1 q.h. |
| 700 A,B,C. | 1+1+1 q.h. |
| 800 A,B,C. | 1+1+1 q.h. |

# KEYBOARD INSTRUMENTS

## Piano

### Major/Performance

504, 505, 506. Development of hand position and finger-stroke, with emphasis on finger independence. All major and minor scales and tonic, dominant-seventh, and leading-tone seventh arpeggios, hands together, four-octave compass. Repertoire of the variety and difficulty of the following: Bach, *Sinfonias;* Beethoven, *Sonata,* Op. 49, no. 1; Bartók, *Three Ron dos.* Prereq.: entrance audition. 3+3+3 q.h.

607, 608, 609. Continuation of previous technical study; emphasis on development of hand-stroke. Scales in octaves, thirds, sixths, and tenths; arpeggios as above, faster tempo. (609 Technical Examination) Repertoire of the variety and difficulty of the following: Bach, *English Suites;* Scarlatti, *Sonatas;* Beethoven, *Sonata,* Op. 26; Chopin, less difficult *Etudes* and *Polonaises;* Debussy, *Preludes;* Hindemith, *Sonata II.* Prereq.: PIANO 506. 4+4+4 q.h.

707, 708, *709. Technical studies to develop forearm-stroke and refine handstroke. Scales in double-thirds and double-octaves. Repertoire of the variety and difficulty of the following: Bach, *Well-Tempered Clavier;* Beethoven, *Sonata,* Op. 28; Chopin, *Scherzos;* Ravel, *Valses Nobles et Sentimentales;* Prokofiev, *Visions Fugitives;* Mozart, Haydn, or early Beethoven concertos. Junior recital. Prereq.: PIANO 609.
4+4+4 q.h.

*Additional fee required.

807, 808, *809. Continuation of technical studies as needed. Repertoire of the variety and difficulty of the following: Bach, *Toccatas;* Beethoven, *Sonata,* Op. 31, No. 3; Chopin, *Ballades;* Copland, *Piano Variations;* Concertos by Mendelssohn, Chopin, Schumann. Senior recital. Prereq.: PIANO 709. 4+4+4 q.h.

# Harpsichord

## Major/Performance

504, 505, 506. Instruction in basic technique, with discussion of construction and maintenance. Survey of literature, ornamentation, and performance practices. Repertoire of the variety and difficulty of the following: Purcell, *Suites;* Bach, *Inventions;* Daquin, *Pieces de Clavecin.* Prereq.: entrance audition. 3+3+3 q.h.

607, 608, 609. Continuation of technical studies emphasizing fingering and ornamentation. Introduction to improvisation and accompaniment from figured bass. Repertoire of the variety and difficulty of the following: Byrd, *Sellinger's Round;* Frescobaldi, *Partite Sopra L'Aria Di Follia;* Bach, *French Suites* and *Sinfonias;* Scarlatti, less difficult *sonatas.* Prereq.: HARPS 506. 4+4+4 q.h.

707, 708, *709. Technical studies as needed. Continuation of improvisation and figured-bass studies. Repertoire of the variety and difficulty of the following: Gibbons, *Pavan* and *Galliard Lord of Salisbury;* Couperin, *Les Folies Francaises;* Bach, *Well-Tempered Clavier, English Suites,* and concertos; Scarlatti, *Sonatas;* Pinkham, *Partita.* Junior recital. Prereq.: HARPS 609. 4+4+4 q.h.

807, 808, *809. Figured-bass accompaniment of works such as Handel, Violin Sonatas. Repertoire of the variety and difficulty of the following: Bull, *Walsingham;* D'Anglebert, *Variations Sur Les Folies D'Espagne;* Rameau, *Les Niais De Sologne;* Bach, *Toccatas;* Soler, *Sonatas;* Rochberg, *Nach Bach;* Poulenc, *Concert Champetre.* Senior recital. Prereq.: HARPS 709. 4+4+4 q.h.

# Organ

## Major/Performance

504, 505, 506. Manual exercises; pedal exercises; easy trios. Repertoire of the variety and difficulty of the following: Pachelbel, *Fugues on the Magnificat;* Bach, *Prelude and Fugue in E Minor* (S. 533). *Es Ist Das Heil* (S. 638); Schumann, *Canon in B Major,* Op. 56, No. 6; Walcha, *Herzliebster Jesu.* Prereq.: entrance audition. 3+3+3 q.h.

607, 608, 609. Pedal exercises, pedal scales. Repertoire of the variety and difficulty of the following: Couperin, *Messe a L'Usage Ordinaire Des Paroisses;* Bach, *Sonata in E-Flat Major* (S. 525). *In Dir Ist Freude* (S. 615); Brahms, *Mein Jesu Der Du Mich;* Hindemith, *Sonata II.* Prereq.: ORGAN 506. 4+4+4 q.h.

707, 708, *709. Pedal scales and arpeggios; advanced studies. Repertoire of the variety and difficulty of the following: Buxtehude, *Prelude, Fugue, and Chaconne;* Bach, *Prelude and Fugue in B Minor* (S. 544), *Schmucke Dich, O Liebe Seele* (S. 654); Mendelssohn, *Sonata* No. 6; Alain, *Litanies;* Handel, concertos. Junior recital. Prereq.: ORGAN 609. 4+4+4 q.h.

807, 808, *809. Technical studies as needed. Repertoire of the variety and difficulty of the following: Bach, *Fantasy and Fugue in G Minor* (S. 542). *Christ, Unser Herr* (S. 684); Mozart, *Fantasy* (K. 594); Franck, *Chorale in A Minor;* Messiaen, *Transports De Joie,* Poulenc, *Concerto.* Senior recital. Prereq.: ORGAN 709. 4+4+4 q.h.

# Voice

## Major/Performance

504, 505, 506. Concentration on the development of basic technique for the singer: breath control, freedom and relaxation of the vocal mechanism, maximum resonance, and accurate articulation. At the teacher's discretion, the student applies the technique acquired in selected works of the vocal repertoire. Foreign-language songs may be introduced. Amount of repertoire decided is on an individual basis. Prereq.: Entrance audition. 3+3+3 q.h.

607, 608, 609. Primary emphasis continues to be placed upon the development of the voice and the mastery of technique. The student is expected by the end of this year to be able to sing properly a number of songs in English and in foreign languages and one or two arias from opera and oratorio. Minimum requirements are established by the voice faculty; requirements beyond these are established by the teacher on an individual basis. Prereq.: VOICE 506. 4+4+4 q.h.

707, 708, *709. Technical study continued to maintain steady growth in technical mastery. Repertoire enlarged to include a wide range of styles and periods. Songs appropriate to the individual voice are chosen in English, French, Italian, and German. Operatic arias required. Junior recital. Prereq.: VOICE 609. 4+4+4 q.h.

807, 808, *809. Advanced literature and technique. Additional songs of the standard repertoire by French, German, Italian, Russian, English, and American composers. The student will demonstrate ability to sing in three foreign languages, and will have a repertoire of operatic and oratorio arias, classic and modern songs for immediate use, and a knowledge of the general song literature. Senior recital. Prereq.: VOICE 709. 4+4+4 q.h.

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*Additional fee required.

# STRING INSTRUMENTS

## Violin

### Major/Performance

504, 505, 506. Kreutzer, *Studies* to No. 32. Concertos by Vivaldi, Nardini, Rode, deBeriot. Sonatas by Correlli, Veracini, Leclair. Technical material including Sevcik, Op. 8 and 9, Flesch Scale System. No fewer than six short compositions suitable for recital repertoire. Major and minor scales and arpeggios within one position, two octaves using a low position (I, II), a middle position (III, IV) and a high position (VI, VII). Prereq.: Entrance audition. 3+3+3 q.h.

607, 608, 609. Kreutzer concluded; Fiorillo, Rovelli. Concertos by Bach, Viotti, Kreutzer, deBeriot. Sonatas by Tartini, Mozart, Handel. No fewer than six compositions added to repertoire. Scales and arpeggios in three octaves continued with secondary strokes. Technical materials of 504, 505, 506 continued. Prereq.: VIOLN 506. 4+4+4 q.h.

707, 708, *709. Rode, *Studies*. Concertos by Mozart, Bruch, Vieuxtemps. Sonatas by Beethoven, Bach. No fewer than six compositions added to repertoire. Scales on one string, 1 octave, 2 octaves; arpeggios on one string, 1 octave, 2 octaves. Scales in sixths, octaves, thirds, and tenths. Junior recital. Prereq. VIOLN 609. 4+4+4 q.h.

807, 808, *809. Advanced studies from Wieniawski; Dont, Op. 35; Gavinies and Paganini concertos. Wieniawski, Saint-Saens, Mendelssohn, Beethoven, etc. Senior recital. Prereq.: VIOLN 709. 4+4+4 q.h.

## Viola

### Major/Performance

504, 505, 506. Studies by Mazas, Kreutzer, Sitt, Schradick Technic. Sonatas by Handel; repertoire material: No fewer than six pieces. Scales and arpeggios in three octaves. Prereq.: Entrance audition. 3+3+3 q.h.

607, 608, 609. Studies by Kreutzer and Fiorillo. Sonatas by Vivaldi and Marcello. Scales and arpeggios continued. Six recital pieces. Prereq.: VIOLA 506. 4+4+4 q.h.

707, 708, *709. Studies by Rode, Campagnoli, and Bruni. Concertos by Stamitz and Mozart. Scales in double stops. Six recital pieces. Junior recital. Prereq.: VIOLA 609. 4+4+4 q.h.

807, 808, *809. Studies by Gavinies and Dolesji; Sonatas by Bowen, Bach, and others. Scales and arpeggios continued. Senior recital. Prereq.: VIOLA 709. 4+4+4 q.h.

## Cello

### Major/Performance

504, 505, 506. Scales and arpeggios in three octaves. Studies from Dotzaur, Op. 35, Duport, Popper. Repertoire to include Bach, *Suite No. 1*, Sonatas by Bach, Beethoven, Sammartini, Concerto by Goltermann (No. 4) and Vivaldi (D). Prereq.: Entrance audition. 3+3+3 q.h.

506, 507, 508. Scales and arpeggios in four octaves. Studies from Popper, Franchomme. Repertoire to include Bach *Suite No. 2 or No. 3*; Sonatas by Beethoven, Mendelssohn; Concerti by Saint-Saens, Haydn (C). Prereq.: CELLO 506. 4+4+4 q.h.

707, 708, *709. Scales in octaves, thirds, sixths. Studies from Popper, Piatti. Repertoire to include Sonatas by Breval (G), Boccherini, Brahms, Schumann. Concerti by Boccherini, Haydn (D), Lalo. Junior recital. Prereq.: CELLO 609. 4+4+4 q.h.

807, 808, *809. Scales in octaves, thirds, sixths. Studies from Popper, Piatti, Sewais. Repertoire to include Barb Suites No. 4, 5, 6, Reger Solo Suite No. 2, Sonatas by Brahms, Prokofiev, Schubert, Shostakovich, Hindemith, Kodaly, Valentini, Concerti by Dvorak, Haydn (D), Prokofiev, Schumann, Shostakovich, Tschaikovsky. Senior recital. Prereq.: Cello 709. 4+4+4 q.h.

## String Bass

### Major/Performance

504, 505, 506. Studies to include Simandl, *Book I*, Simandl, *30 Etudes*, Bille, *Method*, Books 1 and 3. Major and minor scales and arpeggios. Solos such as the Marcello and Vivaldi sonatas, Beethoven, *Sonatina*, Russell *Chaconne*. Prereq.: Entrance audition. 3+3+3 q.h.

607, 608, 609. Studies to include Simandl, *Book II*, Bille, *Method*, Books 3 and 4, Hrabe. Scales and arpeggios in two octaves. Solos such as Capuzzi, *Concerto*; Eccles, *Sonata*; Corelli, *Sonata in D minor*; Rachmaninoff, *Vocalise*. Prereq.: SBASS 506. 4+4+4 q.h.

707, 708, *709. Studies to include continuation of Simandl, *Book II*; Bille, *Method*, Book 4 and 5. Scales and arpeggios in three octaves. Solos to include Bottesini, *Reverie*, Koussevitsky, *Chanson Triste*, Lars-Erik Larsson, *Concertino*; Faure, *Apres Un Reve*. Junior recital. Prereq.: SBASS 609. 4+4+4 q.h.

807, 808, *809. Kreutzer, *Studies*. Zimmermann, *Orchestral Books*. Solos such as Concertos by Koussevitsky, Dragonetti, Dittersdorf, Bottesini, Vanhal; Hindemith, *Sonata*; Bottesini, *Elegy*; Koussevitsky, *Valse Miniature*. Senior recital. Prereq.: SBASS 709. 4+4+4 q.h.

## Guitar

### Major/Performance

504, 505, 506. Scale patterns through all strings up to and including the ninth position. One study from numbers 1-5 by Segovia; *20 Studies* (1-10) for the guitar

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*Additional fee required.

by F. Sor; a similar study by Giuliani, Carelli, or Carcassi. Preludes 1, 3, and 4, H. Villa-Lobos; Etudes by Carcassi and Giuliani; music from twelve compositions, F. Tarrega; studies by Aquado, Villa-Lobos, Coste, Sor, and Almeida; simple ensembles from the works of Handel, Corelli, Scarlatti, and others of the same period. Prereq.: Entrance audition. 3+3+3 q.h.

607, 608, 609. Bach, *Preludes;* F. Sor, *Studies* 11-15; Music of English composers such as Dowland; *Prelude Number 5,* H. Villa-Lobos; solo works by Granados *(Spanish Dances);* chamber music of Paganini, Boccherini, and Giuliani. Prereq.: GUITR 506. 4+4+4 q.h.

707, 708, *709. *Lute Suites,* J.S. Bach; solo works of Ponce, Scarlatti, Granados, Albéniz, B. Henze, Sor, Tarrega, Ravel; Sor, *Studies* 16-20; *Concerto in A Major,* M. Giuliani; *Grosse Sonata* and other works by Paganini; ensembles from the works of Paganini; L. DeCall, Matiegka, and J. Kreutzer. Junior recital. Prereq.: GUITR 609. 4+4+4 q.h.

807, 808, *809. J.S. Bach, *Suites and Fugues for Lute;* Castelnuovo Tedesco *Concerto;* solo works by B. Britten, deFalla, L. Almeida, Albéniz; *Prelude Number 2* and *Etudes* by Villa-Lobos; Ensembles from the works of Ibert, Paganini, Boccherini, Haydn, and Schubert. Senior recital. Prereq.: GUITR 709. 4+4+4 q.h.

# WOODWIND INSTRUMENTS

## Flute

### Major/Performance

504, 505, 506. Studies compatible with the student's training and the development of technic, articulation, phrasing, and tone quality. Repertoire to include all Handel *Sonatas,* at least 6 additional sonatas from the Baroque, and the 24 Andersen *Studies,* Op. 33. Prereq.: Entrance audition. 3+3+3 q.h.

607, 608, 609. Continued development of technique, articulation, phrasing, and tone quality. Repertoire to include Bach, *Sonatas in E Minor,* and *B Minor;* Mozart, *Concerto in G Major;* Louis Ganne, *Andante and Scherzo;* Fauré, *Fantasy;* and Telemann, *Suite in A Minor;* also the 24 Andersen *Etudes,* Op. 15. Prereq.: FLUTE 506. 4+4+4 q.h.

707, 708, *709. The study of solo works such as Bach, *Suite in B Minor;* Schubert, *Variations,* Op. 160; and *Sonatas* by Poulenc and Piston. Also at least 12 studies from Andersen, Op. 63, and 12 additional studies of comparable difficulty. Orchestral excerpts and classical concertos. Junior recital. Prereq.: FLUTE 609. 4+4+4 q.h.

807, 808, *809. Survey of etudes from the teaching standpoint, including Hugues, Opp. 101, 32, and 75; 3 *Caprices* by Karg-Elart; Etudes by Boehm, Casterede, Briccialdi, Soussmann, Furstenau, and others. Solo repertoire to include the Prokofieff, *Sonata,* Op. 94, and the Dutilleux *Sonatine.*Orchestral excerpts and 20th Century concertos. Prereq.: FLUTE 709. 4+4+4 q.h.

## Clarinet

### Major/Performance

504, 505, 506. Studies compatible with student's training and the development of technic, articulation, phrasing and tone quality. Repertoire to include Jeanjean, *Arabesque;* Mozart, *Concerto* (2nd Movement); Weber, *Concertino;* Stocks, *a Wessex Pastoral;* Guilhaud, *First Concertino;* Pierné, *Canzonetta.* Prereq.: entrance audition. 3+3+3 q.h.

607, 608, 609. Continued development of technic, articulation, phrasing, and tone quality. Repertoire expanded to include Hindemith, *Sonata;* Von Weber, *Variations* and *Concerto No 1;* Cavallini, *Adagio and Tarantella;* Marty, *First Fantasy;* Messager, *Solo de Concours;* Rabaud, *Solo de Concert.* Prereq.: CLAR 506. 4+4+4 q.h.

707, 708, *709. Emphasis on the instrument in a chamber role, and the study of solo works such as Brahms, *Sonatas, Op. 120, Nos. 1 and 2;* Bernstein, *Sonata;* Debussy, *Premier Rhapsody;* Weber, *Concerto No. 2;* Mozart, *Concerto;* Lefebre, *Fantasy Caprice.* Junior recital. Prereq.: CLAR 609. 4+4+4 q.h.

807, 808, *809. Emphasis on the instrument in an orchestral role. Additional solo works to include Stravinsky, *Three Pieces;* Osborne, *Rhapsody;* Hindemith, *Concerto;* Widor, *Introduction and Allegro;* Jeanjean, *Scherzo Brillante;* Martinu, *Sonatina;* Nielsen, *Concerto.* Senior recital. Prereq.: CLAR 709. 4+4+4 q.h.

## Oboe

### Major/Performance

504, 505, 506. Studies compatible with the student's training and the development of technique, articulation, phrasing, tone quality and reedmaking. Repertoire to include Boni, *Sonata in G;* Cimarosa, *Concerto in C;* Nielsen, *Fantasiestucke;* Grovelez, *Sarabande and Allegro.* Prereq.: Entrance audition. 3+3+3 q.h.

607, 608, 609. Continued development of technique, articulation, phrasing, tone quality and reedmaking. Repertoire to include Baroque sonatas and concerti; Haydn, *Concerto;* Headington, *Sonatina;* Hindemith, *Sonata;* Poulenc, *Sonata.* Prereq.: Oboe 506. 4+4+4 q.h.

707, 708, *709. Work on technical studies by Ferling, Brod and others. Concentrated study on reedmaking. Repertoire to include Ibert, *"Tunis"* from *Escales;* Reizenstein, *Three Concert Pieces;* Schumann, *Three Romances;* and chamber music such as Boccherini, *Quintets;* Mozart, *Oboe Quartet;* and Beethoven, *Variations.* Junior recital. Prereq.: Oboe 609. 4+4+4 q.h.

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*Additional fee required.

807, 808, *809. Emphasis on orchestral excerpts and more advanced works from the solo repertoire. Students will be expected to use their own shaper tip and make their own reeds. Students will learn to gouge cane and adjust the gouging machine. Solo works to include Foss, *Concerto;* Kibbe, *Serpent Music;* Saint-Saens, *Sonate;* Britten, *Metamorphoses.* Senior recital. Prereq.: Oboe 709. 4+4+4 q.h.

## Bassoon

### Major/Performance

504, 505, 506. Studies compatible with the student's training and the development of technic, articulation, phrasing, and tone quality. Repertoire to include representative selections such as Hindemith, *Sonata;* Bordeau, *Premiere Solo;* David, *Concertino;* Galliard, *Six Sonatas.* Prereq.: Entrance audition. 3+3+3 q.h.

607, 608, 609. Continued development of technic, articulation, phrasing, and tone quality. Repertoire expanded to include Mozart, *Concerto K. 191;* Bach, *Concerto in E-Flat;* Cascarino, *Sonata;* Graun, *Concerto in G-Flat;* selected Vivaldi concerti. Prereq.: BASSN 506. 4+4+4 q.h.

707, 708, *709. Emphasis on the instrument in a chamber role. Mozart, *Divermenti;* Beethoven *Duos;* Villa-Lobos, *Duo;* Piston, *Trio;* standard quintet literature. Junior recital. Prereq.: BASSN 609. 4+4+4 q.h.

807, 808, *809. Emphasis on the instrument in an orchestral role. Memorization of major orchestral passages. Additional solo literature to include Etler, *Sonata;* Jacob, *Concerto;* Saint-Saens, *Sonata;* Bozza, *Concertino.* Senior recital. Prereq.: BASSN 709. 4+4+4 q.h.

## Saxophone

### Major/Performance

504, 505, 506. Basics of embouchure, articulation, phrasing, technique, and tone reviewed with Londeix, *Les Gammes;* Viola, *The Technique of the Saxophone;* and literature which includes Telemann/Londeix, *Sonate;* Glazounov,*Concerto;* Creston, *Sonata;* and Bonneau, *Suite.* Prereq.: Entrance audition. 3+3+3 q.h.

607, 608, 609. Refinement of technique, interpretation, and tone quality. Studies include Koechlin, *15 Etudes,;* Vol. I of Mule, *54 Etudes;* and literature and performance of Hartley, *Duo;* Bozza, *Piéce Breve;* Noda, *Improvisation I;* Heiden, *Sonata;* and chamber works. Prereq.: SAX 506. 4+4+4 q.h.

707, 708, *709. Emphasis on literature and performance, including Absil, *Sonata;* Bozza, *Improvisation et Caprice;* Villa-Lobos, *Fantasia;* Milhaud, *Scaramouche;* Maurice, *Tableaux de Provence;* Noda, *Mai;* and literature from the 804, -5, -6 levels. Junior Recital. Prereq.: SAX 609. 4+4+4 q.h.

807, 808, *809. Emphasis on literature and performance, to include Ibert, *Concertino Da Camera;*Husa, *Elégie et Rondeau;* Persichetti, *Parable;* Berio, *Sequenza IXb;* and Bassett, *Music for Saxophone and Piano.* Senior Recital. Prereq.: SAX 709. 4+4+4 q.h.

## BRASS INSTRUMENTS

## Trumpet

### Major/Performance

504, 505, 506. Development of basic fundamentals of breath and tonal control, and of full physical potential. Sight-reading. Introduction to transposition techniques. Study material: H. Clarke, *Technical Studies;* W. Smith, *Lip Flexibilities;* Arban, *Complete Method;* Hering, *Etudes.* Solo literature: Balay, *Prelude and Ballade;* Handel-Fitzgerald, *Aria Con Variazione;* Barat, *Fantasy in E-Flat; Andante and Scherzo.* Prereq.: Entrance audition. 3+3+3 q.h.

607, 608, 609. Continued study of fundamentals and literature from the previous levels. Orchestral excerpts and chamber literature. Extensive work on transposition and sight-reading. Introduction of the C trumpet. Study materials: Schlossberg, *Technical Studies;* Clarke, *Characteristic Studies;* Pietsch, *Virtuosity Studies;* W. Smith, *Top Tones for the Trumpet;* Charlier, *36 Etudes.* Solo literature such as: Hummel, *Concerto in E-Flat;* Kennan, *Sonata;* Bohrnsdedt, *Concerto;* J. Stanley, *Trumpet Tune;* Flor Peeters, *Sonata.* Prereq.: TRUMP 506. 4+4+4 q.h.

707, 708, *709. Continued refinement of the technical and tonal aspects of trumpet playing. Improvement of transposition ability. Introduction of the D trumpet. Continued experience on the C trumpet; further study of orchestral excerpts. Study materials such as: Nelson, *Top Tone Duets;* Petit, *Petite Studies,* Broiles, *Technical Studies,* Vol. 1; Toldman, *Triple and Double Tonguing;* Tomasi, *Etudes.* Solo literature to include: Vidal, *Sonata;* Hindemith, *Sonata;* Gianinni, *Concerto;* Artumiam, *Concerto;* Stevens, *Sonata.* Junior Recital. Prereq.: TRUMP 609. 4+4+4 q.h.

807, 808, *809. Continued refinement and study of materials from previous courses. Extensive work on orchestral excerpt collections of Bartholody and Voisin. Preparation of senior recital. Solo literature such as: Jolivet, *Sonatina;* Tomasi, *Concerto;* D. White, *Sonata;* Telemann, *Concerto in D Major;* Haydn, *Concerto in E-Flat.* Senior Recital. Prereq.: TRUMP 709. 4+4+4 q.h.

## French Horn

### Major/Performance

504, 505, 506. Establishment of a practice routine to promote fundamental skills; tone production, air control, embouchure, flexibility, legato/staccato articulation. Transposition, sight-reading. Orchestral excerpts taken from music of Brahms, Tschaikovsky,

*Additional fee required.

Beethoven, Mendelssohn, A. Thomas. Study materials such as Kopprasch, *6 Selected Studies,* Book I; Maxime-Alphonse, *70 Etudes,* Book I; Pottag and Andraud, *335 Studies,* Book I; Pares, *Daily Exercises and Scales.* Solo literature to include Mozart, *Concerto No.1;* Adler, *Sonata;* Baroff, *Sonata;* Jones, *Solos for the Horn Player.* Prereq.: Entrance audition. 3+3+3 q.h.

607, 608, 609. Continued emphasis on fundamentals. Transposition, sight-reading. Orchestral excerpts: continuation of literature listed for 504, 505, 506, plus Rossini, Wagner, Dvorak, Franck, Weber. Study materials such as Kopprasch, *60 Selected Studies,* Books I and II; Maxime-Alphonse, *40 Etudes,* Book II; Pottag and Andraud,*335 Studies,* Book I; Bach-Hoss, *Suites for Cello.* Solo literature to include Op. 17; Chabrier, *Larghetto;* Rosetti, *Concerto in E-Flat* Saint-Saens, *Concert Piece, Op. 44;* Mozart, *Concerto No. 3.* Prereq.: FHORN 506. 4+4+4 q.h.

707, 708, *709. Further study of technical problems. Transposition, sight-reading. Orchestral excerpts: continuation of repertoire listed for previous courses, plus music of Bizet, Massenet, Borodin, Rimsky-Korsakov, Strauss, Stravinsky. Study materials such as Kopprasch, *6 Selected Studies,* Book II; Maxime-Alphonse, *40 Etudes,* Book III; Gallay, *Studies and Preludes;* Bach-Hoss, *Suites for Cello;* Kling, *40 Characteristic Studies.* Solo literature to include Haydn, *Concerto No. 1;* Mozart, *Concerto No. 2;* R. Strauss, *Concerto No. 1;* Dukas, *Villanelle;* Wilder, *Sonata No. 3;* Beethoven, *Sonata, Op. 17.* Junior Recital. Prereq.: FHORN 609. 4+4+4 q.h.

807, 808, *809. Continuing emphasis on fundamental technical problems. Transposition, sight-reading. Orchestral excerpts: continuation of literatures listed for previous courses, plus Bach, Mozart, Haydn, Mahler, Schoenberg, and other 20th century composers. Study materials such as Pottag and Andraud, *Selected Studies 305,* Book II; Bach-Hoss, *Suites for Cello;* Gallay, *Etudes and Preludes;* Maxime-Alphonse, *20 Etudes,* Book IV; Mueller, *22 Etudes.* Solo literature to include Haydn, *Concerto No. 2;* Hindemith, *Concerto;* Mozart, *Concerto No. 4;* Tomasi, *Concerto;* Donato, *Concerto;* Hindemith, *Sonata.* Senior Recital. Prereq.: FHORN 709. 4+4+4 q.h.

## Trombone

### Major/Performance

504, 505, 506. Emphasis on all playing fundamentals. Establishment of a warm-up procedure. Establishment of good practice habits. Introduction to the F attachment. Introduction to tenor clef. Study materials such as: tenor trombone — Bordogni-Rochut, *Melodious Etudes.* Book I; Fink, *Introduction to Tenor Clef;* Blume-Fink, *36 Studies for Trombone with F Attachment.* Bass trombone — Ostrander, *Method for Bass Trombone;* Ostrander, *Melodious Etudes for Bass Trombone;* Fink, *Introduction to Tenor Clef.* Solo materials to include: Tenor Trombone — Marcello, *Sonatas #1, #4, #6;* Jacob, *Concerto (1st Movement);* Barat, *Andante et Allegro.* Bass trombone — McCarty, *Sonata;* Mozart-Sansone, *Concert Rondo;* Galliard, *Sonata No. 5.* Prereq.: Entrance audition. 3+3+3 q.h.

607, 608, 609. Continued emphasis on all playing fundamentals, warm-up and practice habits, and sight-reading. Concentration on developing range, endurance, and dynamics. Continued work in tenor clef. Introduction of alto clef. Continued work with F attachment. Study materials such as: Tenor Trombone — Bordogni-Rochut, *Melodious Etudes,* Books I and II; Fink, *Introduction to Alto Clef;* Kopprasch, *60 Studies,* Book II. Bass Trombone — Bordogni-Rochut, *Melodious Etudes*; Tyrrell, *40 Progressive Etudes for Tuba;* Menken, *Orchestral Excerpts,* Books 1 and 2. Solo materials to include: Tenor Trombone — David, *Concertino;* Grafe, *Grand Concerto;* White, *Sonata.* Prereq.: TROMB 506. 4+4+4 q.h.

707, 708, *709. Continued emphasis on all playing fundamentals, warm-up and practice habits, and sight-reading. Continued study of orchestral excerpts. Study on baritone horn is recommended. Emphasis on ensemble playing and playing "lead." Study materials such as: Tenor Trombone — Blazevich, *Clef Studies;* Bordogni-Rochut, *Melodious Etudes,* Book II; Pederson, *Intermediate Etudes for Tenor Trombone.* Bass Trombone — Bordogni-Rochut, *Melodious Etudes;* Blazevich, *Advanced Studies,* Book I (for Tuba); Weissenborn, *Studies,* Book II for Bass Trombone. Solo materials to include: Tenor Trombone — Hindemith, *Sonata;* Bozza, *Homage á Bach;* Casterede, *Sonatine.* Bass trombone — Ross, *Prelude, Fugue and Big Apple;* Stevens, *Sonatina.* Junior Recital. Prereq.: TROMB 609. 4+4+4 q.h.

807, 808, *809. Culmination of all playing fundamentals in a solo recital. Introduction of study on the alto trombone. Perfection of orchestral audition repertoire. Study materials such as: Tenor Trombone — Bordogni-Rochut, *Melodious Etudes Book II;* Pederson, *Advanced Etudes for Tenor Trombone;* Mazted, *20 Advanced Studies.* Bass trombone — White, *Tetra Ergon;* Persichetti, *Serenade for Unaccompanied Tuba;* Beversdorf, *Sonata for Tuba.* Senior Recital. Prereq.: TROMB 709. 4+4+4 q.h.

## Euphonium

### Major/Performance

504, 505, 506. Study of fundamentals. Development of daily practice and warm-up routines. Knowledge of bass and treble clefs. Introduction to tenor clef. Study materials such as Arban, *Complete Method;* Bordogni-Rochut, *Melodious Etudes,* Vol. 1; Kopprasch, *6 Etudes,* Vol. 1; Blume, *26 Etudes.* Solo literature to include Galliard, *Sonata in G;* Barat, *Introduction and Dance;* Telemann, *Sonata in F;* Morel, *Piece in F;* Marcello, *6 Sonatas.* Prereq.: Entrance audition. 3+3+3 q.h.

*Additional fee required.

607, 608, 609. Continued emphasis on fundamentals. Introduction of alto clef. Orchestral and band parts. Emphasis on sight-reading. Study materials such as Arban, *Complete Method;* Bordogni-Rochut, *Melodious Etudes,* Vols. I and II; Voxman, *Selected Etudes;* Bitsch, *20 Etudes.* Solo literature to include Hindemith, *Bassoon Sonata;* Bach, *Cello Suites;* David, *Concertino;* Mozart, *Bassoon Concerto;* Whear, *Sonata;* Pryor, *Blue Bells of Scotland.* Prereq.: BHORN 506.
4+4+4 q.h.

707, 708, *709. Continued study of orchestral and band parts. Study of trombone recommended. Study materials such as Smith, *Top Tones for Trumpet;* Bordogni-Rochut, *Melodious Etudes,* Vol. II; Bitsch, *20 Etudes.* Solo literature to include Ross, *Partita;* Stevens, *Sonatina;* Cords, *Concert Fantasie;* Hindemith, *Bassoon Sonata;* Ross, *Capriccio Furioso;* Bach, *Sonata in G;* White, *Lyric Suite.* Junior Recital. Prereq.: BHORN 609. 4+4+4 q.h.

807, 808, *809. Continued study of orchestra and band parts. Study materials such as Bozza, *13 Etudes Caprices;* Bordogni-Rochut, *Melodious Etudes,* Vol. III; Rieunier, *22 Dechiffranges Rythmiques.* Solo literature to include Jacob, *Fantasia;* Horovit, *Concerto;* Boda, *Sonatina;* Curnow, *Symphonic Varients;* Hartley, *Sonata Euphonica;* Bach, *Sonata in D.* Senior Recital. Prereq.: BHORN 709. 4+4+4 q.h.

## Tuba

### Major/Performance

504, 505, 506. Study of fundamentals. Development of daily practice and warm-up routine. Playing of study and solo literature one octave lower. Study materials such as Blazhevich, *70 Studies,* Vol. 1; Arban, *Complete Method;* Kopprasch, *60 Etudes,* Vol. 1; Bordogni-Rochut, *Melodious Etudes,* Vol. 1. Solo literature to include David, *Concertino;* Telemann, *Sonata in F;* Lebejew, *Konzert;* Marcello, 6 *Sonatas;* Barat, *Introduction and Dance.* 3+3+3 q.h.

607, 608, 609. Introduction to tenor clef. Orchestra parts; chamber literature. Study materials such as Blazhevich, *70 Studies,* Vol. II; Kopprasch, *60 Studies,* Vol. II; Barbatou; *Melodious Etudes,* Vols. I and II. Solo literature to include Hindemith, *Sonata;* Mozart, *Concerto No. 3;* Blavet, *Sonata in G;* Vinci, *Sonata in D;* Wilder, *Sonata.* Prereq.: TUBA 506. 4+4+4 q.h.

707, 708, *709. Continued study of orchestral parts and chamber literature. Study materials such as Bordogni-Rochut, *Melodious Etudes,* Vols. I and II; Bitsch, *20 Studies;* Gregson, *Concerto;* Heiden, *Concerto;* Pisciotta, *Sonata.* Solo literature to include Schumann, *Adagio and Allegro;* Stevens, *Sonatina;* Bach, *Sonata in G;* Mozart, *Con certo No. 2;* Strauss, *Concerto No. 1.* Junior Recital. Prereq.: TUBA 609.
4+4+4 q.h.

807, 808,*809. Introduction to F Tuba (if not already used). Continued study of orchestra parts and chamber music. Study materials such as Bordogni-Rochut, *Melodious Etudes,* Vol. III; Reynolds, *48 Etudes;* Sauter, *Eight Random Thoughts;* Kraft, *Encounters II;* Beversdorf, *Concerto;* Jacob, *Tuba Suite;* Largent, *Four Shorts;* Vadvnan Williams, *Concerto.* Solo literature to include Takacs, *Sonata Capricciosa;* Penn, *Three Essays;* Reynolds, *Sonata;* Woolf, *Per Tuba Ad Astram.* Senior Recital. Prereq.: TUBA 709. 4+4+4 q.h.

## Percussion

### Major/Performance

504, 505, 506. *Keyboard Percussion, Snare Drum and Timpani.* Concentration on the development of basic techniques and daily practice studies. Sight reading, sticking, phrasing, and tempo flexibility will be emphasized. Various solos for appropriate level of study will be stressed on each instrument. An original multi percussion composition to be written. All major and minor scales, and arpeggios in all keys to be memorized. Prereq.: Entrance audition.
3+3+3 q.h.

607, 608, 609. Continued development on the above instruments. Emphasis on marching percussion and writing percussion scores. Projecting good rhythm and learning independent coordination on drum set. Development of four mallets on marimba. Various solos for appropriate level of study on each instrument. Expanding octaves and speed on all major and minor scales, and arpeggios in all keys. Prereq.: PERC 506.
4+4+4 q.h.

707, 708, *709. Continued development of technique, articulation, sticking and sight reading in bass clef. Emphasis on percussion accessories and applying them to orchestral excerpts. Latin percussion studies include, timbales, bongos, conga drums and Latin percussion accessories. Various solos for appropriate level of study will be stressed on each instrument. Expanding octaves and speed on all major and minor scales, and arpeggios in all keys. Junior recital. Prereq.: PERC 609.
4+4+4 q.h.

807, 808, *809. Continued development with emphasis on literature and performance. Writing an original percussion ensemble piece. Continuation of orchestral excerpts and learning orchestral audition repertoire. Senior recital. Prereq.: PERC 709.
4+4+4 q.h.

## THEORY AND COMPOSITION

501. *Applied Theory.* Applications of theory of diatonic harmony; development of independent study and research projects in such areas as analysis, aural perception, scoring, and arranging. May be repeated once. Prereq.: Permission of instructor. 2 q.h.

520. *Materials of Music.* Musical styles, listening concepts, and harmonic technics as they relate to the literature of music. For students who do not qualify for MUSIC 532. Satisfies the University's area requirement in the humanities. 4 q.h.

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*Additional fee required.

530, 531, 532. *Theory 1.* A study of the harmonic, melodic, rhythmic and contrapuntal materials in diatonic tonal music. Instruction entails harmonic progression and voice leading, harmonic and formal analysis; laboratory practice in ear training, keyboard harmony and sight singing. Meets five days a week. Prereq.: 520 with a grade of 'B' or better or a minimum score of 50% on the theory placement test. 3+3+3 q.h.

601. *Applied Theory.* Applied instruction in music theory of chromatic harmony which develops independent study and research projects in such areas as analysis, aural perception, scoring, and arranging. May be repeated once. Prereq.: Permission of instructor. 2 q.h.

501, 502, 503. *Composition A*

601, 602, 603. *Composition B*

Composition for composition majors. Creative use of the materials of music; beginning study of instrumentation; composition of short works for solo and chamber media. Analysis of representative compositions in various styles. Prereq.: Grade of *B* or better in lower division theory courses, or concurrent with THERY 530, 531, 532. 2 q.h. each

704, 705, 706. *Composition C*

804, 805, 806. *Composition D*

Composition for composition majors. Private instruction employing contemporary techniques; compositions for solo instruments, vocal and instrumental chamber groups, and large ensembles. Editing and proofreading of scores (and parts) to prepare compositions for performance or publication. A recital of at least one hour duration will be presented of selected works of the student as a requirement for graduation. Prereq.: COMP 603, 706. 3 q.h. each

630, 631, 632. *Theory 2.* A study of which includes the chromatic materials used in tonal music. The instruction entails harmonization; harmonic and formal analysis; reading choral scores, chamber music and orchestral excerpts; laboratory practice in ear training, keyboard harmony and sight singing. Meets five days a week. Prereq.: THERY 532 with grade of C or better. 3+3+3 q.h.

701. *Applied Theory.* Applied instruction in music theory of modal and/or non-tonal music which will develop independent study and research projects in such areas as analysis, aural perception, scoring and arranging. May be repeated once. Prereq.: Permission of instructor. 2 q.h.

750. *Analytical Techniques.* Analysis of representative repertoire from the renaissance, baroque, classical, romantic, and contemporary periods. Prereq.: THERY 632 with a grade of C or better. 4 q.h.

820, 821, 822. *Composition.* Composition in two- and three-part forms, and other compositions of small scope, such as variation and sonatina. Works are composed both for piano alone, and in combination with other instruments or voice. May be repeated by composition majors to meet requirements for composition A and composition B. Prereq.: THERY 632 with a grade of C or better, or by permission of the instructor for composition majors. 2+2+2 q.h.

830. *Materials of 20th Century Music.* A study of the various elements of 20th century compositions, including melody, harmony, rhythm, texture, and form. Prereq.: THERY 632 with a grade of C or better. 3 q.h.

831. *Modal Counterpoint.* Sixteenth-century contrapuntal style including introduction of species technique; analysis of liturgical and secular repertoire; writing of imitative counterpoint with stylistic rhythms and cadences. Prereq.: MUSIC 632 with a grade of C or better. 3 q.h.

832. *Tonal Counterpoint.* Contrapuntal style of baroque music including analysis of examples in imitative and invertible counterpoint; writing of 2- and 3-part inventions and 3- and 4-part fugal expositions. Prereq.: MUSIC 632 with a grade of C or better. 3 q.h.

833. *Theory Seminar.* Topics in music theory not covered in regular upper division offerings. May be repeated once with different topic. Prereq.: MUSIC 632 with a grade of C or better. 3 q.h.

834. *Electronic Music 1.* Techniques of *Musique Concrete*; exploration of sound synthesis and alteration; mixing and recording techniques. The care and use of the synthesizer and attendant recording equipment. Composition of short works. Prereq.: For composition majors, MUSIC 506 or equivalent; for non-composition majors, MUSIC 632 with a grade of C or better; for non-music majors, permission of instructor. 2 q.h.

835. *Electronic Music 2.* Composition in electronic and mixed media. May be repeated once. Prereq.: MUSIC 834. 2 q.h.

840. *Instrumentation.* Ranges, transposition, technical characteristics, and tonal features of the instruments. Scoring for large and small ensembles which are available as laboratory reading groups. Prereq.: MUSIC 632 with a grade of C or better. 4 q.h.

## MUSIC HISTORY AND LITERATURE

512.* *A Survey of Musical Theatre.* Identical to SPCH 512. Satisfies the University's area requirement in the humanities. 4 q.h.

517. *Introduction to Music and Art.* An introductory interdisciplinary survey of musical and visual arts which considers the influence of philosophy, religion, politcs, etc. Particular examples will be drawn from various periods, styles, and movements within the historical framework of art and music. Materials for the

*MUSIC 512 may not replace a music history requirement for the music major.

course will include slides, field trips, recordings, performances, and lectures. Will not fulfill music literature requirement for the music major or art history requirement for the art major. Cross listed with ART 517. 4 q.h.

518, 519. *Survey of Music Literature.* An introduction to the elements of musical style with emphasis on the acquisition and development of perceptive listening skills. Study of representative literature from all historical periods. Comprehensive listening assignments are an integral part of the course. 518 is prerequisite to 519. 3+3 q.h.

616.* *Survey of Jazz.* A historical survey of the origins, influences, and stylistic features of jazz from its beginnings to the present, with emphasis on performers, compositions, and innovations. 4 q.h.

617.* *Film Music.* An historical survey of the use of music in the motion picture. Examination of different styles in works by major composers. 4 q.h.

618.* *Rock 'n Roll to Rock.* An historical survey of the evolution of rock 'n roll into rock with emphasis on the interrelationships of the music and social and political influence and the interaction of rock with other music styles. 4 q.h.

619*. *Music of Non-Western Societies.* A historical survey of music as it relates to the different cultures, with emphasis on the development of instruments, vocal practices and performance media within specific cultures. 4 q.h.

622.* *Popular Music in America.* The changing styles in American popular music from its origins to the present day studied through an examination of representative compositions and performers. Satisfies the University's area requirement in the humanities. 4 q.h.

709, 710, 711.* *History and Appreciation of Art and Music: General.* Identical with ART 709, 710, 711. Satisfies the University's area requirement in the humanities. 4+4+4 q.h.

770, 771, 772. *Music History and Literature.* A study of music from earliest times to the present with special reference to the relation of the history of music to that of other arts and to the political and religious history of the corresponding periods. The orientation of musical literature to the periods in which it was written and the styles of individual composers are also stressed. Prereq.: MUSIC 531 (or 621 for the non-music major). 4+4+4 q.h.

852. *Woodwind Literature.* An historical survey of solo and ensemble literature of the woodwind family with emphasis on the evolution of the woodwind instruments and the development of their literature. Prereq.: MUSIC 772. 3 q.h.

860. *Piano Literature.* A chronological investigation of solo piano works by major composers from Bach to Cage. Prereq. or Concurrent: MUSIC 770, 771, 772. 4 q.h.

*MUSIC 616, 617, 618, 619, 622, 709/710/711 may not replace a music history requirement for the music major.

869. *Organ Literature.* A study of the organ and its literature from earliest times to the present day. Prereq.: MUSIC 632 and 772. 3 q.h.

871. *Baroque Music.* The evolution of musical styles during the period 1600-1750. A historical survey of documents and music literature of the time: opera from Monteverdi to Handel; keyboard and instrumental works; significant choral works, etc. Prereq.: MUSIC 632 and 772. 3 q.h.

872. *Eighteenth Century and the Viennese Classical School.* Musical developments from the decline of the baroque to the turn of the century; historical and stylistic elements contributing to the rise of classicism and culminating in the works of Mozart, Haydn, Beethoven. Prereq.: MUSIC 632 and 772. 3 q.h.

873. *Opera History.* An historical survey of opera: its development as an art form from its beginnings to the present. Prereq.: MUSIC 632 and 772. 3 q.h.

874. *Nineteenth Century: The Romantic Period.* Musical developments from Beethoven through Wagner; aesthetic, formal, technical and historical trends with special emphasis on nationalism and the music drama. Prereq.: MUSIC 632 and 772. 3 q.h.

878. *Selected Topics in Music History.* A study of a specific topic to be announced each time the course is offered. May be repeated once with different topic. Prereq.: MUSIC 632 and 772. 3 q.h.

879. *Vocal Literature.* A study of vocal literature from all periods. Special emphasis on English language repertoire and on material especially suitable for high school students. Songs are prepared for performance in class. Prereq.: MUSIC 632 and 772. 3 q.h.

884. *History and Literature of Brass Instruments.* The history and literature of brass instruments with emphasis on the evolution of brass in the orchestra, solo literature, chamber music literature, and bibliography. Prereq.: MUSIC 632 and 772. 3 q.h.

## CONDUCTING

715. *Fundamentals of Conducting.* Develop basic skills necessary to lead an instrumental or choral ensemble. Emphasis on discovering the implications of the score and enlarging the student's expressive resources. Students in the class provide an ensemble for practice in conducting. Prereq.: MUSIC 632 or junior standing. 2 q.h.

716. *Instrumental Conducting Practicum.* A practical course in conducting instrumental ensembles for actual conducting experiences. Course is designed to provide student with experience in applying conducting techniques and concepts introduced in Conducting 715. Prereq.: Conducting 715. 2 q.h.

717. *Vocal Conducting Practicum.* A practical course in conducting with total concentration on vocal ensemble problems and solutions. Students are assigned to one of the vocal ensembles for actual conducting experience. Prereq.: Conducting 715. 2 q.h.

## MUSIC EDUCATION

511. *Introduction to Music Education.* Through classroom observations and seminars the student studies music curriculums and the function of the music teacher at all levels of instruction. One hour seminar and two hours observation per week. Prereq.: EDUC 501. 1 q.h.

521. *Introduction to Music Fundamentals.* Development of skill in reading music through singing, conducting, and elementary keyboard experience. For non-music majors. 3 q.h.

621. *Music Literature and Appreciation.* The development of listening techniques applicable to Western and non-Western music through the comparison and contrast of the music of significant historical periods. For non-music majors. Satisfies the University's area requirement in the humanities. 4 q.h.

721. *Music Education for Elementary Teachers.* The development of an understanding of the theoretical aspects of music through discussion and demonstration of repertoire and techniques for teaching music in the elementary school. Prereq.: Upper Division status in the College of Education. 4 q.h.

722. *Music in Early Childhood.* Fundamental skills, repertoire, materials, and techniques for teaching music to pre-school and kindergarten children. Prereq.: HOMEC 532. 4 q.h.

814. *Selected Topics in Music Education.* Course title will be listed each quarter in the *Schedule of Classes.* May be repeated for credit as long as topic is different. Prereq.: MUSIC 815. 2 q.h.

Topics may include:

*Vocal Ensembles in the High School.* A study of methods and materials for small vocal groups at the high school level including madrigals, swing choirs, and other small chamber ensembles. 2 q.h.

*Orff and Kodaly for the classroom.* A study of the philosophies, materials, and methods of Carl Orff and Zoltan Kodaly with applications to the elementary school classroom. 2 q.h.

*Marching Band Techniques.* Organizing and conducting the marching band. Gridiron, charting, and marching procedures, precision drills, formations, and pageantry. 2 q.h.

*Music and the Related Arts.* Techniques and materials for teaching humanities or related-arts classes at the elementary or secondary level. Relationships among music, art, architecture, literature, drama, and films. 2 q.h.

*Marching Band Arranging.* A study of instrumentation, suitable instrumental ranges, and scoring procedures for attaining the sound-power for outdoor performance. 2 q.h.

*Instrument Repair.* Practical experience in the basic skills needed by the prospective instrumental teacher in repairing string, brass, woodwind, and percussion instruments. 2 q.h.

*Jazz Ensemble in the Secondary School.* Organizing, scheduling, and rehearsing the jazz ensemble, and a study of suitable jazz materials for the secondary school with emphasis on interpretation, style characteristics, and improvisation procedures. 2 q.h.

815. *Vocal and Instrumental Music Education.* Methods of organizing, administering, and conducting music in the schools. Study includes: literature, instructional methods, library organization, scheduling, curriculums, philosophy, technology, festivals and competitive events. Includes two hours of field experience per week. Prereq.: MUSIC 717 and admission to the College of Education. 4 q.h.

823. *Music Teaching in the Elementary School.* A study of the role of music in the life of the child. An examination of principles, repertoire, and techniques of teaching. Includes 2 hrs. of field experience a week. Prereq.: admission to the College of Education. 4 q.h.

841. *Music Workshop.* For students and teachers in service; topics may vary from year to year. Specific topics are announced each time the workshop is offered. May be repeated with different topic. 1-4 q.h.

851. *Woodwind Pedagogy.* Various teaching approaches to each of the woodwind instruments with special emphasis on doubling problems. Basic concepts of tone production, embouchure and study materials using extensive demonstration by students and faculty. Prereq.: WWIND 506 or 509. 2 q.h.

858, 859. *Piano Pedagogy.* Methods and materials involved in teaching of piano in private and classroom settings. Fundamentals of technique as well as repertoire. Supervised practice teaching. Prereq.: MUSIC 592 or 682. 2+2 q.h.

880. *Vocal Pedagogy.* A comparative study of physiological and psychological approaches to voice instruction and their application to private and class instruction. Prereq.: VOICE 603, 606, or 609. 2 q.h.

882. *String Pedagogy.* An examination of the problems of string teaching. Survey of grades and levels of instruction, string literature, psychological aspects of individual proficiency, and teaching devices. Demonstration with students in a teaching situation. Prereq.: String 701 or 704. 2 q.h.

885. *Brass Pedagogy.* Designed for the brass major to study the various teaching approaches to each of the brass instruments. Basic concepts of tone production will be emphasized on each brass instrument, stressing common features as well as differences. Brass study materials will be introduced and analyzed. Teaching demonstrations by faculty members and students. Prereq.: Brass 506. 2 q.h.

## APPLIED MUSIC CLASSES

A series of instrumental and vocal classes at the beginning level to explore technics and approaches appropriate to school music instruction. Music education majors select varying numbers of these courses in addition to pedagogy as described in the curriculum outline section. A minimum level of performance is required. Each class meets two hours a week.

555. *Guitar Class.* 1 q.h.

556. *Singer's Diction: English/Italian.*
557. *Singer's Diction: German.*
558. *Singer's Diction: French.*
Aplication of the principles of Lyric diction; utilization of the International Phonetic Alphabet in developing and reading phonetic transcriptions of English, Italian, German, and French song texts. 1 q.h. each.

657. *Violin/Viola Metholds.* A preparatory course for instrumental music students to teach violin and viola in an orchestral setting. Ear training and theory will be applied to left hand fingerboard techniques. Bowing styles, development, and execution will be demonstrated and discussed. Meets two days per week for 50 minutes. Prereq.: MUSIC 511. 1 q.h.

658. *Snare Drum Class.* The study of the snare drum, with emphasis on its various teaching approaches. Includes learning the Twenty Six Drum Rudiments and applying them to different styles of drumming. Continued development of writing and scoring for marching percussion. Designed to prepare students to teach this instrument in public or private school situations. 1 q.h.

659. *Voice Class.* 1 q.h.

732. *Brass Methods.* A study of the brass instruments (trumpet, French horn, trombone, euphonium, tuba), with emphasis on various teaching approaches for each instrument. Basic tone production as well as common features and differences will be stressed. Brass study materials will be introduced and analyzed. Teaching demonstrations will be included. Meets four days a week for 50 minutes. Prereq.: MUSIC 511. 2 q.h.

733. *Woodwind Methods.* Designed to prepare students for instrumental music teaching relative to woodwind instruments (flute, clarinet, oboe, bassoon, saxophone). The components will include concepts of tone production, embouchure, articulations, and technique. Study material will stress common features as well as differences. Meets four days a week for 50 minutes. Prereq.: MUSIC 511. 2 q.h.

759. *Cello/Bass Methods.* Designed to prepare instrumental music students to teach cello and string bass in a classroom or orchestral setting. The areas which will be demonstrated and discussed include fingering, bowing, positions, shifting, and tone production. Meets two days a week for 50 minutes. Prereq.: MUSIC 511. 1 q.h.

763. *Mallet/Timpani and Accessories Class.* The study of the keyboard mallet, drum set, Latin percussion, timpani and percussion accessories, with emphasis on various teaching approaches to these instruments. Practical application will be included on each section. Designed to prepare students to teach these instruments in public or private school situations. 1 q.h.

## KEYBOARD MUSICIANSHIP CLASSES

580, 581, 582. *Keyboard Musicianship 1.* Elements of keyboard techniques, with emphasis on sight-reading, interpretation of simple music, transposition, and analysis. All major and minor scales and related chords, hands together. Required of all non-keyboard majors. Must be taken in sequence. 1+1+1 q.h.

590, 591, 592. *Keyboard Musicianship for Keyboard Majors.* Laboratory and ensemble experience to develop skill in sight-reading, transposition, analysis, harmonization, modulation, and multi-part score-reading. Must be taken in sequence. Prereq.: KEYBD 501, 504, 682 or equivalent. 1+1+1 q.h.

680, 681, 682. *Keyboard Musicianship 2.* A continuation and intensification of studies begun in Music 580, 581, 582, with emphasis on accompanying, modulation, repertoire, and stylistic analysis. Must be taken in sequence. Prereq.: 582 or equivalent. 1+1+1 q.h.

690, 691, 692. *Accompanying 1.* A study of techniques useful in playing the piano for vocalists, with supervised studio and recital experience. May be repeated for credit. Prereq.: MUSIC 592. 1+1+1 q.h.

693, 694, 695. *Accompanying 2.* A study of techniques useful in playing the piano for instrumentalists, with supervised studio and recital experience. May be repeated for credit. Prereq.: MUSIC 592. 1+1+1 q.h.

887, 888, 889. *Piano Duet and Duo Playing.* Investigation and performance of works for four hands at one or two pianos, such as Mozart, *Sonata,* K. 448; Schubert, *Fantasy, Op. 103*; Debussy, *En Blanc Et Noir*; and Stravinsky, *Sonata*. Prereq.: MUSIC 592. 1+1+1 q.h.

890, 891, 892. *Chamber Music With Piano.* Preparation of trios, quartets, and quintets including string and wind instruments. Analysis of problems in ensemble performance. May be repeated for credit. Prereq.: MUSIC 695. 1+1+1 q.h.

## ACCOMPANYING

601A, 602A, 603A. *Accompanying 1.* Private instruction in solo vocal accompanying and coaching, with emphasis on piano technique, balance, style, and ensemble. Literature to include art songs, operatic excerpts, continuo playing. Concurrent with Accompanying 690, 691, 692. Prereq.: Keyboard Musicianship 592. 2+2+2 q.h.

693A, 694A, 695A. *Accompanying 2.* A study of technics useful in playing the piano for instrumentalists, with supervised studio and recital experience. For accompanying majors only. Prereq.: MUSIC 592. 2+2+2 q.h.

701A, 702A, 703A. *Accompanying 2.* Private instruction in solo instrumental accompanying and coaching, with emphasis on piano technique, balance, style, and ensemble. Literature to include solo sonatas, continuo playing, orchestral reductions for paino of representative concertos. Concurrent with Accompanying 693, 694, 695. Prereq.: Keyboard Musicianship 592. 2+2+2 q.h.

801A. *Accompanying 3.* Continuation of studies begun in 601A through 703A, with private instruction in preparation of one half-hour senior recital in vocal accompanying. Prereq.: PIANO 703A. 2 q.h.

802A. *Accompanying 3.* Continuation of studies begun in 601A through 703A, with private instruction in preparation of one half-hour senior recital in instrumental accompanying. Prereq.: 801A. 2 q.h.

## JAZZ

616. *Survey of Jazz.* A historical survey of the origins, influences, and stylistic features of jazz from its beginnings to the present, with emphasis on performers, compositions, and innovations. 4 q.h.

666, 667, 668. *Jazz Improvisation.* Jazz technics, with emphasis on analysis of harmonic progression, form, style, and performance requirements of the jazz idiom. Prereq.: MUSIC 531 or permission of instructor. Classes must be taken in sequence. 3+3+3 q.h.

712, 713, 714. *Jazz Arranging 1, 2, 3.* Scoring in the jazz idiom with emphasis on harmonic concepts, voicing procedures, forms and stylistic trends developed by major jazz composer-arrangers. Detailed study of instrumental techniques with projects scored for various sized ensembles. Student arrangements are performed in reading sessions and concerts. Classes must be taken in sequence. Prereq.: THERY 532 or consent of instructor. 3+3+3 q.h.

780, 781, 782. *Jazz Keyboard 1, 2, 3.* (Non-Keyboard Majors): Class instruction and keyboard experience in melodic, harmonic, and rhythmic improvisation. 1+1+1 q.h.

866, 867, 868. *Advanced Jazz Improvisation.* Advanced jazz techniques, with emphasis on analysis of harmonic progressions, form, style, and performance requirements of the jazz idiom. Prereq.: MUSIC 668. 3+3+3 q.h.

## ENSEMBLES

In order to obtain experience in the performance of music written for instrumental and vocal groups, students are required to participate in ensembles as follows:

All vocal and instrumental majors must be in a major ensemble each quarter they are full-time students. The director of the School of Music may waive ensemble participation in exceptional cases, and during the student teaching quarter. There are two types of ensembles in the school of music — major ensembles and chamber ensembles. Major ensembles rehearse a total of four hours per week and chamber ensembles for two hours. The major ensembles are:

| Courses | | Cr. Hrs. |
|---|---|---|
| 002 | *Dana Chorale* | 0-1 q.h. |
| 004 | *University Chorus* | 0-1 q.h. |
| 005 | *Concert Band* | 0-1 q.h. |
| 006 | *Marching Band* | 0-1 q.h. |
| 007 | *Wind Ensemble* | 0-1 q.h. |
| 008 | *Symphony Orchestra* | 0-1 q.h. |

The chamber ensembles are:

| | | |
|---|---|---|
| 003 | *Dana Madrigal* | 0-1 q.h. |
| 009 | *Percussion Ensemble* | 0-1 q.h. |
| 010 | *String Ensemble* | 0-1 q.h. |
| 012 | *Opera Workshop* | 0-3 q.h. |
| 013 | *Contemporary Ensemble* | 0-1 q.h. |
| 015 | *Collegium Musicum* | 0-1 q.h. |
| 016 | *Woodwind Ensemble* | 0-1 q.h. |
| 017 | *Brass Ensemble* | 0-1 q.h. |
| 018 | *Horn Choir* | 0-1 q.h. |
| 019 | *Trombone Ensemble* | 0-1 q.h. |
| 020 | *Tuba Ensemble* | 0-1 q.h. |
| 021 | *Brass Chamber Ensemble* | 0-1 q.h. |
| 022 | *Trumpet Ensemble* | 0-1 q.h. |
| 023 | *Jazz Ensemble* | 0-1 q.h. |
| 024 | *Composer's Ensemble* | 0-1 q.h. |
| 026 | *Chamber Orchestra* | 0-1 q.h. |
| 028 | *Chamber Winds* | 0-1 q.h. |
| 029 | *Guitar Ensemble* | 0-1 q.h. |

Ensemble courses are open to all students in the University who are qualified for them and any ensemble course may be repeated any number of quarters. Three hours of marching band credit may be substituted for three hours of the general requirement in physical activity classes.

Requirements in addition to the above but unique to each ensembles:

For students pursuing the Jazz emphasis curriculum, the Jazz Ensemble is considered the major ensemble. 023 Jazz Ensemble meets for three hours per week.

Opera workshop 012 culminates in the production of one or more operas. Credit is given in accordance with the amount of work chosen by the student, ranging from one to three quarter hours.

Madrigal Singers 003 is a highly select ensemble which presents numerous concerts and rehearses three hours per week for 1 q.h. credit.

Woodwind ensemble may include quartets, quintets, and various other combinations of instruments. 1 q.h. each.

Composers' Ensemble: Performance of works by student composers or other works which will assist student composers in the development of an original, creative style. Meets two hours per week. 1 q.h.

## CURRICULUM FOR PERFORMANCE DEGREES

I. General University requirements common to all performance degrees:

| Courses | Cr. Hrs. |
|---|---|
| Composition 550, 551 | 8 |
| Social Studies Elective | 16 |
| HSC 590 and 3 HPES activities | 6 |
| Math/Science (Including Physics 608) | 12 |
| Humanities (see Music 770, 771, 772) | 15 |

II. Music requirements common to all performance degrees:

| Courses | Cr. Hrs. |
|---|---|
| Major Instrument or Voice 504-809 | *45 |
| Music Theory 530—750 | 22 |
| Music History 770, 771, 772 | 12 |
| Junior/Senior recitals | N/C |
| Music Literature 518, 519 | 6 |
| Conducting 715 | 2 |
| Applied Piano 500A,B,C or completion of Keyboard 682 | 6 |
| Free Electives | 21 |
| Voice Majors | 18 |
| Instrumental Majors | 21 |

III. Requirements in addition to the above but unique to each program:

**1. Piano**

| Courses | Cr. Hrs. |
|---|---|
| Keyboard Musicianship 590, 591, 592 | 3 |
| Accompanying 690 — 695 | 6 |
| Piano Duo 887, 888, 889 | 3 |
| Piano Chamber Music 890, 891, 892 | 3 |
| Theory elective | 12 |
| Piano Pedagogy 858, 859 | 4 |
| Piano Literature | 4 |
| Elective | 8 |

**2. Organ**

| Courses | Cr. Hrs. |
|---|---|
| Keyboard Musicianship 590, 591, 592 | 3 |
| Accompanying 690 — 695 | 6 |
| Theory elective | 12 |
| Major Ensemble | 6 |
| Piano Pedagogy 858, 859 | 4 |
| Organ Literature | 3 |
| Elective | 9 |

**3. Instrumental**

| Courses | Cr. Hrs. |
|---|---|
| Major Ensemble | a minimum of 12 |
| Theory elective | 12 |
| Chamber Ensemble | 3 |
| Pedagogy | 2 |
| Music History elective | 3 |
| Electives | 11 |

*Voice is only 42.

**4. Voice**

| Courses | Cr. Hrs. |
|---|---|
| Major Ensemble | a minimum of 9 |
| *Italian, French, German | 24 |
| Music History elective | 3 |
| Vocal Pedagogy | 2 |
| Music Theory Elective | 6 |
| Diction | 3 |
| Electives | 3 |

I. General University requirements common to both composition concentrations.

**5. Composition**

| Courses | Cr. Hrs. |
|---|---|
| Composition 550, 551 | 8 |
| Social Studies elective | 16 |
| HSC 590 and 3 HPES activities | 6 |
| Math/Science (including Phy. 608) | 12 |
| Humanities (See Mus 770, 771, 772) Philosophy and music elective | 24 |
| Language 501, 502, 503 or equivalent | 12 |

II. Music requirements common to both composition concentrations.

| Courses | Cr. Hrs. |
|---|---|
| Music Theory 530—750 | 22 |
| Music History 770—772 | 12 |
| Composition 501—806 | 30 |
| Junior/Senior recitals | N/C |
| Major ensemble | 12 |
| Theory 831 and 832 | 6 |
| Music History elective | 3 |
| Theory electives | 9 |
| Music Literature 518, 519 | 6 |

III. Requirements in addition to the above but unique to both composition concentrations.

**1. Keyboard concentration**

| Courses | Cr. Hrs. |
|---|---|
| Piano 501—703 | 18 |
| Secondary applied 501 | 2 |
| Applied classes | 10 |
| Music electives | 10 |

**2. Non-keyboard concentration**

| Courses | Cr. Hrs. |
|---|---|
| Keyboard 580—682 | 6 |
| Applied Music 501—701 | 14 |
| Applied classes | 10 |
| Music electives | 10 |

## CURRICULUM FOR ACCOMPANYING DEGREE

I. General University Requirements

| Courses | Cr. Hrs. |
|---|---|
| Composition 550, 551 | 8 |
| HSC 590 and 3 HPES activities | 6 |
| Social Studies elective | 16 |
| Science/Math (including Physics 608) | 12 |
| Humanities (see Music 770, 771, 772, Philosophy and Music History elective) | 19 |

*If a student has two units of high school French, German, or Italian, the corresponding course may be waived.

II. Music Requirements

| Courses | Cr. Hrs. |
|---|---|
| Keyboard 504 - 804 | 30 |
| Secondary applied | 2 |
| Music Literature 518, 519 | 6 |
| Theory 530 - 750 | 22 |
| Theory electives | 12 |
| Music History 770, 771, 772 | 12 |
| Music History 860 and 879 | 7 |
| Music History elective | 6 |
| Major ensembles | 3 |
| Keyboard Musicianship 590 - 592 | 3 |
| Accompanying 690 - 695 | 6 |
| Piano 887 - 892 | 6 |
| Accompanying 610A - 802A | 16 |
| Conducting 715, 716 or 717 | 4 |
| Electives | 10 |
| Free electives | 12 |

## CURRICULUM FOR JAZZ DEGREES

I. General University requirements common to all jazz degrees:

| Courses | Cr. Hrs. |
|---|---|
| Composition 550, 551 | 8 |
| Social Studies elective | 16 |
| HSC 590 and 3 HPES activities | 6 |
| Math/Science (including Physics 608) | 12 |
| Humanities (See Music 770, 771, 772, Philosophy and Music elective) | 19 |

II. Music requirements common to the jazz degrees:

| Courses | Cr. Hrs. |
|---|---|
| Theory 530 — 750 | 22 |
| Arranging 712,713,714 | 9 |
| *Major ensemble | a minimum of 15 |
| Survey of Jazz 510 | 3 |
| Music History 770, 771, 772 | 12 |
| Conducting 715 | 2 |
| Theory electives | 6 |
| Improvisation 666 — 868 | 18 |
| Junior recital | N/C |
| Senior recital | N/C |
| Music Literature 518, 519 | 6 |
| Pedagogy | 2 |

III. Requirements in addition to the above but unique to each program:

**1. Non-Keyboard**

| Courses | Cr. Hrs. |
|---|---|
| Applied instrument 504 — 806 | 36 |
| Keyboard 580 — 682 | 6 |
| Jazz Keyboard 780 — 782 | 3 |
| Music electives | 5 |
| Free electives | 12 |

**2. Keyboard**

| Courses | Cr. Hrs. |
|---|---|
| Keyboard 504 — 806 | 36 |
| Keyboard 590, 591, 592 | 3 |
| Jazz Keyboard 780, 781, 782 | 3 |
| Music electives | 8 |
| Free electives | 12 |

*Jazz ensemble is the major ensemble for the jazz major. (Only 3 additional major ensemble hours are needed.)

## CURRICULUM FOR MUSIC EDUCATION DEGREES

I. Minimum general University requirements common to all music education degrees:

| Courses | Cr. Hrs. |
|---|---|
| Composition 550, 551 | 8 |
| Science/Math (including Physics 608) | 12 |
| HSC 590 and 3 HPES activities | 6 |
| Social Studies (including Psych. 560 and 709) | 16 |
| Speech 554 | 4 |
| Humanities (including Music 770, 771, 772, Music History elective, and Philosophy elective) | 19 |

II. Music requirements common to all music education degrees:

| Courses | Cr. Hrs. |
|---|---|
| Major instrument or voice (501 — 802) | 22 |
| Theory 530 — 750 | 22 |
| Music History 770 — 772 | 12 |
| Conducting 715, 716, or 717 | 4 |
| Music Ed 511, 815, 823 and electives | 13 |
| Theory elective | 2 |
| Senior recital | N/C |
| Music Literature 518, 519 | 6 |

III. Requirements in addition to the above but unique to each program:

**1. Instrumental**

| Courses | Cr. Hrs. |
|---|---|
| Keyboard Musicianship 580 — 682 | 6 |
| Major ensemble | a minimum of 11 |
| Applied classes | 6 |
| Pedagogy | 2 |
| Chamber ensemble | 2 |
| Music History elective | 3 |

**2. Voice**

| Courses | Cr. Hrs. |
|---|---|
| Keyboard Musicianship 580 — 682 | 6 |
| Applied classes | 5 |
| Vocal Pedagogy | 2 |
| Chamber ensemble | 3 |
| Music History elective | 3 |
| Major ensemble | a minimum of 9 |
| Diction | 2 |

**3. Keyboard**

| Courses | Cr. Hrs. |
|---|---|
| *Secondary applied 500 A,B,C | 3 |
| Keyboard Musicianship 590 — 592 | 3 |
| Applied classes | 4 |
| Accompanying 690 — 695 | 6 |
| Major ensemble | 3 or 4 |
| Piano or Organ Literature | 3 or 4 |
| Piano Pedagogy | 4 |

*Organ major must take piano.

**4. School of Education Requirements common to all music education majors.**

| Courses | Cr. Hrs. |
|---|---|
| Education 501 | 4 |
| Education 700 | 2 |
| Education 702 | 2 |
| Education 704 | 3 |
| Education 706 | 4 |
| Education 706L | 3 |
| Education 708 | 4 |
| Education 710 | 4 |
| Education 730 | 2 |
| Education 844 | 15 |
| Total Hours | 43 |

## CURRICULUM FOR BACHELOR OF ARTS DEGREE

I. General University Requirements common to all performance degrees:

| Courses | Cr. Hrs. |
|---|---|
| Composition 550, 551 | 8 |
| Social Studies | 20 |
| HSC 590 and 3 HPES activities | 6 |
| Math/Science | 16 |
| Humanities (See Music 770, 771, 772, Philosophy and Music History elective) | 19 |
| Language | 0 to 20 |
| *Minor field | 21 |

*The requirement for the minor are found in the section concerned with that college.

II. Music Requirements:

| Courses | Cr. Hrs. |
|---|---|
| Music Theory 530 — 750 | 22 |
| Music History 770, 771, 772 | 12 |
| Conducting 715 | 2 |
| Music Literature 518, 519 | 6 |
| Major ensemble | 6 |

III. Requirements in addition to the above but unique to each emphasis:

**1. Music History**

| Courses | Cr. Hrs. |
|---|---|
| Applied instrument or voice 501-803 | 24 |
| Music elective | 15 |
| Music History electives | 15 |
| Theory elective | 6 |

**2. Applied Music**

| Courses | Cr. Hrs. |
|---|---|
| Applied instrument or voice 501-806 | 33 |
| Music History electives | 3 |
| Music electives | 9 |
| Theory elective | 6 |
| Free electives | 9 |

**3. Theory**

| Courses | Cr. Hrs. |
|---|---|
| Applied instrument or voice | 24 |
| Music electives | 16 |
| Music History electives | 6 |
| Theory elective | 14 |

# The College of Health and Human Services

*John J. Yemma, Dean*

## ORGANIZATION, MISSION AND DEGREES

In support of the University Mission to provide a wide range of educational opportunities in higher education, the College of Health and Human Services assumes a dual role. The college offers both baccalaureate degree programs which focus on the application of the natural or social sciences in a discipline and associate degree programs which center on the technology of a discipline. Consequently the college exhibits characteristics of a professional Health College as well as that which provides programs in human services, and whose programs are designed to enhance the employment potential of its graduates in professional or social service careers.

The college offers traditional baccalaureate programs that deal directly with human health and well-being. It also offers a number of two-year associate degree programs that blend together theoretical principles, practical application of concepts and skill development.

Through a TWO-PLUS-TWO arrangement in the college, many of these associate degree programs can be used as the basis for upward academic growth to a baccalaureate degree.

The College of Health and Human Services consists of seven departments: Allied Health, Criminal Justice, Health Sciences, Human Ecology, Human Performance and Exercise Science, Military Science, and Nursing. In cooperation with the College of Education, Health Sciences provides a Health major, Human Performance and Exercise Science provides a Physical Education major, and Human Ecology provides a Vocational Home Economics major. Graduate work is offered by the Criminal Justice and Human Ecology departments. The seven departments are listed below with their associate (A) and baccalaureate (B) offerings.

### Department of Allied Health

Allied Health (B)
* Dental Hygiene (A)
Emergency Medical Technology (A)
Medical Assisting Technology (A)
* Medical Laboratory Technology (A)
* Medical Technology (B)
* Physical Therapy (B)
* Respiratory Care (B)

### Department of Criminal Justice

Criminal Justice (B)
Police Science Technology (A)

### Deparment of Health Sciences

** Health Education (B)
Health Sciences (B)

### Department of Human Ecology

Pre-Kindergarten Associates (A)
Dietetic Technology (A)
Merchandising: Fashions & Interiors (B)
Food and Nutrition (B)
Home Economics Services (B)
Hospitality Management (A)
** Vocational Home Economics Education (B)

### Department of Human Performance and Exercise Science

Exercise Science (B)
** Physical Education (B)
Physical Education (B)

### Department of Military Science

ROTC Programs are offered. See pages 48, 178-181.

### Department of Nursing

* Nursing (B)

### Department of Social Work

Social Work (B)
Social Services Technology (A)

*Restricted admission, see Department for further information.

**In cooperation with the College of Education, for the B.S. in Ed. degree.

Students whose needs are not completely met by existing conventional programs may wish to investigate and apply for the Individualized Curriculum Program (see the General Requirements and Regulations section).

R.O.T.C. students are allowed certain modifications of the requirements, as explained in the General Requirements and Regulations section.

It is the student's responsibility to satisfy all the graduation requirements for the degree sought. These comprise:

1. The pre-college or preparatory courses for each degree as covered in the General Requirements and Regulations section.

2. The courses and other requirements to be completed in the University as explained in the General Requirements and Regulations section.

3. The specific curriculum requirements of a given program.

# CURRICULA AND COURSES OF INSTRUCTION

## DEPARTMENT OF ALLIED HEALTH

*Associate Professors Betz, Boyd, Feld, Haggerty (Chair), Harris, Vendemia; Assistant Professors Boehm, Delost, Harig, Mistovich.*

The department offers associate and baccalaureate allied health programs for future members of the health delivery team. Associate degree programs are offered in Dental Hygiene, Emergency Medical Technology, Medical Assisting Technology, Medical Laboratory Technology, and Respiratory Care. Baccalaureate programs are offered in Allied Health and Medical Technology. Detail on program requirements appears under the specific program.

### Associate Degree Programs

Admission to all programs except Medical Assisting is on a restricted basis since only a limited number of students can be accommodated. Detailed information on admission criteria and closing dates is available in the Allied Health department or Admissions Office. Each program has specific requirements regarding grades in required courses and cumulative point average. Grades of "C" or better are required in all courses in Allied Health programs. Information on program policy is available in the Allied Health department.

### Baccalaureate Degree Program in Allied Health

The department offers a baccalaureate program leading to the degree Bachelor of Science in Applied Science with a major in Allied Health. This program is intended to serve paramedical professional health associate degree graduates who wish to upgrade their

academic credentials to include the baccalaureate degree. Major components of the program for Dental Hygiene, Emergency Medical Technology, or Respiratory Care graduates are:

| | |
|---|---|
| Associate Degree in D.H., E.M.T. or R.T. | 96-110 q.h. |
| General Allied Health Courses | 26 q.h. |
| Advanced Discipline Courses | 16 q.h. |
| Minor in Biology, Chemistry, Management, Education or other | 21 q.h. |
| University General Requirements | 20-28 q.h. |
| Total | 186-194 q.h. |

Graduates of regionally and professionally accredited associate degree programs in Dental Hygiene, Emergency Medical Technology, and Respiratory Care will be admitted to the baccalaureate program as juniors. Graduates of non-accredited programs will be provisionally admitted and placed at a level determined by an evaluation of their academic transcripts.

Graduates with an associate degree in a Medical Assisting Technology, Medical Laboratory Technology, or in a medical/health related discipline (for example, Radiological Technology, Physical Therapy Assistant, or Dietetics) will be admitted to the multidisciplinary track of the BSAS in Allied Health. Major components of the program are:

| | |
|---|---|
| Associate Degree in Health Related Discipline | 96-110 q.h. |
| Required Allied Health Courses | 26 q.h. |
| Required Health Related Courses | 16 q.h. |
| Student Selected Minors | 21 q.h. |
| University General Requirements | 20-28 q.h. |
| Total | 186-196 q.h. |

Pre-admission counseling is required for students seeking entry to the BSAS in Allied Health. For greater detail on program content or admissions, students should contact the Allied Health Department.

704. *Fundamentals of Pulmonary Rehabilitation.* This course is designed to demonstrate the multidisciplinary nature of a rehabilitation program for patients with C.O.P.D. It will also present the key elements that should be present in a quality pulmonary rehabilitation program. Prereq.: RESPC 607 or permission of instructor. 3 q.h.

705. *Pharmacotherapeutics.* Advanced concepts and integration of various drug interactions will be presented as applied to modern drug therapy. Analysis of drug regimens related to a broad spectrum of pathologic conditions will be discussed. Prereq.: MA 605 and BIO 552, or permission of instructor. 4 q.h.

706. *Practice Management for the Dental Hygienist.* Management of dental hygiene care including appointment control, developing and manintaing recall systems, and insurance management. Dental marketing problem solving and the business relationship between dental patients and dental hygiene professionals will be discussed. Prereq.: DENHY 602L or permission of the instructor. 3 q.h.

708. *Preventive Public Health Care.* Application of current health care philosophies in disease prevention. In-depth case study of a specific public health problem and its prevention. Prereq.: Graduation from an associate degree health related program or permission of the instructor. 4 q.h.

709. *Periodontics.* The study of the periodontium and periodontal therapy as it relates to total case planning and the role of the dental hygienist. Prereq.: DENHY 603L or permission of instructor. 4 q.h.

710. *Gerodontology.* An indepth study of geriatrics as it relates to dental hygiene care and specific concerns of the elderly. An extramural experience with a geriatric patient will be included. Prereq.: DENHY 601 or permission of the instructor. 4 q.h.

720. *Emergency Medical Services Management.* A review of EMS system design, staffing, chain of command, medical education, policies and procedures, record keeping, inter-agency relationships, community resources and involvement, and legal aspects relevant to private and public emergency medical services. Prereq.: EMTEC 601 or permission of the instructor. 4 q.h.

721. *Pediatric Emergency Procedures.* A study of the pathophysiology, symptomatology, advanced diagnostic and therapeutic techniques of medical and traumatic emergencies unique to the pediatric patient. Prereq.: EMTEC 601 or permission of the instructor. 4 q.h.

730. *Cardiopulmonary Stress Testing.* A study of the basic physiological response to exercise, various factors interacting with this response, the clinical significance of stress testing, and the relationship of test results to disease processes in case study format. Prereq.: RESPC 607 or permission of the instructor. 4 q.h.

731. *Respiratory Services Management.* A study of the basic managerial process, organizational concepts, budgeting, quantitative planning, decision-making, and the issues of control as they relate to the manager of a hospital- based respiratory care department. Prereq.: RESPC 607 or permission of the instructor. 4 q.h.

801. *Special Topics in Allied Health.* The directed study and research of a special problem or issue related to the health field. The topic of interest will allow the student to participate in the investigation of aspects of administration, education, business, or research as these pertain to the particular health specialty. Prereq.: AHLTH 803 or permission of instructor. May be repeated for a total of 10 hours. 1-5 q.h.

803. *Current Issues in Health Care.* Problems and issues facing the health care system including access to care, financing and rationing of services. A major project will be included. Prereq.: AHLTH 708 or permission of instructor. 4 q.h.

804. *Stress and the Health Care Practitioner.* This course will examine the personal reactions of health care workers to patients, families, and their health care

environment. Specifically, it will help the student identify stress and explore coping options. Other topics discussed include organizational systems, communication theory, conflict resolution, problem solving, and burnout. This course is recommended for individuals who have some work experience in the health care field. Prereq.: PSYCH 780 or permission of instructor. 3 q.h.

805. *Concepts in Health Care Education.* University as well as hospital-based programs will be reviewed in regard to accreditation, clinical vs. didactic instruction, use of simulations, and evaluation techniques. Public health education and the role of the Allied Health professional will also be investigated. A major learning unit and/or research project will be required. Prereq.: AHLTH 803 or permission of instructor. 4 q.h.

806. *Research Methodology for Health Sciences.* Measurement and interpretation of health data and their application in the research process. Research design considerations, data collection methods and data analysis of health care research projects will be discussed. Prereq.: AHLTH 708 or permission of instructor. 4 q.h.

807. *Epidemiology for the Health Care Practitioner.* A study of the interrelationship of the host, agent, and environment in determining the causation, frequency, and distribution of disease. Prereq.: AHLTH 708 or permission of instructor. 4 q.h.

808. *Environmental Concerns for the Health Care Practitioner.* Industrial hygiene, hazardous and infectious waste, air and water quality, and sanitation policies in health care facilities. Pertinent federal, state, and local legislation included. Prereq.: AHLTH 708 or permission of instructor. 4 q.h.

810. *Management Skills for the Health Care Supervisor.* A study of the conceptual framework of supervision in Health Care Organizations with emphasis on managerial skills, formulation of policies, principles of budgeting, performance appraisals, and community relations. Prereq.: AHLTH 804 or instructor's permission. 4 q.h.

*812. *Advanced Cardiac Life Support.* ECG interpretation, cardiovascular drug pharmacology, airway management and resuscitation techniques used in the management of cardiac emergencies. The course meets the objectives of the American Heart Association's Advanced Cardiac Life Support program for initial certification or recertification. Two hours of lecture and three hours of laboratory. Prereq.: AHLTH 705 or permission of instructor. 3 q.h.

814. *International Health Care Systems.* Comparison and evaluation of medical services in select countries including their capacity to address major health problems. The role of the World Health Organization will also be investigated. Prereq.: AHLTH 803 or permission of instructor. 3 q.h.

*Additional fee required.

816. *Environmental Regulations for Health Care.* Structure and function of local, state and federal agencies responsible for implementing environmental legislation. Emphasis will be placed on the duties and authority of different health and environmental agencies and specific legislation dealing with environmental impacts. Prereq.: AHLTH 708. 4 q.h.

820. *Directed Individual Research.* The individual study or research of a special problem or issue related to the health care field. Prereq.: Senior standing, AHLTH 801 and AHLTH 806. 2 q.h.

825. *Neonatal Resuscitation.* Critical care skills as they apply to NRP certification. One hour lecture and two hours lab. Prereq.: AHLTH 812, Neonatal ICU and/or labor and delivery services experience, or consent of instructor. 2 q.h.

830. *Pediatric Advanced Life Support.* Critical care skills as they apply to objectives of the American Heart Association's PALS program for initial certification or recertification. One hour lecture and two hours lab. Prereq.: AHLTH 812, pediatric critical care experience, or permission of instructor. 2 q.h.

831. *Introduction to Industrial Hygiene.* Basic concepts of industrial hygiene including anticipation, recognition, and evaluation of environmental and safety hazards as they pertain to the workplace. Prereq.: AHLTH 708 or permission of instructor. 4 q.h.

## DENTAL HYGIENE

*Associate Professors Betz, Haggerty, Vendemia (Program Coordinator); Assistant Professor Harig.*

The two-year program in Dental Hygiene leads to the Associate in Applied Science degree. The program is designed to prepare dental hygienists for work in private practice, in public health settings, or in other health care delivery systems.

At the end of their second year in the Dental Hygiene curriculum, students are eligible to take the national, regional and state board examinations. Upon successful completion of these comprehensive, written examinations, and upon graduation, the student may apply for a license to practice dental hygiene.

The licensed dental hygienist is a professional, an oral health educator and a clinical operator who provides oral treatment and related preventive services. Services of the hygienist include taking medical and dental histories; radiographic surveys; study models; performing cancer screenings and other oral inspections; dietary management; dental charting; making periodontal evaluations; administering fluoride therapy; polishing amalgam restorations, and placing dental sealants. Many states permit the hygienist to perform additional services such as administering local anesthesia and placing restorative materials.

The dental hygienist also functions as a dental educator and is responsible for the preventive dental health program in private dental practices as well as in other settings. The hygienist teaches patients proper oral health care in order to reduce dental diseases and disorders.

The hygienist's role in service to the community may include increasing public awareness of dental health by coordinating 'Dental Health Month' in the community, serving as a resource person to school systems, providing screening or inspections to various school children or local groups, and making visits to nursing homes, hospitals and/or schools for the mentally retarded or handicapped.

Students are admitted to the Dental Hygiene program only once a year, at the beginning of the fall quarter. All current, former, and transfer applicants, in addition to meeting the requirements outlined in the Admission Policies, must have taken Anatomy and Physiology I and II, and have an acceptable point average from all colleges attended. Application to the Dental Hygiene program must be made by March 1 to start in September of any year.

500. *Dental-Medical Emergencies.* Instructions on medical diseases and conditions in relationship to dental procedures. Prereq.: Permission of coordinator. 2 q.h.

501. *Dental Hygiene 1.* An introduction to dental hygiene and its role as an integral part of the dental health profession. Prevention of disease transmission through sterilization and asepsis is also discussed. Medical/Dental history, vital signs, and oral inspection are discussed and peridontal disease is introduced. Prereq.: Admission to Dental Hygiene program. 3 q.h.

*501L. *Clinical Dental Hygiene 1.* A detailed clinical study of planning patient care, patient preparation and positioning the dental chair, and principles of dental instrumentation. Six hours laboratory per week. Prereq.: Admission to Dental Hygiene program. 2 q.h.

502. *Dental Hygiene 2.* Discussion of individualized patient education instruction, the appropriate preventive dental agents and devices, and the techniques for utilization. Prereq.: DENHY 501. 2 q.h.

*502L. *Clinical Dental Hygiene 2.* Clinical application of dental hygiene techniques. Services include oral prophylaxis, fluoride application, and patient education. Nine hours of clinic per week. Prereq.: DENHY 501L. 3 q.h.

503. *Dental Hygiene 3.* Discussion of modified dental hygiene procedures as it relates to special needs dental patients. Presentation of specialized areas of dentistry to which dental hygiene services are closely allied. Prereq.: DENHY 502. 2 q.h.

*503L. *Clinical Dental Hygiene 3.* Clinical application of dental hygiene techniques. Oral prophylaxis, radiographs, fluoride application, and patient education. Nine hours of clinic per week. Prereq.: DENHY 502L. 3 q.h.

520. *Dental Anatomy.* Numbering systems of permanent and primary dentitions, basic terminology of hard and soft oral structures, the anatomy of the head and neck, and the physiology and function of primary and permanent teeth and the stomatognathic system. Prereq.: Permission of coordinator. 2 q.h.

*520L. *Dental Anatomy Lab.* Applied study of individual tooth morphology through the recognition and identification of natural teeth, and by tooth drawings. Practical application of the didactic study of head and neck anatomy in the examination of actual hard structures of the skull. Prereq.: Permission of coordinator. 1 q.h.

525. *Oral Histology And Embryology.* Introduction to the microscopic structure of the body by simple discussion of the cell concept, normal and abnormal tissues, and the embryonic development of the face and the oral cavity. Prereq.: DENHY 520. 3 q.h.

530. *Dental Radiology.* Radiographic theory, techniques, and use of diagnosis in prevention of dental and related diseases. History and development of radiographs, hazardous effects of radiation, and methods of protection. 2 q.h.

*530L. *Dental Radiology Lab.* The techniques necessary to expose, develop, and mount dental films. Three hours of laboratory a week. 1 q.h.

535. *General and Oral Pathology.* The cause and nature of disease, together with anatomical and functional changes. The observation and progress of disease in the human as related to diagnosis and treatment-planning by the dentist. Special emphasis is given to oral pathology. 3 q.h.

601. *Comprehensive Dental Hygiene Care.* Application of practical knowledge of nutrition science to patient evaluation and education as related to clinical dental hygiene. Continuing emphasis on comprehensive dental hygiene care and dental health education. DENHY 503. 2 q.h.

602. *Pain Control.* An indepth study of patient management and pain control in dentistry. Prereq.: DENHY 601. 2 q.h.

603. *Dental Office Management.* The study of dental office management and business administration. Discussion of responsibilities and changing roles of the dental hygienist. Prereq.: DENHY 602. 2 q.h.

604. *Dental Hygiene 4 Seminar.* An indepth seminar dealing with comprehensive dental hygiene care of both adult and child patients. Identification, assessment and treatment of periodontal patients will be emphasized. Must be taken concurrently with DENHY 604L. Prereq.: DENHY 503. 1 q.h.

*604L. *Clinical Dental Hygiene 4.* Continued clinical experience with the addition of periodontal patients. Introduction of oral irrigation and the ultrasonic scaler. Twelve hours of clinic per week. Must be taken concurrently with DENHY 604. Prereq.: DENHY 503L. 4 q.h.

605. *Dental Hygiene 5 Seminar.* An indepth seminar in treatment planning for compromised patients. Emphasis on clinical skills and infection control. Preparation for the clinical board examination. Must be taken concurrently with DENHY 605L. Prereq.: DENHY 604. 1 q.h.

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*Additional fee required.

*605L. *Clinical Dental Hygiene 5.* Continued clinical experience. Completion of one practical patient in addition to a specified number of periodontal patients. Use of ultrasonic scalers and oral irrigation continued. Sealant and amalgam polishing patients required. Twelve hours of clinic per week. Must be taken concurrently with DENHY 605. Prereq.: DENHY 604L. 4 q.h.

606. *Dental Hygiene 6 Seminar.* An indepth seminar in advanced clinical procedures. Concentration on patient and time management, ethics and professionalism. Case presentation of a periodontal patient. Must be taken concurrently with DENHY 606L. Prereq.: DENHY 605. 1 q.h.

*606L. *Clinical Dental Hygiene 6.* Continued clinical experience. Completion of all clinical requirements at exit level proficiency. Emphasis on professionalism, patient and time management as well as comprehensive dental hygiene care. Must be taken concurrently with DENHY 606. Prereq.: DENHY 605L. 4 q.h.

611. *Dental Materials.* The sources, physical properties, methods of manufacturing, and uses of various dental materials. Two hours of lecture a week. Prereq.: Second-year standing in DENHY Program. 2 q.h.

*611L. *Dental Materials Lab.* Selected dental materials are manipulated in laboratory procedures so that the student will be able to assist the dentist at the chair as well as perform certain laboratory procedures and specified clinical duties. Three hours of laboratory a week. Prereq.: Second-year standing in DENHY Program. 1 q.h.

620. *Periodontics 1.* Introduction to Periodontics for the dental hygienist. Etiology, clinical manifestations, classification of periodontal disease, and treatment-planning. The hygienist's role in its prevention through patient education. Prereq.: DENHY 535. 2 q.h.

621. *Periodontics 2.* Surgical techniques, root planning, curettage, and periodontal maintenance therapy will be presented and discussed. Prereq.: DENHY 620. 2 q.h.

625. *Dental Public Health.* An introduction to public health dentistry, including study of the epidemiology of dental disease. Particular attention is given to means of preventing and controlling dental disease and promoting dental health through organized community efforts. Two hours of lecture and three hours of lab per week. Prereq.: DENHY 615. 3 q.h.

*626. *Dental Public Health Clinical Experience.* Dental hygiene care in various public programs using a portable dental unit. Three hours of laboratory and/or clinical experience per week. Prereq.: DENHY 625. 1 q.h.

641. *Ethics and Jurisprudence.* The historical, professional, legal and ethical aspects of dental hygiene and dentistry. Prereq.: DENHY 601. 1 q.h.

*Additional fee required.

## DENTAL HYGIENE CURRICULUM

### SUMMER

| Courses | Cr. Hrs. |
|---|---|
| BIOL 551 Physiology and Anatomy 1 | 4 |
| BIOL 552 Physiology and Anatomy 2 | 4 |
| | 8 |

### FIRST YEAR
### FIRST QUARTER

| Courses | Cr. Hrs. |
|---|---|
| DENHY 501 Dental Hygiene 1 | 3 |
| DENHYH 501L Clinical Dental Hygiene 1 | 2 |
| DENHY 520 Dental Anatomy | 2 |
| DENHY 520L Dental Anatomy Lab | 1 |
| CHEM 505 Chemistry for the Allied Health Sciences 1 | 4 |
| ENGL 550 Basic Composition 1 | 4 |
| | 16 |

### SECOND QUARTER

| Courses | Cr. Hrs. |
|---|---|
| DENHY 500 Dental-Medical Emergencies | 2 |
| DENHY 502 Dental Hygiene 2 | 2 |
| DENHY 502L Clinical Dental Hygiene 2 | 3 |
| DENHY 530 Dental Radiology | 2 |
| DENHY 525 Oral Histology and Embryology | 3 |
| CHEM 506 Chemistry for the Allied Health Sciences 2 | 4 |
| SOCST/HUMAN Elective | 3 |
| | 19 |

### THIRD QUARTER

| Courses | Cr. Hrs. |
|---|---|
| DENHY 503 Dental Hygiene 3 | 2 |
| DENHY 503L Clinical Dental Hygiene 3 | 3 |
| DENHY 530L Dental Radiology Laboratory | 1 |
| DENHY 535 General and Oral Pathology | 3 |
| BIOL 560 Paramedical Microbiology | 5 |
| FNUTR 551 Normal Nutrition 1 | 4 |
| | 18 |

### SECOND YEAR
### FOURTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| DENHY 601 Dental Hygiene 4 | 2 |
| DENHY 604 Dental Hygiene 4 Seminar | 1 |
| DENHY 604L Clinical Dental Hygiene 4 | 4 |
| DENHY 611 Dental Materials | 2 |
| DENHY 611L Dental Materials Laboratory | 1 |
| DENHY 620 Periodontics | 2 |
| PSYCH 560 Introduction to Psychology | 4 |
| | 16 |

### FIFTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| DENHY 602 Dental Hygiene 5 | 2 |
| DENHY 605 Dental Hygiene 5 Seminar | 1 |
| DENHY 605L Clinical Dental Hygiene 5 | 4 |
| DENHY 621 Periodontics 2 | 2 |
| DENHY 625 Dental Public Health | 3 |
| MATEC 605 Introduction to Pharmacology | 4 |
| | 16 |

**SIXTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| DENHY 603 Dental Office Management | 2 |
| DENHY 606 Dental Hygiene 6 Seminar | 1 |
| DENHY 606L Clinical Dental Hygiene 6 | 4 |
| DENHY 626 Dental Public Health Clinical Experience | 1 |
| DENHY 641 Ethics and Jurisprudence | 1 |
| SOCIO 500 Fundamentals of Sociology | 4 |
| COMM 550 Public Speaking | 4 |
| | 17 |
| **Total Credit Hours** | **110** |

# EMERGENCY MEDICAL TECHNOLOGY

*Assistant Professor Mistovich (Program Coordinator); Instructor Benner.*

Emergency medical technology programs are designed to train persons to provide emergency prehospital care to people experiencing health crises. The goals of these programs are on three different levels: Emergency Medical Technician—Ambulance; Paramedic Certification; and the Associate in Applied Science degree.

The Emergency Medical Technician—Ambulance Certificate is a prerequisite for admission to the Emergency Medical Technology program in addition to University and department admission requirements.

The Emergency Medical Technician—Paramedic Certificate can be attained after successfully completing four quarters of study. The course of study provides the student with knowledge about the recognition, assessment, and supervised practice of emergency medical care in the hospital and in advanced life-support ambulance situations. It meets and exceeds all United States Department of Transportation national standard paramedic curriculum objectives and is accredited by the Commission on Accreditation of Allied Health Educational Programs and the Ohio Department of Public Safety-Division of EMS (3-2-004).

The Associate in Applied Science degree is awarded following the completion of the advanced training program with clinical paramedical experiences. The course of study affords the practitioner application of organizational and managerial principles in various emergency services. Forty percent of all teaching and clinical rotations are physician-instructed and/or precepted.

For the certificates, admission requirements and procedures are the same as those applicable to the University and the Department of Allied Health with the addition of a minimum age of 18 years, a current drivers license, and an interview by a selection committee. The student must be EMT-A certified. A physical examination to attest good health is required. Admission into the Associate in Applied Science degree program is restricted. Please refer to the admission policies.

501. *Emergency Medical Technician-Ambulance.* A course that provides the basic knowledge and skills required to be an emergency medical technician. The course meets all U.S. Department of Transportation training standards for the Basic EMT. Three lecture hours per week. Must be taken concurrently with EMTEC 501L. 3 q.h.

*501L. *Emergency Medical Technician-Ambulance-Laboratory.* A laboratory experience necessary to acquire skills required to be an Emergency Medical Technician-Ambulance. The course meets all U.S. Department of Transportation training standards for the Basic EMT. Six hours laboratory per week. Must be taken concurrently with EMTEC 501. 2 q.h.

506. *Principles of Trauma.* Study of traumatic emergencies normally encountered with emphasis on pathophysiology, etiology, and symptomatology. Prereq.: Admission to EMT Program or permission of instructor. 4 q.h.

507. *Emergency Medical Techniques 1.* Study of techniques necessary to treat the traumatic emergency conditions introduced in EMTEC 506. Must be taken concurrently with EMTEC 506 and 507L. 2 q.h.

*507L. *Emergency Medical Techniques 1 Lab.* Laboratory includes simulated emergency traumatic situations and actual patient contact emphasizing physical assessment, patient interviewing, and management techniques. Six hours of combined departmental and clinical laboratory per week. Must be taken concurrently with EMTEC 506 and 507. 2 q.h.

509. *Introduction to Emergency Medical Technology.* Introduction to the roles, responsibilities, EMS Systems, medical and legal considerations of the EMS profession. Prereq.: Admission to EMT Program or permission of instructor. 2 q.h.

515. *Medical Conditions and Management Techniques.* Study of pathophysiology, symptomatology, etiology, and management techniques of commonly encountered medical emergencies. Prereq.: EMTEC 506 and EMTEC 507. Concurrent with EMTEC 515L. 4 q.h.

*515L. *Emergency Medical Techniques 2 Lab.* Simulated situations and actual patient contact emphasizing performance of emergency medical techniques utilized to manage common medical emergencies. Nine hours of combined departmental and clinical hours per week. Must be taken concurrently with EMTEC 515. 3 q.h.

522. *Cardiovascular Emergencies.* Intense study of the pathophysiology and symptomatology of cardiovascular conditions including vascular disease, myocardial infarction, angina pectoris, congestive heart failure, and congenital myocardial problems. Also includes electrophysiology and EKG interpretation. Prereq.: EMTEC 515 or Admission to EMT Program or permission of instructor. 4 q.h.

*Additional fee required.

524. *Emergency Cardiovascular Techniques.* Pharmacologic therapy and mechanical techniques utilized to manage the cardiovascular emergencies discussed in EMTEC 522. Prereq.: Admission to EMT Program or permission of instructor. Must be taken concurrently with EMTEC 522, 525 and 526L. 4 q.h.

525. *Pulmonary Emergencies.* Study of pathophysiology, symptomatology and treatment techniques of respiratory conditions and emergencies. Prereq.: Admission to EMT Program or permission of instructor. Concurrent with EMTEC 524 and 526L. 2 q.h.

*526L. *Cardiovascular/Pulmonary Techniques Lab.* Performance of fundamental techniques employed in the management of the cardiovascular and/or respiratory emergency. Three hours of laboratory a week. Must be taken concurrently with EMTEC 524, 525 and 527. 1 q.h.

527. *Clinical Experience 1.* Hospital clinical experience to include practical management of the airway, endotracheal intubation, physical assessment and patient interviewing in critical care situations. Eight hours of clinical a week. Must be taken concurrently with EMTEC 526L. 2 q.h.

528. *ALS Field Internship 1.* Clinical experience with an approved advanced life support unit under the direct supervision of a selected paramedic field preceptor. Ten hours of clinic a week. Prereq.: EMTEC 515 and 515L. 2 q.h.

530. *Emergency Rescue Techniques.* Introduction to common rescue tools and techniques utilized in basic victim disentanglement and extrication. Prereq.: Admission to EMT Program or permission of instructor. 2 q.h.

605. *Emergency Medical Special Topics.* Examination of obstetrical/gynecological, pediatric, neonatal, geriatric, and psychiatric emergencies to include pathophysiology, symptomatology, and management techniques. Prereq.: EMTEC 522, EMTEC 524, and EMTEC 525 or permission of instructor. Concurrent with EMTEC 605L. 4 q.h.

*605L. *Emergency Medical Special Topics Lab.* Techniques necessary to effectively manage conditions in EMTEC 605. Three hours of laboratory a week. Must be taken concurrently with EMTEC 605. 1 q.h.

606. *Clinical Experience 2.* Practical experience in obstetric/gynecologic, pediatric, neonatal, and psychiatric emergencies. Eight hours of clinical a week. Must be taken concurrently with EMTEC 605. 2 q.h.

608. *ALS Field Internship 2.* Performance of advanced life support procedures in the pre-hospital setting under the direct supervision of a selected paramedic field preceptor. Prereq.: EMTEC 528. Twenty hours of clinical a week. 4 q.h.

630. *Field-Based Study.* Student will choose a research project, community program involvement, internship, or act as an instruction assistant after meeting with the program coordinator concerning the project. Study time will vary according to project complexity. Prereq.: EMTEC 610. 1-5 q.h.

640. *Advanced Pathophysiology for the EMS Practitioner.* An in-depth study of the underlying abnormalities and physiologic disturbances resulting from traumatic injuries and medical illnesses as it relates to emergency medical care. Includes analysis of case studies. Three hours of lecture. Prereq.: EMTEC 506, 515, and 605. 3 q.h.

641. *Advanced Assessment and Management Techniques.* Emphasis on twelve-lead electrocardiography, thrombolytic therapy, interpretation of laboratory data, and end-tidal carbon dioxide monitoring, and paralytics in the prehospital setting. Four hours of lecture. Prereq.: EMTEC 522, 524, and 605. 4 q.h.

650. *Research Methodology for Emergency Medical Services.* Introduction to research problems and hypotheses, research design, sampling designs, data collection methods, and data analysis. Critiques of emergency medicine research and development of a research problem and design will be required. Three hours of lecture. Prereq.: EMTEC 640 and EMTEC 641. 3 q.h.

660. *Multiskilled EMS Practitioner.* Presentation of principles, concepts, clinical knowledge, and skills necessary to prepare the multiskilled EMS practitioner. Three hours of lecture. Prereq.: EMTEC 640 and 641. 3 q.h.

661. *Advanced Clinical and Field Internship Experience.* Clinical experience in hospitals and urgent-care settings. Field internship in a variety of advanced life-support units to expose the student to hospital-based, public third service, private, and fire service EMS. Included is a field component involving wilderness rescue and emergency medicine. An average of ten clinical or field internship hours per week. Must be taken concurrently with EMTEC 660. Prereq.: EMTEC 640 and 641. 3 q.h.

## EMERGENCY MEDICAL TECHNOLOGY CURRICULUM

**FIRST YEAR**
**FIRST QUARTER (FALL)**

| Courses | Cr. Hrs. |
|---|---|
| BIOL 551 Physiology & Anatomy 1 with Lab | 4 |
| EMTEC 506 Principles of Trauma | 4 |
| EMTEC 507 Emergency Medical Techniques 1 | 2 |
| EMTEC 507L Emergency Medical Techniques 1 Lab | 2 |
| EMTEC 509 Intro. to Emergency Medical Technology | 2 |
| | 14 |

*Additional fee required.

**SECOND QUARTER (WINTER)**

| Courses | Cr. Hrs. |
|---|---|
| MATEC 605 Introduction to Pharmacology | 4 |
| BIOL 552 Physiology & Anatomy 2 with Lab | 4 |
| EMTEC 515 Medical Conditions & Management Tech. | 4 |
| EMTEC 515L Emergency Medical Techniques 2 Lab | 3 |
| | 15 |

**THIRD QUARTER (SPRING)**

| Courses | Cr. Hrs. |
|---|---|
| EMTEC 522 Cardiovascular Emergencies | 4 |
| EMTEC 524 Emergency Cardiovascular Techniques | 4 |
| EMTEC 525 Pulmonary Emergencies | 2 |
| EMTEC 526L Cardiovascular/Pulmonary Techniques Lab | 1 |
| EMTEC 527 Clinical Experience 1 | 2 |
| EMTEC 528 ALS Field Internship 1 | 2 |
| EMTEC 530 Emergency Rescue Techniques | 2 |
| | 17 |

**FOURTH QUARTER (SUMMER)**

| Courses | Cr. Hrs. |
|---|---|
| EMTEC 605 Emergency Medical Special Topics | 4 |
| EMTEC 605L Emergency Medical Special Topics Lab | 1 |
| EMTEC 606 Clinical Experience 2 | 2 |
| EMTEC 608 ALS Field Internship 2 | 4 |
| | 11 |

**Total for EMT-Certificate Level** ..... 57

**SECOND YEAR**
**FIFTH QUARTER (FALL)**

| Courses | Cr. Hrs. |
|---|---|
| PSYCH 560 General Psychology | 4 |
| CHEM 505 Chemistry for the Allied Health Sciences 1 | 4 |
| EMTEC 604 Advanced Pathophysiology for EMT | 4 |
| EMTEC 641 Advanced Assessment and Management Techniques | 3 |
| *Technical Elective | 4 |
| | 19 |

**SIXTH QUARTER (WINTER)**

| Courses | Cr. Hrs. |
|---|---|
| SOCIO 500 Fundamentals of Sociology | 4 |
| CHEM 506 Chemistry for the Allied Health Sciences 2 | 4 |
| EMTEC 650 Research Methodology for EMS | 3 |
| ENGL 550 Composition 1 | 4 |
| | 15 |

*Elective must be approved by the EMTEC Program Coordinator

**SEVENTH QUARTER (SPRING)**

| Courses | Cr. Hrs. |
|---|---|
| COMM 550 Public Speaking | 4 |
| *SOCSC or HUMAN Elective | 4 |
| EMTEC 660 Multiskilled EMS Practitioner | 3 |
| EMTEC 661 Advanced Clinical and Field Internship Experience | 3 |
| | 14 |

**Total Credit Hours** ..... 105

# MEDICAL ASSISTING TECHNOLOGY

*Associate Professor Feld (Program Coordinator)*

The Medical Assisting Technology program is a two-year program leading to the Associate in Applied Science degree. The curriculum provides graduates with the skills necessary to perform dual roles as administrative and/or clinical technical assistants in private physician offices, clinics or hospital outpatient departments. The administrative skills include: public relations, receptionist activities, record management, secretarial skills, bookkeeping, insurance and coding clerk, banking, payroll and managerial responsibilities. Clinical skills include: preparing the patient for examination and procedures, taking medical histories and patient assessment, operating and maintaining medical equipment, collecting specimens, performing laboratory tests, and teaching and counseling patients. Admission to the program is not restricted, but high school prerequisites include biology, chemistry, algebra 1, algebra 2 or geometry, and business typing (personal typing does not substitute).

A grade of C or better is required in all MATEC and BIS courses. A 2.0 overall G.P.A. must be maintained to continue in the program. Prior to scheduling the externship, the student records will be reviewed by the department to determine if all previous courses in the program have been satisfactorily completed and all deficiencies have been made up.

The student must have a physical examination report with a negative tuberculin-screening test and serology test and hepatitis B vaccination prior to MATEC 620, MATEC 680 and the externship.

501. *Medical Terminology.* Structure of medical words, pronunciation and meaning of medical terms. 4 q.h.

502. *Medical Law and Ethics.* Types of medical practices. Legal relationship of physician to patient, i.e., professional liability, implied and informed consent, malpractice, invasion of privacy. Emphasis on professional attitude and behavior. 4 q.h.

600. *Medical Insurance Forms.* A study of private group and government insurance programs; medicare, medicaid, Workers' Compensation and Disability Insurance and the completion of required forms.Prereq.: MATEC 501. 3 q.h.

602. *Medical Diagnostic and Procedural Coding.* Emphasis will be on identifying and utilization of coding systems (ID-9-CM, CPT) directly related to medical practices and current government regulations. Prereq.: MATEC 501 or instructor's permission. 3 q.h.

605. *Introduction to Pharmacology.* Identification and interactions of drugs used in patient care including the pharmacological action and effects on the patient. Various modes of administration and patient education regarding the effects of common drugs are included. Prereq.: CHEM 505, BIOL 552 or concurrently. 4 q.h.

610. *Introduction to Disease Processes.* Introduction to the disease process including diagnostic symptoms and treatment aspects. Emphasis is placed on the physical, psychological and environmental conditions which influence the individual's well being. Prereq.: MATEC 501. 4 q.h.

*611L. *Clinical Procedures Lab.* Techniques of patient interviewing and history taking, performance of patient assessment, application of principles of body mechanics and instructions for examinations and diagnostic procedures. Three hour lab. Prereq.: MATEC 501 and 502. 1 q.h.

612. *Medical Records Management.* Includes medical record administration in order to create, maintain, protect, and preserve records. Emphasis will be on the development and maintenance of appropriate filing systems and the ethical and legal requirements and restrictions of medical records. Prereq.: MATEC 501, MATEC 502. 3 q.h.

614. *Medical Office Procedures.* Fundamentals in patient reception, appointment scheduling, communication techniques, office management systems and preparation of an office policy manual. Three hours lecture, six hours of assigned practicum per week. Prereq.: BIS 523, MATEC 501, MATEC 502. 4 q.h.

620. *Advanced Clinical Procedures.* Orientation to minor surgical and specialized examination techniques, physical examinations, preparation and administration of medication, performing electrocardiograms, application of physical therapy, and X-ray techniques including maintaining medical supplies and inventory. Prereq.: MATEC 610, 611L, BIOL 552 and concurrently with MATEC 620L. 3 q.h.

*620L. *Advanced Clinical Procedures Lab.* Laboratory experience in minor surgical and specialized examination techniques, preparation and administration of medications, electrocardiograms, physical therapy, and X-ray procedure. Taken concurrently with MATEC 620. Three hours laboratory a week. 1 q.h.

680. *Laboratory Procedures for the Medical Office.* An introduction to diagnostic laboratory procedures performed in the physician's office. Principles and techniques of laboratory procedures are studied. Prereq.: MATEC 610 and MATEC 611L and BIOL 560 or taken concurrently. 2 q.h.

*680L. *Laboratory Procedures for the Medical Office Lab.* Practice in diagnostic laboratory procedures. Emphasis on collection, proper handling, and identification of specimens. Basic hematologic procedures, urinalysis, bacteriological exams, serology, and pregnancy tests. Must be taken concurrently with MATEC 680. Three hours of laboratory a week. 1 q.h.

692. *Medical Assisting Externship.* Twenty-one hours per week of practical experience in offices of qualified physicians (family practice and internal and accredited hospitals and/or clinics.) Sites are selected by the director of the program. Prereq.: MATEC 620, MATEC 680, BIS 506 and 623. Must be taken concurrently with MATEC 694. 3 q.h.

694. *Medical Assisting Seminar.* Selected Medical Assisting topics as related to student's externship experiences. Must be taken concurrently with MATEC 692. 1 q.h.

## MEDICAL ASSISTING TECHNOLOGY: CURRICULUM

### General University Requirements

| Courses | Cr. Hrs. |
|---|---|
| ENGL 550, 551 Basic Composition 1, 2 | 8 |
| PSYCH 560 General Psychology | 4 |
| SOCIO 500 Fundamentals of Sociology | 4 |
| SOCSC Elective | 4 |
| CHEM 505 Chemistry for the Allied Health Sciences 1 | 4 |
| BIOL 551, 552 Physiology & Anatomy 1, 2 | 8 |
| BIOL 560 Para-Medical Microbiology | 5 |
| HSC 590 Health Education | 3 |
| **HSC 601 First Aid & Emergency Care | 3 |
| **HSC 604 Cardio-Pulmonary Resucitation | 1 |
| OR | |
| **EMTEC 501, 501L Emergency Med. Tech.-Amb. & Lab | 4 |
| | 44 |

### Major Requirements

| Courses | Cr. Hrs. |
|---|---|
| MATEC 501 Medical Terminology | 4 |
| MATEC 502 Medical Law & Ethics | 4 |
| MATEC 600 Medical Insurance Forms | 3 |
| MATEC 602 Medical Diagnostic & Procedural Coding | 3 |
| MATEC 605 Intro. to Pharmacology | 4 |
| MATEC 610 Intro. to Disease Processes | 4 |
| MATEC 611L Clinical Procedures Lab | 1 |
| MATEC 612 Medical Records Management | 3 |

*Additional fee required.

**Current CPR and Red Cross First Aid Certification or Ohio State EMT-A Licensure. Substitute of 4 credit hours of elective course work required.

MATEC 614 Medical Office Procedures .....4
MATEC 620 Advanced Clin. Procedures .....4
MATEC 620L Advanced Clin. Procedures Lab ..1
MATEC 680 Lab Proced. for Medical Office ....2
MATEC 680L Proced. for Med. Off. Lab .....1
MATEC 692 Medical Assisting Externship .....3
MATEC 694 Medical Assisting Seminar .....2
*BIS 523 Intermediate Typewriting .....3
BIS 506 Information Processing Skills .....3
BIS 613 Microcomputer Application .....4
BIS 623 Advanced Keyboarding .....3
AHLTH 810 Supervisory Skills for Health Care Professional .....4
ACCT 602 Financial Accounting .....4

64

**Total Credit Hours** **108**

## MEDICAL LABORATORY TECHNOLOGY

*Assistant Professor DeLost (Program Coordinator); Associate Professor Boyd.*

The Medical Technology program is a two-year program leading to the Associate in Applied Science degree in Medical Laboratory Technology.

The medical laboratory technician works in a supportive role in a hospital, private laboratory, clinic, public health facility, or pharmaceutical laboratory, performing a variety of clinical tests under appropriate supervision. These tests may be used by qualified physicians for the determination of the presence and extent of disease, as well as for their etiological implications about the cause of the disease.

The MLT Program meets the standards developed by the American Society of Clinical Pathologists and the American Society of Clinical Laboratory Science through the National Accrediting Agency for Clinical Laboratory Sciences, and accredited by the Committee of Allied Health Education and Accreditation.

Admission to the program is restricted. Copies of the Admission Policy are available in the Allied Health Department Offices.

All course work in the MLTEC Program must be completed with a minimal grade of C. Students must maintain an overall GPA of 2.5 and a GPA of 2.5 in all MLTEC courses. Students receiving a total of 10 hours or more of grades of D or F in MLTEC, Biology, Chemistry, or Math will be dismissed from the program. Students are permitted a total of 3 course repetitions for the purpose of recalculation. Readmission into the program is based on GPA and availability of space in the class. Students accepted into the program must take a physical examination and provide records of their immunizations. The hepitis vaccine is strongly recommended for each new student.

*Typing courses will depend on typing background.

501. *Introduction to Medical Technology.* Overview of the clinical laboratory profession, ethics, responsibilities and clinical relevance of laboratory procedures. Prereq.: High school chemistry, Algebra I, Algebra II or Geometry. Taken concurrently with MLTEC 501L. 3 q.h.

*501L. *Introduction to Medical Technology Lab.* Phlebotomy, specimen collection and processing; basic clinical laboratory exercises. Three hours of laboratory per week. Taken concurrently with MLTEC 501. 1 q.h.

502. *Methodology 1.* Theory and techniques in the analysis of urine. Taken concurrently with MLTEC 502L, BIOL 507. Prereq.: BIOL 506, MLTEC 501. 2 q.h.

*502L. *Methodology 1 Laboratory.* Chemical and microscopic analysis of urine. Three hours of laboratory per week. Taken concurrently with MLTEC 502. 1 q.h.

503. *Methodology 2.* Fundamental theories and techniques of immunohematology and blood banking. Taken concurrently with MLTEC 503L and BIOL 507. Prereq.: BIOL 506, MLTEC 501. 2 q.h.

*503L. *Methodology 2 Laboratory.* ABO and RH typing, direct and indirect antiglobulin testing, compatability testing. Three hours of laboratory per week. Taken concurrently with MLTEC 503. 1 q.h.

601. *Methodology 3.* Medical laboratory applications of clinical chemistry. Taken concurrently with MLTEC 601L. Prereq.: CHEM 506, MLTEC 502 and 503. 3 q.h.

*601L. *Methodology 3 Laboratory.* Spectrophotometric, semi-automated, and automated analysis of glucose, electrolytes, enzymes, and other chemical constituents of serum. Three hours of laboratory per week. Taken concurrently with MLTEC 601. 1 q.h.

602. *Clinical Laboratory Techniques.* Human body fluids, including composition, normal and abnormal states and relevance in disease diagnosis; special techniques in infectious disease transmission. Prereq.: CHEM 506, BIOL 508. To be taken concurrently with MLTEC 602L. 3 q.h.

*602L. *Clinical Laboratory Techniques Laboratory.* Examination of body fluids utilizing microscopic, immunologic, and chemical techniques. Universal precautions, special methods in infectious disease indentification. Three hours laboratory per week. Taken concurrently with MLTEC 602. 1 q.h.

*604. *Methodology 4.* Laboratory instrumentation,quality control, quality assurance, instrument maintenance and trouble-shooting; performance verification, proficiency surveys, choice and implementation of new instruments. Two hours lecture and four hours laboratory per week. Prereq.: MLTEC 501 and 501L. 3 q.h.

*Additional fee required.

610. *Histotechnician Practicum 1.* Assignment to a clinical affiliate. Histologic procedures of instrumentation, cell structure, fixatives, processing and sectioning of tissues. Forty hours of clinical experience per week. Prereq.: Completion of first four quarters of Histotechnology curriculum. 12 q.h.

620. *Histotechnician Practicum 2.* Assignment to clinical affiliate. Histologic procedures of general staining methods and nuclear, cytoplasmic, nervous tissue, connective tissue and muscle fiber stains. Forty hours of clinical experience per week. Prereq.: Successful completion of MLTEC 610 with a minimal grade of C. 12 q.h.

630. *Histotechnician Practicum 3.* Assignment to a clinical affiliate. Histologic procedures involving microorganisms, immunochemistry, DNA/RNA probes, electron microscopy, flow cytometry, and special techniques. Forty hours of clinical experience per week. Prereq.: Successful completion of MLTEC 620 with a minimum grade of C. 12 q.h.

700. *Diagnostic Labeled Immunoassays.* Immunoassays utilizing labeled antibodies to detect antigens based on immunomicroscopic, receptor binding and enzyme linked techniques. Prereq.: CHEM 506, MLTEC 601 & 601L for MLTEC students. CHEM 517 for MATEC students. Taken concurrently with MLTEC 700L. 2 q.h.

*700L. *Diagnostic Labeled Immunoassays Laboratory.* Thyroid, Digoxin, B 12, Folic acid, Antinuclear antibodies and T & B cell receptor procedures utilized in the clinical laboratory. Three hours of laboratory a week. Must be taken concurrently with MLTEC 700. 1 q.h.

703. *Clinical Immunology.* Fundamentals of antigen-antibody reactions applied to serological procedures performed in the clinical laboratory. Two hours of lecture a week. Must be taken concurrently with MLTEC 703L. Identical with BIOL 703. Prereq.: MLTEC 702. 2 q.h.

*703L. *Clinical Immunology Laboratory.* Identical with Biol. 703L. VDRL, ASO, febrile, latex, pregnancy, and viral tests; also includes flocculation, precipitation, complement fixation, and titration procedures forvarious diseases. Three hours of laboratory a week. Must be taken concurrently with MLTEC 703. 1 q.h.

704L. *Clinical Internship 1.* Eighteen hours per week of practical application of skills in affiliate hospitals and private laboratories. Prereq.: Completion of previous five quarters of MLTEC curriculum with a grade of 'C' or better and a minimum 2.5 GPA. 3 q.h.

705L. *Clinical Internship 2.* Thirty hours per week of practical application of skills in affiliate hospitals and private laboratories. Prereq.: Completion of the previous six quarters of the MLTEC curriculum with a grade of 'C' or better and a minimum 2.5 GPA. Taken concurrently with MLTEC 706. 5 q.h.

706. *Medical Laboratory Seminar.* Internship preparation, special topics in the clinical laboratory. To be taken concurrently with MLTEC 705L. 2 q.h.

729. *Clinical Hematology.* Origin and formation of blood cells; hematological disorders and the coagulation system. Prereq.: BIOL 507, BIOL 552, MLTEC 503 for MLTEC students. BIOL 507, BIOL 552, for MATEC students. Taken concurrently with MLTEC 729L. 2 q.h.

*729L. *Clinical Hematology Laboratory.* Automated and manual erythrocyte, leukocyte and platelet counts; hemoglobins and hematocrits; staining techniques, differential morphology, coagulation procedures. Students are required to perform 80 differential counts. Six hours of laboratory per week concurrent with MLTEC 729. 2 q.h.

*787. *Diagnostic Microbiology.* A clinical approach to the study of human pathogenic microorganisms, including types of infections, frequency, isolation, identification, and treatment. Two hours lecture and six hours laboratory per week. Prereq.: BIOL 702. Cross listed with BIOL 787. 4 q.h.

790. *Essentials of Cytotechnology.* Basics in cytotechnology, including professional aspects, cytologic specimen collection and processing, staining, and mounting. Three hours lecture and three hours laboratory per week. Prereq.: BIOL 713. 4 q.h.

850. *Cytotechnology Internship 1.* Staining, mounting, quality control, and safety in the cytotechnology laboratory; specimen collection, processing, and microscopy. Forty hours of clinical experience per week. Prereq.: Acceptance into clinical internship. 12 q.h.

860. *Cytotechnology Internship 2.* Cytopathology and laboratory study of the reproductive and urogenital systems. Forty hours of clinical experience per week. Prereq.: Successful completion of MLTEC 850 with a minimum grade of C. 12 q.h.

870. *Cytotechnology Internship 3.* Cytopathology and laboratory study of respiratory and gastrointestinal systems; cytopathology of body fluids. Forty hours of clinical experience per week. Prereq.: Successful completion of MLTEC 860 with minimum grade of C. 12 q.h.

880. *Cytotechnology Internship 4.* Cytopathology and laboratory study of the breast, theory and procedures in cytogenetics, fine needle aspiration, prescreening and screening of specimens; special topics and individual research in cytotechnology. Forty hours of clinical experience per week. Prereq.: Successful completion of MLTEC 870 with a minimum grade of C. 12 q.h.

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*Additional fee required.

## MEDICAL LABORATORY TECHNOLOGY CURRICULUM

### FIRST YEAR
### FIRST QUARTER (FALL)

| Courses | Cr. Hrs. |
|---|---|
| CHEM 505 Chemistry for the Allied Health Sciences 1 | 4 |
| BIOL 506 Principles of Biology 1 with Lab | 4 |
| BIOL 551 Physiology and Anatomy 1 with Lab | 4 |
| MLTEC 501 Introduction to Medical Technology | 3 |
| MLTEC 501L Introduction to Medical Technology Laboratory | 1 |
| | 16 |

### SECOND QUARTER (WINTER)

| Courses | Cr. Hrs. |
|---|---|
| CHEM 506 Chemistry for the Allied Health Sciences 2 | 4 |
| BIOL 611 Principles of Biology 2 with Lab | 4 |
| BIOL 552 Physiology and Anatomy 2 with Lab | 4 |
| MLTEC 502 Methodology 1 | 2 |
| MLTEC 502L Methodology 1 Lab | 1 |
| MLTEC 503 Methodology 2 | 2 |
| MLTEC 503L Methodology 2 Lab | 1 |
| | 18 |

### THIRD QUARTER (SPRING)

| Courses | Cr. Hrs. |
|---|---|
| CIS 520 Computer Systems Literacy | 4 |
| BIOL 508 Principles of Biology 3 with Lab | 4 |
| BIOL 702 Microbiology with Lab | 4 |
| MLTEC 602 Clinical Laboratory Techniques | 2 |
| MLTEC 602L Clinical Laboratory Techniques Laboratory | 1 |
| | 15 |

### FOURTH QUARTER (SUMMER)

| Courses | Cr. Hrs. |
|---|---|
| ENGL 550 Composition 1 | 4 |
| PSYCH 560 General Psychology | 4 |
| MLTEC 601 Methodology 3 | 3 |
| MLTEC 601L Methodology 3 Lab | 1 |
| SOCST Elective | 4 |
| | 16 |

### SECOND YEAR (FALL)
### FIFTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| MLTEC 700 Diagnostic Labled Immunoassays | 2 |
| MLTEC 700L Diagnostic Labled Immunoassays Laboratory | 1 |
| MLTEC 729 Clinical Hematology | 2 |
| MLTEC 729L Clinical Hematology Lab | 2 |
| MLTEC 604 Methodology 4 | 3 |
| MATH 714 Probability and Statistics | 5 |
| | 15 |

### SIXTH QUARTER (WINTER)

| Courses | Cr. Hrs. |
|---|---|
| MATEC 501 Medical Terminology | 4 |
| MLTEC 703 Clinical Immunology | 2 |
| MLTEC 703L Clinical Immunology Lab | 1 |
| MLTEC 704L Clinical Internship 1 | 3 |
| MLTEC 787 Diagnostic Microbiology | 2 |
| MLTEC 787L Diagnostic Microbiology Lab | 2 |
| | 14 |

### SEVENTH QUARTER (SPRING)

| Courses | Cr. Hrs. |
|---|---|
| MLTEC 705L Clinical Internship 2 | 5 |
| MLTEC 706 Medical Laboratory Seminar | 2 |
| ENGL 551 Composition 2 | 4 |
| HSC 590 Health Education | 3 |
| | 14 |

**Total Program Hours** ..... **108**

NOTE: Courses must be taken in proper sequence. Students who fail to do so or who must repeat a course may invalidate their chances of normal progression and clinical scheduling.

### Medical Laboratory Internship Guidelines

Admission to the Medical Laboratory program *DOES NOT* guarantee admission to the internship. In a Medical Laboratory, MLT's are expected to function with a maximum degree of effectiveness in professional attitudes, patient relations, and integrity. The capacity for competent performance at each level must be assured for each student before they will be assigned to an Internship, since the work frequently deals with life and death situations. Students must maintain a minimal overall GPA of 2.5 and maintain at least a 2.5 GPA in all MLTEC courses.

Upon successful completion of the program the student becomes eligible to receive the Associate in Applied Science degree with a major in Medical Laboratory Technology and take any national certification examination to become certified as MLT(ASCP) or CLT(NCA).

## HISTOTECHNOLOGY

*Associate Professor Delost (Program Coordinator); Associate Professor Boyd.*

The associate degree in histotechnology is available as an alternative track in the Medical Laboratory Technology Program.

Admission to the program is restricted and interested students must apply by March 1 to the academic advisors in the College of Health and Human Services.

The first four quarters of the program are didactic and laboratory courses taught on the Y.S.U. campus. The final three quarters consists of the clinical practicum which is held at affiliated laboratories.

The histologic technician plays an important role in the detection of cancer cells. Once a sample tissue is taken from a patient, the technician prepares very thin sections of body tissues for microscopic examination.

With the information learned from the section of tissue biopsy, the physician can determine if disease is present, if it has spread and the best course of treatment for the patient.

The histologic technician works with fragile, delicate instruments as well as knives, chemicals and glass slides. He or she must value precision and have good hand-eye coordination and manual dexterity.

To insure that laboratory workers are competent and able to perform high quality laboratory tests, the Board of Registry of the American Society of Clinical Pathologists gives a national certification exam. Students take this exam after meeting their academic and laboratory education requirements.

Histologic technicians have an unlimited choice of practice settings. Hospitals, for-profit laboratories, clinics, nursing homes, public health facilities, business and industry currently have positions open for qualified histologic technicians. Other opportunities for histologic technicians are in industrial research, veterinary pathology, marine biology and forensic pathology.

## HISTOTECHNICIAN LAB CURRICULUM

All Biology, Chemistry and MLTEC courses must be completed with a minimum grade of 'C'.

Students are permitted to repeat a maximum of 8 hours of coursework. Any student receiving over 8 hours of 'D' or 'F' in Biology, Chemistry, MLTEC or Histotechnology courses will be dismissed from the program.

**FIRST QUARTER (FALL)**

| Courses | Cr. Hrs. |
|---|---|
| MLTEC 501 Intro. to Medical Technology | 3 |
| MLTEC 501L Into. to Medical Technology Lab | 1 |
| ENGL 550 Composition 1 | 4 |
| BIOL 509/509L Principles of Biology 1/Lab | 4 |
| CHEM 505/505L Chemistry for Allied Health Sciences/Lab | 4 |
| | 16 |

**SECOND QUARTER (WINTER)**

| Courses | Cr. Hrs. |
|---|---|
| MATEC 501 Medical Terminology | 4 |
| BIOL 510/510L Principles of Biology 2/Lab | 4 |
| BIOL 611/611L Principles of Biology 3/Lab | 4 |
| CHEM 506/506l Chemistry for Allied Health Sciences/Lab | 4 |
| | 16 |

**THIRD QUARTER (SPRING)**

| Courses | Cr. Hrs. |
|---|---|
| BIOL 713 Histology | 4 |
| BIOL 702/702L Microbiology | 4 |
| **OR** | |
| BIOL 787/787L Diagnostic Microbiology | 2+2 |
| MATEC 502 Medical Law and Ethics | 4 |
| SOCSC Elective | 4 |
| | 16 |

**FOURTH QUARTER (SUMMER)**

| Courses | Cr. Hrs. |
|---|---|
| ENGL 551 Composition 2 | 4 |
| SOCSC Elective | 4 |
| CIS 520 Computer Systems Literacy | 4 |
| **OR** | |
| BIS 613 Microcomputer Applications | 4 |
| HSC 590 Health Education | 3 |
| | 15 |

**SECOND YEAR**

**FIFTH QUARTER (FALL)**

| Courses | Cr. Hrs. |
|---|---|
| MLTEC 610 Histotechician Practicum 1 | 12 |
| | 12 |

**SIXTH QUARTER (WINTER)**

| Courses | Cr. Hrs. |
|---|---|
| MLTEC 620 Histotechnician Practicum 2 | 12 |
| | 12 |

**SEVENTH QUARTER**

| Courses | Cr. Hrs. |
|---|---|
| MLTEC 630 Histotechnician Practicum 3 | 12 |
| | 12 |
| **Total Program Hours** | **99** |

## MEDICAL TECHNOLOGY

*Assistant Professor Delost (Program Coordinator); Associate Professor Boyd.*

The Medical Technology program is a four-year program leading to a Bachelor of Science in Applied Science degree with a major in Medical Technology. Admission to the program is restricted. Copies of the admission policy are available in the Allied Health Department.

The medical technologist is a specialized member of the health care profession performing a variety of tests in hospital and private laboratories, clinics, armed forces, federal health agencies, pharmaceutical houses, and research programs.

The myriad of procedures performed or supervised by the medical technologist are used by physicians to determine the presence or absence and extent of disease and types of treatment to be employed.

Since the work frequently deals with situations which require precision, dependability, and a strong sense of responsibility, students must have an aptitude for an interest in the physical and biological sciences.

The program exceeds the minimum requirements of the National Accrediting Agencies for Laboratory Science.

The program is designed to ensure a thorough understanding of the biological and physical science and to present to the student the artful applications of scientific principles that are practical in the clinical laboratory.

Current clinical affiliates for Medical Technology include the Medical Technology Programs of Akron, The Cleveland Clinic Foundations, St. Elizabeth Medical Center, Trumbull Memorial Hospital, Western Reserve Care System and The Metro Health Care System of Cleveland.

Upon successful completion of three years of the program at the University and a year in a hospital school accredited by the Committee on Allied Health Education through the National Accrediting Agency of Laboratory Science, the students become eligible to take any national certification examination to become certified as MT (ASCP), CLS(NCA), and receive a Bachelor of Science in Applied Science degree with a major in Medical Technology.

## MEDICAL TECHNOLOGY CURRICULUM

### FIRST YEAR

| Courses | Cr. Hrs. |
|---|---|
| MLTEC 501 Introduction to Medical Technology | 4 |
| CHEM 515, 516, 517 | 12 |
| BIOL 509, 510, 611 | 12 |
| ENGL 550, 551 | 8 |
| HPES Activity Course | 1 |
| BIOL 551, 552 | 8 |
| HPES 590 Health Education | 3 |
| | 48 |

### SECOND YEAR

| Courses | Cr. Hrs. |
|---|---|
| CHEM 719, 720, 721 | 12 |
| CHEM 603, 604 | 10 |
| MATH 714 | 5 |
| MLTEC 700 Diagnostic Labled Immunoassays | 3 |
| BIOL 702 | 4 |
| MLTEC 787, 787L Diagnostic Microbiology and Laboratory | 4 |
| PHYS 501 | 4 |
| ELCTVS (See Note A) | 8 |
| | 50 |

### THIRD YEAR

| Courses | Cr. Hrs. |
|---|---|
| CHEM 711, 712, 713 | 8 |
| PHYS 502, 502L, 503, 503L | 8 |
| HPES Activity Course | 2 |
| MLTEC 703 Clinical Immunology | 3 |
| MLTEC 729 Clinical Hematology | 3 |
| ELCTVS (See Note A) | 16 |
| ELCTVS (See Note B) | 4 |
| | 44 |

### FOURTH YEAR

The courses listed below are limited to students admitted to the Professional Study Year at an accredited Hospital School of Medical Technology. 48 credit hours will be awarded for successful completion of the 12 month internship.

| Courses | Cr. Hrs. |
|---|---|
| MLTEC 810 Clinical Experience 1 (Clinical Microbiology and Lab) (Clinical Immunology and Lab) | (12 q.h.) |
| MLTEC 820 Clinical Experience 2 (Urinalysis and Lab) (Immunohematology and Lab) | (12 q.h.) |
| MLTEC 830 Clinical Experience 3 (Clinical Mycology) (Clinical Parasitology) (Clinical Chemistry and Lab) (Topics in Laboratory Education) | (12 q.h.) |
| MLTEC 840 Clinical Experience 4 (Clinical Hematology and Lab) (Coagulation) (Topics in Laboratory Management) (Special Topics in Medical Technology) | (12 q.h.) |
| **Total Credit Hours** | **48** |

Note (A): The electives should be courses which satisfy the university requirements for upper division credit, social studies, and humanities.

Note (B): Suggested science elective: Biol. 836 or Biol. 837 or Biol. 838 or Chem. 730.

Hours Required for Graduation:

| | |
|---|---|
| Academic | 184 |
| Non-Academic | 6 |
| **Total** | **190** |

## MEDICAL TECHNOLOGY INTERNSHIP GUIDELINES

Students applying for internships must have completed at least 140 quarter hours. Their transcripts must be evaluated by an advisor in College of Health and Human Services before applying. It is suggested that the student make an appointment for the evaluation at the beginning of the junior year to ensure that all of the requirements for the internship and graduation are fulfilled.

Students who qualify for the internship can pick up the list of hospital affiliations, application forms, and information regarding the internship in the Allied Health Department.

The University cannot guarantee admission into the fourth year of hospital clinical internship since it is restricted. Students are selected by the professional affiliated schools which are very competitive and, therefore, are encouraged to maintain a 3.0 minimum G.P.A.

Students should notify the Coordinator immediately upon their acceptance by a professional school.

## PHYSICAL THERAPY

Youngstown State University has been approved for the implementation of a Physical Therapy Program. The professional phase is tentatively scheduled to be offered for Summer 1996. Pre-professional courses are currently available. Contact department for admission policy.

Physical therapists are licensed health care providers who work to rehabilitate physically disabled people and to help prevent injuries by designing individualized conditioning programs. They work in hospitals, schools, nursing homes, industry, pediatric centers, sports programs, extended care facilities and home health agencies. To practice, a physical therapist must satisfactorily complete state licensure requirements.

Therapists with additional education may become certified as specialists in the following areas: cardiopulmonary, pediatrics, orthopedics, geriatrics, neurology, clinical electrophysiology and sports physical therapy.

The Youngstown State University Physical Therapy Program will offer a curriculum leading to a Bachelor of Science in Physical Therapy. Students will complete two years of foundation courses in science and general studies (pre-professional phase) followed by two years and two summers of professional courses (professional phase). In addition to the didactic and laboratory components of the curriculum, students are required to complete their clinical education in various sites, some of which may be located outside of the immediate area.

Students may apply to the program after completing the pre-professional phase of the curriculum at Youngstown State or at another University.

700. *Introduction to Physical Therapy.* Basic information and concepts related to physical therapy as a profession (history, current organizational structure, future direction); use of support personnel; direct referrals; problem solving; documentation; legal issues; introduction to ethics. Four hours of lecture a week. Prereq.: Admission to Physical Therapy Program. 4 q.h.

701. *Physical Therapy Procedures 1.* Introduction to patient care and physical therapy techniques and procedures related to measurement and evaluation (vital signs, muscle strength, range of motion, cardiopulmonary function); basic body mechanics and massage. Two hours of lecture a week. Prereq.: PHYTH 700. 2 q.h.

701L. *Physical Therapy Procedures 1 Lab.* Practice in techniques of measuring and evaluating vital signs, muscle strength, range of motion, and cardiopulmonary function, application of massage techniques. Three hours of laboratory a week. Prereq.: PHYTH 700. 1 q.h.

702. *Physical Therapy Procedures 2.* Introduction to patient care and physical therapy techniques and procedures related to basic gait training, transfers, wheelchair mobility, restoration of range of motion and strength; evaluation of musculoskeletal function (joint mobility, dysfunction). Three hours of lecture a week. Prereq.: PHYTH 701. 3 q.h.

702L. *Physical Therapy Procedures 2 Lab.* Practice in techniques of joint mobility, use of wheelchairs and ambulation aids, range of motion, strength. Six hours of laboratory a week. Prereq.: PHYTH 701L. 2 q.h.

703. *Pathology.* Study of disease mechanisms and response to disease and trauma in humans; concepts and principles of wound repair, degenerative disease, tumors, metabolic and circulatory disorders. Three hours of lecture a week. Prereq.: PHYTH 700. 1 q.h.

704. *The Musculoskeletal System.* Lectures and case presentations related to disorders or conditions affecting the musculoskeletal system (fractures, soft tissue injuries, growth disorders, metabolic disorders, muscle disorders, integumentary system disorders); presentation of the medical, surgical and physical therapy interventions. Three hours of lecture a week. Prereq.: PHYTH 703. 3 q.h.

710. *Physical Agents 1.* Principles and concepts of the use of heat, light, water, and sound to treat various disorders or conditions; application of principles gained in physics; physiological effects, indications and contraindications of the agents listed. Four hours of lecture a week. Prereq.: PHYTH 702. 4 q.h.

710L. *Physical Agents 1 Lab.* Practice in the use and application of physical therapy equipment (ultrasound, deep heat, superficial heat, hydrotherapy, traction). Three hours of laboratory a week. Prereq.: PHYTH 702L. 1 q.h.

711. *Physical Agents 2.* Principles and concepts of the use of electricity to treat various disorders or conditions, application of principles gained in physics; physiologic effects, indications and contraindications. Four hours of lecture a week. Prereq.: PHYTH 710. 4 q.h.

711L. *Physical Agents 2 Lab.* Practice in the use and application of physical therapy equipment (EMG, low volt/high volt, biofeedback, NCV, TENS, MENS, US/ES combined). Three hours of laboratory a week. Prereq.: PHYTH 710L. 1 q.h.

720. *Clinical Education 1.* Preparation for the initial supervised, directed clinical education experience in a hospital, clinic, independent practice, or other site; expectations of the student, documentation and communication skills, basic record keeping, professional behavior. Three hours of lecture a week. Prereq.: PHYTH 710. 3 q.h.

721. *Clinical Education 2.* Patient care supervised by a licensed physical therapist at an approved clinical site; appplication of techniques and procedures presented in class. Forty clinical hours a week. Prereq.: PHYTH 720. 8 q.h.

805. *The Neuromuscular System.* Lectures and case presentations related to disorders or conditions affecting the neuromuscular system (central and peripheral nerve injuries, brain trauma, chronic and progressive neuromuscular diseases); presentation of the medical, surgical, and physical therapy interventions. Three hours of lecture a week. Prereq.: PHYTH 704. 3 q.h.

822. *Clinical Education 3.* Preparation for the terminal clinical education experience (clinical decision making, problem solving, licensure requirements, ethical dilemmas, other clinical issues). Two hours of lecture a week. Prereq.: PHYTH 721. 2 q.h.

823. *Clinical Education 4.* Application of theory, techniques and procedures gained from classes; supervised and directed clinical education experience designed to expose the student to various patient conditions, treatment applications, problem solving, clinical decision making and administrative procedures. Twenty clinical hours a week. Prereq.: PHYTH 822. 4 q.h.

824. *Clinical Education 5.* The terminal supervised and directed clinical education experience designed to provide the student with complex clinical problem solving/decision making experiences related to ongoing patient care. Forty clinical hours a week. Prereq.: PHYTH 823. 8 q.h.

830. *Therapeutic Exercise 1.* Presentation of principles and concepts related to the physical therapy management of musculoskeletal disorders or conditions based on normal functions. Two hours of lecture a week. Prereq.: PHYTH 711. 2 q.h.

830L. *Therapeutic Exercise 1 Lab.* Practice in techniques and procedures designed to prevent, relieve or minimize the effects of disease, developmental abnormalities, trauma or dysfunction of the musculoskeletal system (endurance training, strengthening, stretching, joint mobilization, relaxation, posture correction). Three hours of laboratory a week. Prereq.: PHYTH 711L. 1 q.h.

831. *Therapeutic Exercise 2.* Presentation of principles and concepts related to the physical therapy management of neuromuscular disorders or conditions based on normal function. Two hours of lecture a week. Prereq.: PHYTH 830. 2 q.h.

831L. *Therapeutic Exercise 2 Lab.* Practice in techniques and procedures designed to prevent, relieve or minimize the effects of disease, developmental abnormalities, trauma or dysfunction to the neuromuscular system (cardiopulmonary function, rehabilitation of the brain-damaged and the traumatized spinal cord). Three hours of laboratory a week. Prereq.: PHYTH 830L. 1 q.h.

## PHYSICAL THERAPY CURRICULUM

### FIRST YEAR

**FALL QUARTER (Pre-Professional PT)**

| Courses | Cr. Hrs. |
|---|---|
| BIOL 509/L Principles of Biology 1 | 4 |
| CHEM 505/L Chemistry for Allied Health Sciences 1 | 4 |
| ENGL 550 Composition 1 | 4 |
| PSYCH 560 General Psychology | 4 |
| | 16 |

**WINTER QUARTER (Pre-Professional PT)**

| Courses | Cr. Hrs. |
|---|---|
| BIOL 611/L Principles of Biology 2 | 4 |
| CHEM 506/L Chemistry for Allied Health Sciences 2 | 4 |
| ENGL 551 Composition 2 | 4 |
| SOCIO 500 Fundamentals of Sociology | 4 |
| | 16 |

**SPRING QUARTER (Pre-Professional PT)**

| Courses | Cr. Hrs. |
|---|---|
| PHYS 501 Fundamentals of Physics 1 | 4 |
| PHIL 530 Critical Thinking | 4 |
| SPCH 550 Public Speaking | 4 |
| PSYCH 755, 756 or 757 Developmental Psychology | 4 |
| HPES Activity | 1 |
| | 17 |

### SECOND YEAR

**FALL QUARTER (Pre-Professional PT)**

| Courses | Cr. Hrs. |
|---|---|
| BIOL 792/L Intro. to Animal Physiology | 5 |
| PHYS 502/L Fundamentals of Physics 2 | 4 |
| PHIL 600 Introduction to Philosophy | 4 |
| MATEC 605 Pharmacology | 4 |
| | 17 |

**WINTER QUARTER (Pre-Professional PT)**

| Courses | Cr. Hrs. |
|---|---|
| SOCIO 703 Sociology of Aging | 4 |
| ANTHR 711 Cultural Anthropology | 4 |
| BIS 613 Microcomputer Applications | 4 |
| PSYCH 702 Abnormal Psychology | 4 |
| | 16 |

**SPRING QUARTER (Pre-Professional PT)**

| Courses | Cr. Hrs. |
|---|---|
| BIOL 710/710L Mammalian Anatomy | 4 |
| PHIL 825 Biomedical Ethics | 4 |
| MATH 714 Probability and Statistics | 5 |
| HPES Activity | 1 |
| HPES Activity | 1 |
| HSC 590 Health Education | 3 |
| | 18 |

**SUMMER QUARTER (Professional PT)**

| Courses | Cr. Hrs. |
|---|---|
| BIOL 868 Gross Anatomy 1 | 4 |
| HPES 795 Kinesiology | 4 |
| PHYTH 700 Intro. to Physical Therapy | 4 |
| | 12 |

### THIRD YEAR

**FALL QUARTER (Professional PT)**

| Courses | Cr. Hrs. |
|---|---|
| BIOL 869 Gross Anatomy 2 | 4 |
| BIOL 832 Principles of Neurobiology | 4 |

HPES 896 Physiology of Exercise .....4
PHYTH 701 P.T. Procedures 1 .....2
PHYTH 701L P.T. Procedures 1 Lab .....1

15

**WINTER QUARTER (Professional PT)**

| Courses | Cr. Hrs. |
|---|---|
| BIOL 829 Neuroanatomy | 4 |
| PHYTH 703 Pathology | 3 |
| PHYTH 702 P.T. Procedures 2 | 3 |
| PHYTH 702L P.T. Procedures 2 Lab | 2 |
| PHYTH 710 Physical Agents 1 | 4 |
| PHYTH 710L Physical Agents 1 Lab | 1 |
| | 17 |

**SPRING QUARTER (Professional PT)**

| Courses | Cr. Hrs. |
|---|---|
| PHYTH 711 Physical Agents 2 | 4 |
| PHYTH 711L Physical Agents 2 Lab | 1 |
| PHYTH 704 The Musculoskeletal System | 3 |
| AHLTH 806 Research Methodology for Health Sciences | 4 |
| PHYTH 720 Clinical Education 1 | 3 |
| AHLTH 801 Special Topics in Allied Health | 2 |
| | 17 |

**SUMMER QUARTER (Professional PT)**

| Courses | Cr. Hrs. |
|---|---|
| PHYTH 721 Clinical Education 2 (10 weeks) | 8 |
| | 8 |

**FOURTH YEAR**

**FALL QUARTER (Professional PT)**

| Courses | Cr. Hrs. |
|---|---|
| PHYTH 805 The Neuromuscular System | 3 |
| AHLTH 810 Management Skills for Health Care Supervisor | 4 |
| *HPES 714 Fitness Management | 4 |
| PHYTH 830 Therapeutic Exercise 1 | 2 |
| PHYTH 830L Therapeutic Exercise 1 Lab | 1 |
| PHYTH 822 Clinical Education 3 | 2 |
| | 16 |

**WINTER QUARTER (Professional PT)**

| Courses | Cr. Hrs. |
|---|---|
| HPES 770 Physical Activity and Aging | 3 |
| PHYTH 831 Therapeutic Exercise 2 | 2 |
| PHYTH 831L Therapeutic Exercise 2 Lab | 1 |
| PHYTH 823 Clinical Education 4 | 4 |
| AHLTH 730 Cardiopulmonary Stress Testing | 4 |
| | 14 |

**SPRING QUARTER (Professional PT)**

| Courses | Cr. Hrs. |
|---|---|
| PHYTH 824 Clinical Education 5 | 8 |
| *AHLTH 820 Directed Individual Research | 2 |
| *AHLTH 801 Special Topics in Allied Health | 2 |
| | 12 |

**Total Credit Hours .....211**

*Permission of Physical Therapy faculty necessary to register for these classes.

# RESPIRATORY CARE

*Associate Professor Harris (Program Coordinator); Assistant Professor Boehm.*

Respiratory care is an Allied Health profession concerned with the diagnostic evaluation, treatment, and management of patients with cardiopulmonary disorders. The respiratory care practitioner (RCP) is proficient in the therapeutic administration of medical gases and aerosols, intermittent and continuous mechanical ventilation, broncho-pulmonary hygiene, basic and advanced cardiac life support techniques, non-invasive patient monitoring, pulmonary function evaluation, arterial blood gas analysis, airway management procedures and pulmonary rehabilitation techniques. A licensed RCP must also be knowledgeable regarding various assessment techniques and patient education models. These skills are utilized with neonatal, pediatric, and adult patients in acute, subacute, and home care settings.

To function effectively as a member of the multidisciplinary health care team, the RCP must have a sound understanding of the physiological and psychological needs of the patient, the role of the various therapeutic interventions in the patient care plan, and development of broad-based skills to more effectively contribute to the overall care of the patient. Theory and laboratory experiences are provided prior to the student's entry into the clinical education phase of the program. Clinical affiliates include St. Elizabeth Hospital Medical Center, Western Reserve Care System, Trumbull Memorial Hospital, Youngstown Osteopathic Hospital, Robinson Memorial Hospital, St. Joseph Riverside Hospital, Hillside Rehabilitation Hospital, Alliance Community Hospital, Family Home Medical, Boardman Medical Supply, and Liken Medical.

500. *Introduction to Respiratory Therapy Clinics.* This course will give initial exposures to respiratory technician students in basic procedures and patient assessment techniques. It is also designed to familiarize the student with the hospital environment and functioning. Five clinic hours. Must be taken concurrently with RESPC 501. 1 q.h.

*501. *Introduction to Respiratory Care.* The scope of the respiratory care field including role in health care industry, key personnel and organization, and basic therapeutic procedures. Three hours lecture and three hours lab. Prereq.: Acceptance into Respiratory Care Program. 4 q.h.

*502. *Introduction to Respiratory Care Equipment.* An in-depth study of major equipment classifications and their application to clinical respiratory care. Three hours lecture and three hours laboratory. Prereq.: RESPC 501. 4 q.h.

*503. *Respiratory Procedures 1.* Appropriate use of selected respiratory care procedures. Three hours lecture and three hours lab. Prereq.: RESPC 502. 4 q.h.

*Additional fee required.

504. *Clinical Practice 1.* Practice in administering oxygen and other therapeutic gases to the patient by means of cannula, cathetic, and mask humidifiers by prefilled, disposable or permanent humidifiers. Clinical use of ultrasonic nebulizers, IPPB machines, and chest physiotherapy. Maintenance and sterilization of equipment relating to the prevention of nosocomial infections. Thirty clinical hours. Must be taken concurrently with RESPC 503. 5 q.h.

507. *Introduction to Pulmonary Disease.* An overview of cardiopulmonary disorders frequently encountered by respiratory care practitioners. Also included will be discussion of the treatment regimens utilized with these disorders. Prereq.: RESPC 502 or permission of instructor. 2 q.h.

520. *Respiratory Care Assessment 1.* Techniques used in evaluating patients with cardiopulmonary disorders. Two hours lecture and two hours lab. Prereq.: RESPC 501. 3 q.h.

601. *Respiratory Procedures 2.* A study of the principles and practices of airway management, CPR and emergency procedures, manual resuscitators, and pulmonary rehabilitation is included. Must be taken concurrently with RESPC 601L. Prereq.: RESPC 503. 3 q.h.

*601L. *Respiratory Procedures 2 Lab.* Performance of fundamental techniques employed in airway management, CPR, and pulmonary rehabilitation is required. Three hours a week lab. Must be taken concurrently with RESPC 601. Prereq.: RESPC 503. 1 q.h.

602. *Clinical Practice 2.* Emphasis on airway management, cardiopulmonary resuscitation, and emergency procedures related to the apneic patient. Management of patients on mechanical ventilators with blood gas analysis. Maintenance of equipment used in these procedures. Twenty-five clinical hours. Prereq.: RESPC 504. 5 q.h.

603. *Pathology for Respiratory Care.* Types of inflammation. Pathology of respiratory and cardiovascular systems. Three hours of lecture; three hours of lab. Prereq.: BIOL 552 and BIOL 560. 4 q.h.

604. *Respiratory Procedures 3.* Theory and therapy incorporating state of the art mechanical ventilators. Also included is the psychological aspects of long term mechanical ventilation. Must be taken concurrently with RESPC 604L. Prereq.: RESPC 503. 3 q.h.

*604L. *Respiratory Procedures 3 Lab.* Application and troubleshooting with mechanical ventilators in a simulated patient setting, including 3rd-generation microprocessor ventilators. 5 hours per week lab. Must be taken concurrently with RESPC 604. Prereq.: 503. 2 q.h.

605. *Clinical Practice 3.* Operation and maintenance of pulmonary function equipment and the drawing and interpretation of arterial blood gases. Twenty-five clinical hours. Prereq.: RESPC 602. 5 q.h.

606. *Pulmonary Function and Blood Gas Analysis.* Ventilatory and respiratory insufficiency problems that can be diagnosed and evaluated by pulmonary function studies to include A-a O2 gradients and carbon monoxide diffusion studies. Evaluation of normal and abnormal acid-base balance through blood gas analysis is included. Must be taken concurrently with RESPC 606L. Prereq.: RESPC 502. 3 q.h.

*606L. *Pulmonary Function and Blood Gas Analysis Lab.* Use of equipment and analysis of data incorporating up to date pulmonary function analyzers. 3 hour lab per week. Must be taken concurrently with RESPC 606. Prereq.: RESPC 502. 1 q.h.

607. *Clinical Practice 4.* Advanced studies of mechanical ventilation, pulmonary functions, blood gases, and adult and pediatric respiratory therapy. Thirty clinical hours. Prereq.: RESPC 605. 5 q.h.

608. *Clinical Specialties.* Respiratory therapy applications in medical practice, including pathology, internal medicine, neurology, surgery, pediatrics, and obstetrics, and fluid and electrolyte balance. The role of the respiratory therapist as a member of the specialized health-care team. Three hours of lecture, three hours of laboratory. 4 q.h.

*609. *Pediatric Respiratory Care.* This course is designed to encompass the various components of neonatal and pediatric respiratory care. The study of disease entities, specialized equipment and its application to pediatric patients will be investigated. Two hours lecture and three hours lab. Prereq.: RESPC 601 or permission of instructor. 3 q.h.

*610L. *Cardio-Pulmonary Diagnostics Lab.* Theory and practice in setting up and evaluating EKGs. Basic and advanced dysrhythmia identification and recommended pharmacuetical interventions will also be discussed. Experience with 12 lead EKGs, telemetry, and hardwire monitoring equipment is included. Three hours laboratory. Prereq.: RESPC 606 or permission of instructor. 1 q.h.

620. *Respiratory Care Assessment 2.* Advanced techniques in the assessment of cardiopulmonary disorders. Three hours lecture and two hours lab. Prereq.: RESPC 520. 4 q.h.

621. *Cardiopulmonary Disease.* Review of cardiopulmonary disorders encountered by respiratory care practitioners. Prereq.: RESPC 620 or permission of instructor. 4 q.h.

699. *Introduction to Respiratory Care Clinics.* Orientation to hospital and department policies, including exposure to and practice with basic respiratory care procedures. Five hours a week in clinics. Prereq.: RESPC 621. 1 q.h.

700. *Clinical Practice 1.* Application of Respiratory Care modalities. Includes basic aerosols, $0_2$, BPH, and lung inflation therapy and assessment. Ten hours a week. Prereq.: RESPC 699. 2 q.h.

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*Additional fee required.

701. *Respiratory Procedures 2.* Airway management techniques, basic EKG recognition, and other critical care procedures. Two hours lecture and three hours lab. Prereq.: RESPC 620. 3 q.h.

702. *Clinical Practice 2.* Application of respiratory care modalities. Includes basic procedures, PFT, and orientation to neonatal and adult critical care. Twenty-five hours a week. Prereq.: RESPC 700. 5 q.h.

708. *Clinical Specialties for Respiratory Care.* Fundamentals of hemodynamic monitoring, management of burn patients, and assessment of neurotrauma. Three hours lecture and three hours lab. Prereq.: RESPC 701. 4 q.h.

709. *Neonatal/Pediatric Respiratory Care.* Respiratory care applications in neonatal/pediatric settings. Three hours lecture and three hours laboratory. Prereq.: RESPC 701. 4 q.h.

710. *Cardiopulmonary Neurodiagnostics.* Theory and practice in setting up and evaluating advanced EKGs. Also included will be Holter and EEG evaluation. One hour lecture and two hours lab. Prereq.: RESPC 708 or permission of instructor. 2 q.h.

720. *Mechanical Ventilation 1.* Basic theory and application of mechanical ventilation in critical care areas. Two hours lecture and three hours lab. Prereq.: RESPC 708. 3 q.h.

725. *Mechanical Ventilation 2.* Advanced theory and application of mechanical ventilation. Includes home care ventilators. Three hours lecture and three hours lab. Prereq.: RESPC 720. 4 q.h.

730. *Cardiopulmonary Stress Testing.* A study of the basic physiologic response to exercise and the clinical significance of stress testing. Relationships of test results and disease process are also discussed. Prereq.: RESPC 708 or permission of instructor. 3 q.h.

731. *Respiratory Therapy Management.* A study of the basic managerial process, organizational concepts, budgeting, quantitative planning, decision-making, and issues of control as they relate to the manager of a hospital-based respiratory care department. Prereq.: RESPC 725. 3 q.h.

750. *Rehabilitation and Preventive Pulmonary Care.* Demonstration of the multidisciplinary nature of a pulmonary rehabilitation program. Also included is the role of the respiratory care practitioner in preventive care activities. Prereq.: RESPC 701. 3 q.h.

760. *Clinical Practice 3.* Application of respiratory care modalities. Includes critical care skills, advanced assessment and diagnostics for pediatric and adult patients. Twenty hours a week. Prereq.: RESPC 702. 4 q.h.

825. *Clinical Practice 4.* Application of respiratory care modalities. Includes critical care skills and long-term ventilator care in skilled nursing facilities. Twenty hours a week. Prereq.: RESPC 760. 4 q.h.

826. *Clinical Practice 5.* Application of respiratory care modalities. Includes specialty rotations with cardiopulmonary diagnostics, home care companies and public health agencies. Fifteen hours a week. Prereq.: RESPC 825. 3 q.h.

827. *Respiratory Care Leadership Practicum.* Clinical experience with respiratory care professionals primarily involved in managerial or education settings. Ten hours clinics per week. Prereq.: RESPC 826. 2 q.h.

831. *Pulmonary Case Management.* Pathology as it relates to care of patients with pulmonary-related disorders. Prereq.: RESPC 725. 4 q.h.

## RESPIRATORY CARE TECHNOLOGY FOUR-YEAR THERAPIST CURRICULUM

### FIRST YEAR
### FALL QUARTER

| Courses | Cr. Hrs. |
|---|---|
| MATEC 501 Medical Terminology | 4 |
| CHEM 505 Chemistry for the Allied Health Sciences 1 | 4 |
| BIOL 551 Physiology and Anatomy 1 | 4 |
| Elective | 4 |
| | 16 |

### WINTER QUARTER

| Courses | Cr. Hrs. |
|---|---|
| CHEM 506 Chemistry for the Allied Health Sciences 2 | 4 |
| BIOL 552 Physiology and Anatomy 2 | 4 |
| ENGL 550 Composition 1 | 4 |
| PSYCH 560 Introduction to Psychology | 4 |
| | 16 |

### SPRING QUARTER

| Courses | Cr. Hrs. |
|---|---|
| SOCIO 500 Fundamentals of Sociology | 4 |
| MATEC 502 Medical Law and Ethics | 4 |
| RESPC 501 Introduction to Respiratory Care | 4 |
| HSC 590 Health Education | 3 |
| | 15 |

### SECOND YEAR
### FALL QUARTER

| Courses | Cr. Hrs. |
|---|---|
| RESPC 520 Respiratory Care Assessment 1 | 3 |
| MATEC 605 Introduction to Pharmacology | 4 |
| BIOL 560 Paramedical Microbiology | 5 |
| COMM 550 Public Speaking | 4 |
| | 16 |

### WINTER QUARTER

| Courses | Cr. Hrs. |
|---|---|
| ENGL 551 Composition 2 | 4 |
| PHIL 530 Critical Thinking | 4 |
| RESPC 502 Introduction to RESPC Equipment | 4 |
| SOCIO 703 Sociology of Aging | 4 |
| | 16 |

SPRING QUARTER

| Courses | Cr. Hrs. |
|---|---|
| BIS 613 Microcomputer Applications | 4 |
| RESPC 503 Respiratory Procedures 1 | 4 |
| RESPC 620 Respiratory Care Assessment 2 | 4 |
| PHYS 506 Physics for Health Sciences | 4 |
| | 16 |

SUMMER QUARTER

| Courses | Cr. Hrs. |
|---|---|
| RESPC 621 Cardiopulmonary Disease Activity | 4 |
| Activity | 1 |
| | 5 |

THIRD YEAR
FALL QUARTER

| Courses | Cr. Hrs. |
|---|---|
| AHLTH 705 Pharmacotherapeutics | 4 |
| AHLTH 808 Environmental Concerns for Health Care Practitioners | 4 |
| RESPC 701 Respiratory Procedures 2 | 3 |
| RESPC 709 Neonatal/Pediatric Respiratory Care | 4 |
| RESPC 699 Intro to Respiratory Care Clinics | 1 |
| | 16 |

WINTER QUARTER

| Courses | Cr. Hrs. |
|---|---|
| RESPC 708 Clinical Specialties for Resp. Care | 4 |
| RESPC 710 Cardiopulmonary Neurodiagnostics | 2 |
| RESPC 700 Clinical Practice 1 | 2 |
| RESPC 750 Rehabilitation & Preventative Care | 3 |
| AHLTH 803 Current Issues in Health Care | 4 |
| | 15 |

SPRING QUARTER

| Courses | Cr. Hrs. |
|---|---|
| AHLTH 806 Research Methodology | 4 |
| RESPC 720 Mechanical Ventilation 1 | 4 |
| RESPC 702 Clinical Practice 2 | 5 |
| RESPC 730 Cardiopulmonary Stress Testing | 3 |
| | 16 |

SUMMER QUARTER

| Courses | Cr. Hrs. |
|---|---|
| RESPC 725 Mechanical Ventilation 2 | 4 |
| RESPC 760 Clinical Practice 3 | 4 |
| | 8 |

FOURTH YEAR
FALL QUARTER

| Courses | Cr. Hrs. |
|---|---|
| RESPC 731 Respiratory Service Management | 3 |
| RESPC 825 Clinical Practice 4 | 4 |
| RESPC 831 Pulmonary Case Management | 4 |
| AHLTH 812 Advanced Cardiac Life Support | 3 |
| Activity | 1 |
| | 15 |

WINTER QUARTER

| Courses | Cr. Hrs. |
|---|---|
| Social Science Elective | 4 |
| RESPC 826 Clinical Practice 5 | 3 |
| AHLTH 801 Special Topics | 2 |
| AHLTH 814 International Health Care System | 3 |
| Activity | 1 |
| | 13 |

SPRING QUARTER

| Courses | Cr. Hrs. |
|---|---|
| RESPC 827 Respiratory Care Leadership Practicum | 2 |
| AHLTH 807 Epidemiology | 4 |
| AHLTH 820 Directed Individual Research | 2 |
| AHLTH 825 Neonatal Resuscitation Program | 2 |
| AHLTH 830 Pediatric Advanced Life Support | 2 |
| HUMAN Elective | 4 |
| | 16 |
| **Total Program Hours** | **199** |

# DEPARTMENT OF CRIMINAL JUSTICE

*Professors Cummings, Lateef (Chair) Pierce, Swank and Waldron; Associate Professor Conser; Assistant Professor Billak.*

Youngstown State University offers two undergraduate programs in Criminal Justice: a two-year program in Criminal Justice leading to the degree Associate in Applied Science and a four-year program leading to the degree Bachelor of Science in Applied Science with a major in Criminal Justice. The four-year degree is built upon a core-track concept with emphasis (track) areas in Law Enforcement Administration, Corrections, Legal Processes in Justice and Security/Safety (Loss Prevention) Administration.

The department also offers minors in three emphasis areas: general criminal justice, law enforcement administration, and corrections.

A certificate in private security and public safety is also available. A departmental advisor should be consulted about the requirements.

In each undergraduate area and certificate program, a grade of C or better must be received in each required Criminal Justice course.

A graduate program leading to the Master of Science degree in Criminal Justice with emphasis in police administration, correctional administration, and program planning and evaluation is also available. Refer to the Graduate School catalog for details.

## ASSOCIATE IN APPLIED SCIENCE DEGREE

The Associate degree in Criminal Justice is considered appropriate for persons preparing for employment in many municipal, state and private police agencies as well as persons considering employment

in local, state, federal, and private correctional facilities. The Associate degree also is a stepping stone for those students who plan to go on for a bachelor's degree. The Associate degree in Criminal Justice has two tracks, a Police track and a Correction track. The program requires 96 quarter hours, with 43 hours in general degree requirements, 24 hours in criminal justice core courses, 12 hours in the selected track and 10 hours in criminal justice electives. The remaining hours can be taken as general electives. Transfer students must take at least 20 quarter hours of Criminal Justice course work at Youngstown State University. The Associate degree in Criminal Justice curriculum follows the course descriptions in the bulletin.

Associate degree is built upon core/track concept with emphasis (track) areas in Police and Corrections. Core courses for an Associate degree include CRJUST 500, 601, 602, 603, 630, and 719. Emphasis area in Police requires any 12 credit hours from CRJUS 648, 714, 714L, 722, and 765. Emphasis area in Corrections requires any 12 credit hours from CRJUS 701, 702, 702L, 703, and 735. In addition, student must take 10 credit hours of electives in the Criminal Justice Department.

## BACHELOR OF SCIENCE IN APPLIED SCIENCE DEGREE

All Bachelor of Science in Applied Science students must complete a minimum of 55 quarter hours of criminal justice courses of which 20 quarter hours or more must be taken from upper division courses.

Transfer students must complete a minimum of 20 hours in criminal justice courses at YSU. All majors must complete the core requirements: CRJUS 500, 601, 602, 603, 630, 710, 712, 715, 719 plus one emphasis area. Each major must also complete the courses required in the emphasis area selected.

The purpose of each emphasis area is as follows:

The program in Law Enforcement Administration is designed for persons preparing for employment in municipal, state, and private agencies; federal law enforcement agencies; administrative postitions in municipal or state agencies; or as instructors in police education programs. Courses required: CRJUS 714, 714L, 722 and 870.

The program in Corrections is offered for students preparing for a career in probation, parole, or institutional services with either adults or juveniles. Courses required: CRJUS 701, 702L, 703 and 875.

The program in Legal Processes in Justice is designed for students preparing for law school, court administration, para-legal work or legal research positions. Courses required: CRJUS 621, 720, 722, 825 and 890.

The program in Security/Safety (Loss Prevention) Administration is offered to students preparing for a career in private security or the protection of assetss in corporate, retail, or industrial settings. Courses required: CRJUS 648, 700, 748 and 848.

Minors — A minor consisting of 21 hours must also be selected. The student must choose a minor from a department other than Criminal Justice. The general catalog and departmental advisors should be consulted for minor requirements. The department requires that a minimum of 8 hours be completed from upper division courses.

In addition to the requirements for a minimum of 45 hours of C grades or better in the major, a grade of C or better must be received in each required Criminal Justice course in order to satisfy the departmental requirements for the degree.

In addition to the requirements for a minimum of 45 hours of C grades or better in the major, a grade of C or better must be received in each required Criminal Justice course in order to satisfy the departmental requirement.

### Lower Division Courses

500. *Introduction to Criminal Justice.* An overview of the American criminal justice process with emphasis upon its constitutional foundations, its constitutional limits, and the rights of the individual from arrest through sentencing and release. 4 q.h.

601. *Law Enforcement In the United States.* The evolution, structure, and functions of modern police organizations; the role of police in a democratic society; the impact of social, economic, and political influences; contemporary practices and controversial issues. Prereq.: CRJUS 500. 4 q.h.

602. *American Criminal Courts.* The structure and function of criminal courts in the American society, perceptions of national commissions, organization, administration, and caseflow relationships with appropriate social agencies. Prereq.: CRJUS 500 or permission of the instructor. 4 q.h.

603. *Corrections in America.* Development and description of the American correctional systems' history and philosophy: the constitutional foundations of its control, and the rights of those within it. An overview of treatment approaches. Prereq.: CRJUS 500. 4 q.h.

621. *Evidence.* The admissibility of evidence, the hearsay rule and its exceptions, opinion evidence, circumstantial evidence, documentary evidence, presumptions, corpus delicti, and evidentiary privileges. Prereq.: CRJUS 500. 4 q.h.

630. *Criminology.* Study of the social context of crime in American society, including a review of historical theories offered in explanation of criminal behavior. Identical with SOCIO 630. 4 q.h.

648. *Introduction to Crime Prevention.* Basic concepts and strategies of crime prevention and the protection of assets in the public and private sectors. 4 q.h.

653. *Traffic Law and Investigation.* Study of traffic laws concerning operator licensing equipment requirements, and vehicle-related offenses; legal considerations and enforcement philosophy; accident

investigation techniques, reports and records; evaluation of accident problems and determining offenses involved. Prereq.: CRJUS 601. 4 q.h.

## Upper Division Courses

700. *Fire and Safety.* Municipal, industrial, and other fire protection services: fire detection and suppression systems, and special emphasis on fire safety at industrial and commercial locations. 4 q.h.

701. *Probation and Parole.* An examination of the theory and practices of probation and parole with juvenile and adult offenders. Prereq.: CRJUS 603. 4 q.h.

702. *Institutional-Community Corrections.* Contemporary theory, practice, and research findings in the administration of juvenile and adult correctional facilities. Community-based programs and institutional resources will be examined within the perspectives of prevention, control, and rehabilitation of the criminal offender. Prereq.: CRJUS 603. Must be taken concurrently with CRJUS 702L. 3 q.h.

*702L. *Field Techniques in Institutional-Community Corrections.* Contact, observational, and on-site examination and comparison of community programs, and institutional facilities varying from half-way houses, jails, and medium to maximum security institutions. On-site contact will involve 6 hours per week, usually on a single day. Facilities in Ohio and Pennsylvania will be selected. Prereq.: CRJUS 603 and must be taken concurrently with CRJUS 702. 3 q.h.

703. *Correctional Case Management.* Theory and techniques of counseling and interviewing the correctional client. Field and clinical situations are simulated to provide experience in interviewing and report writing. Prereq.: CRJUS 701. 4 q.h.

710. *Social Statistics 1.* Cross-listed with SOCIO 701. 4 q.h.

711. *Social Statistics 2.* Cross-listed with SOCIO 702. 4 q.h.

712. *Criminal Justice Research.* Analysis of the major components of social research, including research design, sampling, measurement, data collection, and analysis and interpretation of findings. Prereq.: CRJUS 710. 4 q.h.

714. *Forensic Science Investigation.* Scientific study of the significance of physical materials associated with crime scenes and qualitative and quantitative analytical concepts in the examination of the physical evidence. Must be taken concurrently with CRJUS 714L. Prereq.: CRJUS 601. 4 q.h.

*714L. *Forensic Science in Investigation Laboratory.* Techniques and procedures in crime scene processing with special emphasis upon legal and scientific aspects of the physical evidence. Experiments and demonstrations concerning the examination of the physical and chemical properties of physical evidence. One laboratory class per week of 3 hours. Taken concurrently with CRJUS 714. Prereq.: CRJUS 601. 1 q.h.

*Additional fee required.

715. *Criminal Justice Management Concepts* Modern criminal justice management theory; organizational behavior, organizational development, personnel management, executive decision making, supervision problems. Prereq.: CRJUS 601. 4 q.h.

719. *Criminal Law.* Development, theories, and purposes of criminal law; elements of a crime, parties to a crime. Prereq.: CRJUS 602. 4 q.h.

720. *Legal Terminology and Research.* History, meaning, and usage of terms for legal secretaries, court reporters, and paralegals. Emphasis will be given to the vocabulary of legal research and the vocabulary of legal writing with application to research problems in labor, business real estate, and criminal law. Prereq.: CRJUS 630 or permission of instructor. 4 q.h.

722. *Criminal Procedure.* Legal and practical applications of the laws of arrest, criminal procedure, search and seizure, court structures, and federal civil rights. Prereq.: CRJUS 602. 4 q.h.

735. *Juvenile Delinquency.* Social and Psychological factors underlying delinquency; the juvenile court and probation; treatment and preventative measures. Cross-listed with SOCIO 735. Prereq.: SOCIO 500. 4 q.h.

748. *Commercial and Industrial Security.* Plant protection, merchandising safety and security; credit and insurance investigative procedures. Prereq.: CRJUS 648. 4 q.h.

749. *Drug Abuse.* Causes and effects of drug abuse. Problems of law enforcement and dangers to public safety caused by drug abuse. Identifications, classification and characteristics of different types of drugs. Impact of drug abuse on American criminal justice system. Prereq.: CRJUS 601. 4 q.h.

765. *Human Relations in Criminal Justice.* Methods of coping with conflicts arising from law violation intervention; programs for improving interpersonal relations between police and the community. Prereq.: SOCIO 500, PSYCH 560, and 12 q.h. in CRJUS. 4 q.h.

770. *Ohio Criminal Code.* Examination of code, noting construction of statutes, procedural rules, proof required for charges, defenses, basis of criminal liability, and the 11 degrees of offenses, penalties, and criteria for sentencing. Prereq.: CRJUS 719. 4 q.h.

799. *Directed Individual Study.* The individual study or research of a special problem or issue related to the criminal justice field. Application must be made to the department prior to registration. May be repeated once for a maximum of five quarter hours of credit. Prereq.: Senior standing, 20 hours of criminal justice courses, and approval of instructor. 2-3 q.h.

807. *Criminal Justice Internship.* Field experiences in an appropriate criminal justice agency under the direction of experienced and qualified professionals. The grading is CR/NC. May be repeated for a maximum of 12 q.h. Prereq.: Junior standing in CRJUS and CRJUS 715. 4-12 q.h.

825. *Constitutional Issues in Criminal Law.* Examination in depth of the constitutional foundations of the American criminal justice process with special emphasis upon recent supreme court decision, state and federal legislation affecting criminal law. Prereq.: Senior standing. 4 q.h.

826. *Forensic Science and the Criminal Justice System.* A review of the impact of forensic science on the criminal justice system, discussion of future applications, constitutional considerations and the significance of physical evidence. Emphasis is given to management responsibilities with respect to the criminalistics laboratory. Prereq.: Senior standing. 4 q.h.

836. *Theory of Criminal Behavior.* An analysis of theory and research on epidemiology and etiology of crime. Prereq.: CRJUS 630. 4 q.h.

848. *Legal and Managerial Aspects of Security.* Emphasis on security standards, policy, and regulation at the state and federal levels as they impact on the security function. Administrative decisions regarding implementation of a security program in view of legal, technological, and behavioral considerations. Applications focus on selected public and private enterprises. Prereq.: CRJUS 748 or senior standing. 4 q.h.

850. *Contemporary Problems in Criminal Justice.* Lectures on contemporary issues in the criminal justice area. Topics are announced prior to enrollment. Prereq.: Senior standing or permission of instructor. 4 q.h.

870. *Law Enforcement Administration.* Detailed examination of the administration of line and staff services of law enforcement agencies and the role of technology in administration. Prereq.: CRJUS 715. 4 q.h.

875. *The Juvenile Justice System.* An in-depth analysis of the specialized agencies and procedures developed to deal with problems of juveniles from a historical and philosophical perspective. Consideration is given to the juvenile court, community-based programs, as well as to institutionalization. Prereq.: Senior standing. 4 q.h.

890. *Judicial Administration.* Court management is studied in light of structure, judicial responsibility and the inherent power of the courts. Consideration is given to case flow, case management, automation and judicial staffing. Prereq.: CRJUS 602 and senior standing or instructor's permission. 4 q.h.

## POLICE SCIENCE TECHNOLOGY CURRICULUM

### GENERAL DEGREE REQUIREMENTS

| Courses | Cr. Hrs. |
|---|---|
| **English:** | |
| ENGL 550 Composition 1 | 4 |
| ENGL 551 Composition 2 | 4 |
| *HSC 590 Health Education | 3 |
| **Humanities:** | |
| ENGL or HUMAN literature courses (600 or above); literature in FNLG, PHIL or RELIG HIST and/or Appreciation in ART, SPCH and Drama, or MUSIC; and BLKST 2 | 8 |
| **Science:** | |
| ASTRO, BIOL, CHEM, GEOL, Physical GEOG, or PHYS | 8 |
| **Social Studies:** | |
| Electives in two or more of the following departments: ECON, GEOG, HIST, POLIT, SOCIO, PSYCH, & BLKST 1 16 | |
| Electives | 7 |
| | 50 |

### DEPARTMENT REQUIREMENTS (CRJUS)

(course in parenthesis indicates prerequisite)

| | |
|---|---|
| 500 Introduction to Criminal Justice | 4 |
| 601 Law Enforcement in the U.S. (500) | 4 |
| 602 American Criminal Courts (500) | 4 |
| 603 Corrections in America (500) | 4 |
| 630 Criminology | 4 |
| 719 Criminal Law (602) | 4 |

Select 12 hours MINIMUM FROM ONE OF THE FOLLOWING TRACKS:

| POLICE | OR | CORRECTIONS |
|---|---|---|
| 648 4 | | 701 (603) 4 |
| 714 (601) 4 | | 702 (603) 3 |
| 714L (601) 1 | | 702L (603) 3 |
| 722 (602) 4 | | 703 (710) 4 |
| 765 4 | | 735 4 |
| (SOCIO 500, PSYCH 560, and 12 q.h. in CRJUS) | | (SOCIO 500) |

| | |
|---|---|
| CRJUS Electives | 10 |
| **TOTAL CRIMINAL JUSTICE HOURS** | **46** |

Sixteen hours in Criminal Justice must be taken at YSU.

| | |
|---|---|
| Total Academic Hours | 93 |
| *Non-academic Hours | 3 |
| Total Hours for Degree | 96 |

MUST have a 'C' or better in EACH REQUIRED Criminal Justice course. MUST have an overall YSU point average of 2.00 to be eligible for graduation. Make sure you have the proper prerequisites for all courses you wish to take. ENGL 550 and 551 must be completed within the first 90 hours of coursework. A student with high school deficiencies must enroll in at least one course in either area during each quarter until deficiencies are completed.

## HEALTH SCIENCES

*Professor Liptak (Chair); Associate Professor Mikanowicz; Assistant Professors Akpom, Scott.*

The Department of Health Sciences seeks to contribute to the goals of Youngstown State University by providing opportunities to become effective health educators and to attain high level wellness.

*See modifications for R.O.T.C students in catalog.

## Required Courses

Three hours of credit in health education 590 are required for graduation. HSC 590 is waived for registered nurses. Veterans who have served at least one full year can receive health education credit for service. This is detailed under the heading 'Veterans' in the YSU catalog.

Health may be the major subject for the following degree programs: Bachelor of Science in Education (B.S. in Education) and the Bachelor of Arts (A.B.). The B.S. in Education leads to a special provisional certificate for school health teachers K-12. The A.B. program is intended for those interested in patient education, workplace wellness programs, or community health education. Students interested in the programs should consult with an advisor in the Health Sciences Department.

Requirements for each of the two programs are as follows:

**A.B. DEGREE PROGRAM:** ENGL 550, 551, SPCH 550, PHIL 600, 825, BIOL 551, 552, 560, PSYCH 560, SOCIO 500, 700, HSC 590, three hours of physical education activity. Foreign Language requirements vary–see your advisor. Additional general university requirements include 8 hours in the humanities, and 4 hours in the social sciences. Core requirements in the major include: HSC 596, 601, 604, 606L, 609, 680, 691, 692, 693, 700, 731, 755, 756, 791, 792, 799, 820, 827, 891, 892, 899, HMEC 551, 551L, SPCH 653, MGT 725, SOCIO 700.

All students in the A.B. program must have a minor. A minor consists of 21 hours within a discipline. Recommended minors for A.B. students include Social Work, Psychology, Sociology and Nutrition.

**B.S. in EDUCATION:** ENGL 550, 551, SPCH 554, 8 hours in the humanities area, BIOL 551, 552, 560, any MATH 512 or above, PSYCH 560, 709, 755, 756, SOCIO. 500, HSC 590, three hours of physical education activity. Core requirements in the major include: EDUC 501, 700, 702, 704, 706, 706L, 708, 710, 730, 845, HSC 596, 601, 604, 606L, 680, 691, 692, 693, 721, 731, 755, 756, 791, 794, 820, 827, 892, 899, HMEC 551, 551L, CHEM 502.

Those students seeking teaching certification in Health must apply for upper division in the College of Education when completing 90 hours of credit.

Any individual in the B.S. in Education program should consult with the College of Education when choosing an additional teaching field. An additional teaching field in Health Education consists of 45 quarter hours and leads to certification in grades 7-12.

### COURSES

590. *Strategies for Health and Wellness.* Designed to help the student improve personal health/wellness. Emphasis on prevention, risk reduction, decision making, and problem solving. Areas of study include emotional/social well being, stress, nutrition, sexuality and relationships, sexually transmitted diseases, contraception, violence, alcohol, nicotine, and other drugs. 3 q.h.

596. *Foundations of Health Education.* An overview of Health Education including its principles and objectives in school and community settings. 2 q.h.

*601. *First Aid and Emergency Care.* Personal safety and emergency care practices. Advanced certification will be offered. 2 hours lecture and 2 hours laboratory. Taught by Health Sciences instructors, same as MILSC 503. 3 q.h.

*604. *Cardio-Pulmonary Resuscitation.* Basic life-support methods including artificial circulation and clearing obstructed airways. Certification will be offered. Two hours laboratory practice per week. 1 q.h.

606L. *Pre-Professional Experience.* Students participate in an approved school health or a community health education program under faculty supervision. The students observe and assist in the organization and/or teaching of programs. Prereq.: HSC 596. 1 q.h.

608. *Issues in Environmental Health Education.* The role of health education in the study of issues related to the environment. Emphasis placed on the acquisition of skills needed to become an agent of positive environmental change. Prereq.: HSC 590 or GEOG 603. 3 q.h.

680. *School Health Program.* School health programs with emphasis on school health services, healthful school living, and administration. Prereq.: HSC 590. 4 q.h.

691. *Health and Stress.* Stress and its relationship to health and wellness. Emphasis on causes, prevention and management. Prereq.: HSC 590. 3 q.h.

692. *Human Sexuality.* An interdisciplinary approach to the study of human sexuality. Holistic approach dealing with questions that concern the college student of today. Includes problems in sex education, the nature of sexuality, the relationship of sex to personal identity, and sexual mobility. Factual information will be given in the areas of physiological reproduction, contraception, venereal disease, sexual disfunctions, techniques, and response. Listed also as BIOL 692, PSYCH 692, and SOCIO 692. Prereq.: HSC 590. Does not count toward general University requirements. 4 q.h.

693. *Consumer Health Issues.* An examination of health services, products, information, resources and safety issues that relate to the consumer's decision-making process. Students receiving credit for HSC 730 will not receive credit for HSC 693. Prereq.: HSC 590. 3 q.h.

700. *Community Health Materials and Methods.* Effectively providing community health information to special population groups. Emphasis on the selection of appropriate methods and materials. Prereq.: HSC 596, SPCH 550, or consent of instructor; 2 hours lecture and 2 hour of lab and/or field experience. 3 q.h.

*Additional fee required.

721. *Health Education in the Elementary Grades.* Lecture includes curricula, principles, planning, methods and materials for the teaching of health in the elementary schools. Approximately 15 hours of laboratory and/or field work required. Prereq.: HSC 590 and upper division status in the College of Education. 3 q.h.

731. *Drug Use and Abuse.* Drugs and their relationship to health and wellness. Emphasis on physiological effects, patterns of drug use and abuse, and drug abuse prevention. Students receiving credit for HSC 730 will not receive credit for HSC 731. Prereq.: HSC 590. 3 q.h.

755. *Health and Communicable Disease.* A study of the major communicable diseases affecting human health. Emphasis is on etiology and prevention. Prereq.: BIOL 551 and 552. 3 q.h.

756. *Health and Chronic Disease.* A study of the major chronic diseases affecting human health. Emphasis is on etiology and prevention. Prereq.: BIOL 551 and 552. 4 q.h.

791. *Community Health.* A study of the need for organized community health efforts: problems of chronic and communicable diseases, environmental health, world health, etc., and the public and private agencies involved in their solutions. Prereq.: HSC 590. 4 q.h.

*792. *Community Health Planning.* Designed to provide the health educator with the fundamental techniques for developing comunity health programs. Includes needs assessments, methods and materials, implementation and evaluation. One hour lecture and two hours lab. Prereq.: HSC 606L; 791; and 691 or 693 or 731. 2 q.h.

794. *Secondary School Health Education.* Curricula, principles, planning, methods, and materials for teaching health in secondary schools. Laboratory and/or field work required. Two hours lecture, four hours laboratory a week. Prereq.: Upper division status in the College of Education. 4 q.h.

799. *Health Promotion in the Community Setting.* The application of the fundamental techniques of planning specific programs in the workplace, hospital or community settings. Two hours lecture, two hours lab. Prereq.: HSC 792 3 q.h.

800. *Selected Topics in Health Education.* The in-depth study of special subject matter within Health Education. Topics will be announced each time the course is offered. May be repeated with change in topic up to eight hours. Prereq.: Junior standing or consent of instructor. 1-4 q.h.

801. *Field Work in Health Education.* Designed to provide the health education major with a supervised teaching or agency experience. Four hours per week is required. Prereq.: HSC 791 and either 794 or 799. 2 q.h.

*820. *Computer Applications in Health Education.* Integrating the use of computers in school and community health education. No previous computer experience necessary. Two hours lecture, two hours lab. Prereq.: HSC 590, 596, 680 and 791 or permission of instructor. 3 q.h.

827. *Health Program Evaluations.* Stategies to assess the impact of health education in the school and health promotion in the community. Emphasis placed on basic evaluative methods and applications. Prereq.: HSC 794 or HSC 799; HSC 820, HSC 609. Two hours lecture and two hours of lab and/or field experience. 3 q.h.

891. *Community Health Internship.* Supervised experience designed to provide an opportunity to plan, implement and evaluate a program in an approved community health setting. Approximately 35 hours per week. Prereq.: Completion of all required health education courses in the Bachelor of Arts degree program. 12 q.h.

892. *The Teaching of Controversial Topics in Health Education.* To prepare educators to teach in such areas as human sexuality, alcohol, drugs, and values. Two hours lecture and two hours lab. Prereq.: HSC 792 or any educational methods course. 3 q.h.

893. *Workshop in Health Education.* Concentrated study of a selected topic related to health education. The department will select and announce the topic and determine the credit hours based on frequency and duration of workshop meetings. May be repeated for a maximum of eight hours with change in topic. Prereq.: HSC 721 or consent of instructor. 1-4 q.h.

899. *Seminar: Health.* Special and current problems in health education. Prereq.: senior standing and consent of instructor. 2 q.h.

## DEPARTMENT OF HUMAN ECOLOGY

*Professors Beaubien, Varma; Associate Professors, Abou-Ela, Campbell, Elias (Chair), Hassel; Assistant Professor Pavia; Instructor Howse.*

The Department of Human Ecology offers six programs: two-year programs in Pre-Kindergarten Associate, Dietetic Technology and Hospitality Management each leading to the Associate in Applied Science degree; four-year programs in Food and Nutrition (Dietetics), Home Economics Services, and Merchandising: Fashion & Interiors, each leading to the Bachelor of Science in Applied Science degree; and (in conjunction with the College of Education) a four-year program in Vocational Home Economics Education, leading to the Bachelor of Science in Education degree with the major in Home Economics.

Non-majors may elect human ecology courses for general educational purposes.

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*Additional fee required.

For any degree, associate or baccalaureate, the student must satisfy the general University requirements (See "General Requirements and Regulations") as well as the particular requirements for the special field or fields. Curriculum sheets for all programs are available at the department office or from faculty advisors.

## PRE-KINDERGARTEN ASSOCIATE

*Professor Beaubien, Program Coordinator*

This associate degree program leads to Associate Certification in Pre-Kindergarten Education. Graduates are qualified to teach in, or manage, licensed daycare and preschool programs, and are eligible for associate pre-kindergarten teacher certification. All of the coursework is applicable to the bachelor's pre-kindergarten program, and most of it can be applied toward a bachelor's degree in Home Ecomonics Services or to Home Economics Education. Within the framework of their required courses, students complete 300 hours of clinical/field work as required by the State Department of Education. A suggested schedule is provided at the end of this section.

## PRE-KINDERGARTEN EDUCATION

This ICP Bachelor's program leads to pre-kindergarten certification. An undergraduate student seeking certification in Pre-Kindergarten Education must complete all courses of the two year pre-kindergarten associate program, a specified series of general education courses, and upper division professional education courses designed to meet state certification standards.

In addition all students are required to complete a 30 quarter hour area of concentration. Because of the wide range of choices available in this component, students should seek assistance from academic advisors in the Human Ecology Department.

**Validation of Certificates**

Persons certified for teaching kindergarten/primary, elementary, home economics and/or special education may obtain validation for pre-kindergarten teaching by completing 30 quarter hours of prescribed courses including pre-kindergarten student teaching.

## DIETETIC TECHNOLOGY

The program is approved by The American Dietetic Association. Graduates of the program who successfully write the Registration Examination for Dietetic Technicians are entitled to use the initials "DTR", to signify professional competence.

Graduates of this program are qualified to work as technicians under the supervision of a registered dietitian (R.D.) in dietary departments of hospitals and nursing homes, and are also employable in commercial food-service systems.

A suggested schedule is provided at the end of this section. Many courses can be applied toward the B.S. in A.S. degree with a major in Food and Nutrition (Dietetics).

## HOSPITALITY MANAGEMENT

The Hospitality Management Program provides students with the knowledge and skills needed to be successful and competent in this fast-growing field — not only in the United States, but throughout the world.

This two-year program in Hospitality Management leads to an Associate in Applied Science Degree (AAS) with a major in Hospitality Management. Courses from this program are applicable toward four year degrees. A suggested schedule is provided at the end of this section.

## FOOD AND NUTRITION (DIETETICS)

*Professor Varma.*

This four-year program meets the Didactic Program of Dietetics (DPD) requirements of the American Dietetic Association, and graduates are eligible to apply for internships in clinical or general dietetics.

Upon completion of a fifth-year dietetic internship, or an approved pre-professional practice program, students may apply for the registration examination given by the American Dietetic Association. Successful completion of the written examination brings designation as a registered dietitian (R.D.).

In addition to the general University requirements, the courses required for the four-year Food and Nutrition program are: HMEC 550, 771, 802, 850; FNUTR 551, 551L, 603, 603L, 606, 606L, 609, 611, 611L, 618, 759, 760, 810, 810L, 858, 862, 862L, 872, 873, 874; CHFAM 731; CHEM 505/L, 506/L, 705; BIOL 551/L, 552/L, 604/L; SOCIO 500; ECON 530; PSYCH 560, 709; ANTHR 602; CIS 520; ACCTG 602; MGT 725, 750, 804; FOUND 872.

## Coordinated Program in Dietetics (CPD)

*Associate Professor Hassell, Program Coordinator.*

This program which prepares students for general dietetic practice and includes clinical as well as didactic study is accredited by The American Dietetic Association. Each student spends 900 hours in approved clinical sites during the two years of the CPD. Graduates are eligible to take the examination to become registered dietitians.

Admission to the CPD is restricted since only a limited number of students can be accommodated. Satisfactory completion of a minimum of 96 quarter hours (to qualify for junior status) is required before the student begins the program. Detailed information regarding criteria and procedures is available from the Department of Human Ecology. Students are admitted to the CPD only in Fall, and start the program during Fall quarter. The current closing date for applications and all credentials is:

April 7 - for the succeeding Fall Quarter

In addition to the general University requirements and those required for the four year Food and Nutrition program are:

FNUTR 750, 759L, 760L, 858L, 860L, 872L, 874L, 885, and HMEC 802L.

FNUTR 862L is not required in the CPD Program.

The prescribed sequence of CPD courses, which must be followed by all students, appears at the end of this section.

## MERCHANDISING: FASHION & INTERIORS

*Instructor Howse. (Program Coordinator).*

Merchandising: Fashion & Interiors is an interdisciplinary program offered through the departments of Human Ecology and Marketing. Students complete a block of interdisciplinary courses, and general and professional courses for their specific degrees. The program has a strong academic base in economics, the sciences, communication and computers. All students will have the opportunity for field experiences in various levels and types of merchandising. The program in the Human Ecology Department leads to a Bachelor of Science in Applied Science degree.

Merchandising: Fashion & Interiors prepares students for a variety of positions in manufacturing and retailing of apparel, furnishings, accessories and personal care products.

Interdisciplinary requirements are MERCH/MKTG 525, 635, MGT 604, 725, MKTG 625, 703, 709, 731, 733, 809, 848, MERCH 705, 764, 780, ADVER 704, HMEC 835.

Human Ecology Department requirements: HMEC 550, 771, 850, BUTEC 513, FNUTR 543, MERCH 642, 805, CHFAM 731 and an emphasis in either Interiors or Fashion. For required emphasis courses, see the Program Coordinator.

## HOME ECONOMICS SERVICES

Home Economics Services leads to a Bachelor of Science in Applied Science degree. Options in community or consumer services are available.

The consumer services option is for students who are interested in a business career in consumer education, hospitality, foodservice, or food product development and marketing. A business related minor is required.

The community services option is for students with an interest in family studies or child development who plan careers in human services. A minor in a social science is required.

Contact the Human Ecology Department for curriculum requirements of the program which is currently in revision.

## VOCATIONAL HOME ECONOMICS EDUCATION

The Vocational Home Economics Education major leads to a Bachelor of Science in Education. The student may choose from the following teacher certification options: 1. Secondary Home Economics; 2. Vocational Home Economics-Consumer/Homemaking; 3. Vocational Home Economics-Job Training with endorsements in: a. Multi Area Cooperative; b. Community and Home Service; c. Food Service; d. Fabric Service; e. Child Care Service. More than one certificate may be obtained by completing requirements as listed for each certificate.

Students who earn certification in Secondary Home Economics may have that certificate validated for prekindergarten teaching by adding the following courses: HMEC 875, 664 or 886, 859, CHFAM 663, and EDUC 811, 811A.

Vocational Home Economics Education is jointly administered by the School of Education and the Department of Human Ecology. The student should refer to the section of the catalog detailing requirements for the Department of Secondary Education. The student is a major in Secondary Education with a teaching field of Home Economics. Academic advisors in the College of Education as well as the Human Ecology teacher educator in the Department of Human Ecology should be consulted regularly.

In addition to all general University and College of Education Requirements, the general education component for all home economics education students includes CHEM 501 and eight additional hours in biology or chemistry, PSYCH 560, SOCIO 500, ECON 520.

The professional education sequence of courses is listed under Administration and Secondary Education. However, home economics majors omit EDUC 702 and EDUC 800 and are required to take HMEC 771 and 799. Subject matter courses required for all certifications are HMEC 550, 850 and CHFAM 731. Listed below are additional courses for each option:

1. Secondary Home Economics: MERCH 506, 508, 604, 705, 763, 764; FNUTR 551, 552, 606; HMEC 780, 852; CHFAM 706; BIOL 604 and PSYCH 755.
2. Vocational Home Economics-Consumer/Homemaking: All courses listed for Secondary Home Economics except MERCH 604. Add CHFAM 631, 893 and HSC 692.
3. Vocational Home Economics-Job Training: All endorsements require HMEC 835, 890, MATH 506 and BUTEC 500.
   a. Multi-Area Cooperative: All courses listed for Secondary Home Economics except HMEC 604 and 800. Add HMEC 514.
   b. Community and Home Service: HMEC 551, 606, 606L, 611, 611L, 632, 652, 705, 706, 763, 780, 830, 852, 875, BIOL 604, PSYCH 755.

c. Food Service: HMEC 551, 552, 606, 606L, 609, 610, 611, 611L, 628, 763, 780 or 852, 810, BIOL 604.

d. Fabric Service: HMEC 506, 508, 525, 543, 604, 635, 702, 703, 705, 763, 764, 780 or 852, 730 or 888, 875, ART 502.

e. Child Care Service: HMEC 514, 531, 543 or 672, 631, 632, 706, 663, 664, 763 or 764, 780 or 852, HPES 623, ELED 630, PSYCH 755, MUSIC 722, ART 759.

## Courses

550. *Home Economics Profession.* History, philosophy, current trends and careers; interrelationships of the specialized areas of home economics; development of personal and professional attitudes and values relevant to practice in each specialization. Prereq.: EPT placement in English 550 or completion of English 540. 2 q.h.

670. *Special Topics in Home Economics.* Selected home economics topics based on needs and interests of students. May be repeated for a total of eight quarter hours with change of topics. Not applicable to Home Economics major. 2-4 q.h.

771. *Presentation Techniques.* Application of demonstration, audio-visual, and public relations tools and techniques in communicating Home Economics information to target groups from pre-schoolers to adults. Two hours of lecture and four hours of lab per week. Prereq.: Eight hours of Home Economics credit and ENGL 550 and SPCH 550 or equivalent speech course. 4 q.h.

780. *Consumer Economics.* Managing the family's economic resources through use of the decision- making process. Current consumer issues and sources of information for consumers. Prereq.: ECON 520 or ECON 510. 4 q.h.

799. *Vocational Home Economics Education.* History, philosophy, scope and requirements of vocational home economics programs. Prereq.: HMEC 550 or EDUC 501. 1 q.h.

800. *Consumer and Homemaking Education.* Methods of organization, instruction and evaluation in vocational consumer home economics programs. Prereq. or concurrent: HMEC 799. 3 q.h.

802. *Research Methods in Home Economics.* Overview of research methodology and applications in the field of nutrition, dietetics, and home economics. Prereq.: MATH 714 or EDUC 872. 2 q.h.

802L. *Research Methods in Home Economics Laboratory.* Applications of basic concepts of research methodology and statistics to dietetic practice. Four hours of laboratory each week. To be taken concurrently with HMEC 802. 2 q.h.

830. *Homemaker Rehabilitation.* Analysis of the changes needed for the worker and the work environment of the home. Consideration of the personal and financial costs of homemaker disability to the individual and the family. Prereq.: CHFAM 731 or equivalent. 4 q.h.

835. *Field Experience in Home Economics.* Internship in a community agency or commercial enterprise related to home economics. Four hours of experience or two hours of seminar weekly equal one credit hour. May be repeated for up to eight (8) hours of credit. Prereq.: Twelve hours of Home Economics credit and junior standing. Student must file application one quarter prior to registering. 4-8 q.h.

850. *Contemporary Issues.* Interrelationships of the specializations in human ecology in addressing public policy issues as they affect the family and the profession. Prereq.: HMEC 550 and CHFAM 731; junior standing and 30 hours of Human Ecology Department courses required. 2 q.h.

852. *Family Resource Management.* A systems view of family functioning with emphasis on managerial decision making and effective use of resources. Prereq.: CHFAM 731 or PSYCH 707 or SOCIO 705. 4 q.h.

853. *Family Management Experience.* Application of family resource management theory to specific perennial family problems. Two hour seminar and 4 hours of experience in consumer and homemaking activities. Prereq. or concurrent: HMEC 852. 3 q.h.

870. *Home Economics Workshop.* Special workshops in a professional area of Home Economics as needed. Prereq.: Junior standing. 2-4 q.h.

875. *Directed Individual Study.* Individual study or research of a special problem or issue related to home economics. Application must be made with the department prior to registration. Prereq.: 12 hours of Home Economics credit and Senior Standing. 1-3 q.h.

890. *Occupational Home Economics Education.* Methods of organization, instruction, and evaluation in food service, fabric service, child care, community and home service, and multi-area cooperative home economics programs. Prereq. or concurrent: HMEC 799. 3 q.h.

892. *Community Programming.* Development of home economics programs for special populations including adults, aging, disadvantaged, displaced homemakers, teenage parents, handicapped and others with special needs. Prereq.: CHFAM 731. 4 q.h.

893. *Work and Family.* Interaction of work and family systems; implications for education, business and human services; development of programs to assist individuals in balancing multiple roles. Prereq.: CHFAM 731, SOCIO 705 or PSYCH 707. 3 q.h.

895.*International Studies in Home Economics.* Professional areas of home economics and their relationship to native cultures are the focus of travel to designated countries. Class sessions and travel as well as pre-tour and post-tour assignments and evaluation based on course objectives are supervised by Home Economics faculty. Prereq.: CHFAM 731, Junior Standing, and permission of instructor and HMEC department chair. 2-6 q.h.

## Food and Nutrition (FNUTR)

502. *Nutrition Fundamentals.* Basic nutrition principles and their relation to growth, development, and the maintenance of health. Not applicable to Food and Nutrition major or minor. 4 q.h.

543. *Personal Nutrition.* Basic normal nutrition adaptable to individual lifestyles throughout the lifespan. Emphasis on valid nutrition information, wellness and healthful food choices. 2 q.h.

551. *Normal Nutrition 1.* The fundamentals of normal nutrition as they apply to health; nutritional needs during various stages of the life cycle; dietary guides and their application to the selection of adequate diets; problems of nutritional deficiencies and excesses. Prereq.: CHEM 501 or equivalent. 4 q.h.

*551L. *Nutrition Laboratory.* Principles, procedures, techniques used in assessing the normal diet and nutritional status in healthy individuals. Four hours of lab a week. Prereq.: MATH 511 or 512 or high school equivalent; FNUTR 551 (or concurrent). 2 q.h.

552. *Food Management.* Nutritional, aesthetic, social, and economic factors in planning and preparation of meals. 2 q.h.

*552L. *Food Management Laboratory.* Application of principles from FNUTR 552. Four hours laboratory per week. Must be taken concurrently with FNUTR 552. 2 q.h.

603. *Diet Therapy.* Principles and methods of diet modifications for common diseases; planning and evaluation of modified diets; application of computers for diet analysis. Must be taken concurrently with 603L. Prereq.: FNUTR 551L; BIOL 552. 4 q.h.

*603L. *Diet Therapy Lab.* Application of basic principles of diet therapy; nutritional assessment; diet calculations. Two hours laboratory per week. Must be taken concurrently with FNUTR 603. 1 q.h.

606. *Food Science.* The physical and chemical properties of food. Basic principles and methods in selection, purchase and preparation. Prereq.: High school laboratory science course; MATH 509 or equivalent; FNUTR 552 or high school food course. 4 q.h.

*606L. *Food Science Laboratory.* Application of principles from HMEC 606. Must be taken concurrently with FNUTR 606. Six hours of laboratory weekly. 2 q.h.

609. *Food Systems 1: Operations.* The fundamentals of food system operations including menu planning, purchasing of foods and equipment, care of foods and equipment, efficient work methods, budget and cost control in foodservice departments. Prereq.: FNUTR 552 and 552L or FNUTR 606 and 606L. 4 q.h.

609L. *Food Systems 1: Clinical Experience.* Observation of foodservice facility organization and management function; participation in the operations of a clinical foodservice facility. Six hours of clinical experience per week. Prereq.: BUTEC 580 with a grade of C or better, prerequisite or concurrent with FNUTR 609 and 610. 2 q.h.

610. *Organization and Management.* Concepts of organization and management related to hospitality/health care; selecting, training, developing and supervising for the advancement of personnel. Emphasis will be placed on labor-management relations and legal aspects of the management-guest relationship with particular attention to personal and property liability. 4 q.h.

611. *Food Systems 2: Production and Service.* Standards, principles and techniques in quantity food production and "front-of-the-house" management and service. Must be taken concurrently with HMEC 611L. Prereq.: FNUTR 609. 2 q.h.

*611L. *Food System 2: Laboratory.* Application of quantity food production principles and procedures to the preparation and service of regularly scheduled luncheons for groups in the Home Economics facilities. Nine hours of laboratory a week. Must be taken concurrently with FNUTR 611. 3 q.h.

613L. *Nutritional Care Clinical Experience.* Application of nutritional care process in a hospital setting. Includes conferences, 2 hour on-campus seminar, and 6 hours supervised clinical experience per week. Prereq.: FNUTR 603, 603L. 4 q.h.

618. *Preclinical Skills.* Employee evaluation and client assessment: interviewing, counseling, documentation, application of educational and socioeconomic principles in planning/teaching positive behaviors. Prereq.: FNUTR 551L. 3 q.h.

628. *Practicum in Dietetic Technology.* Experience in supervision of food production; assisting in the assessment, documentation and teaching of the individual patient. Twenty-one hours of clinical experience per week. Overall GPA of 2.2 required. Prereq.: FNUTR 609L, 611, 611L, 613L; CHEM 505; and application filed with instructor one quarter prior to registration for course. 3 q.h.

650. *Seminar in Dietetic Technology.* The role of the dietetic technician in the health care delivery system; overview of current opportunities in the foodservice field; standards of professional responsibility, practice and self-development. Must be taken concurrently with FNUTR 628. 1 q.h.

750. *Orientation to Dietetics.* Orientation to the clinical and administrative aspects of the dietetic profession. Prereq.: Admission into CPD. 1 q.h.

759. *Normal Nutrition 2.* Integrated approach to nutrition and health, emphasizing metabolism and functions of nutrients at the cellular level; nutritional needs for optimum health; problems of overnutrition and undernutrition. Prereq.: FNUTR 551, BIOL 552, CHEM 705 (or concurrent). 4 q.h.

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*Additional fee required.

*759L. *Normal Nutrition 2 Laboratory.* Selected clinical experiences providing opportunities for developing an understanding and working knowledge of the nutritional care process with focus on problems encountered in normal nutrition. Two hours of laboratory and two hours of lecture per week. Taken concurrently with FNUTR 759. 3 q.h.

760. *Clinical Nutrition.* The nature and etiology of diseases and the relationship of diet to good health and to disease processes; the special dietary needs of abnormal conditions. Prereq.: FNUTR 603, 759. 4 q.h.

*760L. *Clinical Nutrition Laboratory.* Selected clinical experiences providing opportunities for application of the nutritional care process to individuals exhibiting special nutritional needs. Six hours of laboratory and one hour of lecture per week. To be taken concurrently with FNUTR 760. 3 q.h.

761. *Nutrition and the Athlete.* Facets of nutrition of special relevance to athletes, such as carbohydrate-loading, protein intake, electrolyte imbalances, and crash diets. Prereq.: HSC 590. 3 q.h.

810. *Experimental Foods.* Advanced study of food science and technology; methodology of food research including evaluation by sensory and objective methods. Prereq.: CHEM 506; FNUTR 606. 3 q.h.

*810L. *Experimental Foods Laboratory.* Application of scientific principles and experimental procdedures to cooking processes. Must be taken concurrently with FNUTR 810. Three hours laboratory per week. 1 q.h.

825. *Current Nutrition Concepts.* Readings and critical appraisal of research literature in nutrition. Prereq.: FNUTR 759, CHEM 705. 4 q.h.

858. *Foodservice Systems Management.* Advanced foodservice systems management principles and pro cesses as they relate to resources and operating subsystems. Focus will be on subsystem interrelationships. Prereq.: FNUTR 611 and a minimum of 20 hours of Home Economics credit. 6 q.h.

*858L. *Foodservice Systems Management Laboratory.* Application of the management process to the hospital foodservice system. Twenty-five hours of supervised practice and one hour of lecture per week. Taken concurrently with FNUTR 858. 6 q.h.

860. *Advanced Clinical Nutrition.* Advanced study of the nature and etiology of disease conditions with focus on the complex dietetic problems accompanying them. Prereq.: FNUTR 760 or permission of instructor. 4 q.h.

*860L. *Advanced Clinical Nutrition Laboratory.* Clinical experiences providing opportunities for application of nutritional care process to individuals exhibiting complex abnormal nutritional needs. Ten hours of directed practice and one hour lecture per week. To be taken concurrently with FNUTR 860. 3 q.h.

862. *Food and Culture.* Food practices of selected world cultures. Evaluation of these practices in meeting dietary needs with consideration of the existing social, economic, and environmental conditions. Prereq.: CHFAM 731. 3 q.h.

*862L. *Food and Culture Laboratory.* Must be taken concurrently with FNUTR 862. Three hours laboratory weekly. 1 q.h.

871. *Nutrition in Family Medicine.* A life cycle approach to contemporary nutrition as applied to disease prevention and health promotion of individuals encountered in family practice. Stresses nutritional needs, assessment and problems; factors affecting the nutritional status; identification of the 'high risk' individuals and recommendations for appropriate nutritional care. Prereq.: CHEM 796 or 712 or 705. 4 q.h.

872. *Maternal and Child Nutrition.* Principles of the nutritional care process as it relates to the the maternal and pediatric population. Prereq.: FNUTR 760. 4 q.h.

*872L. *Maternal and Child Nutrition Laboratory.* Selected clinical experiences providing opportunities for application of nutritional care process to the maternal and child population. Five hours of clinical experience and one hour of lecture per week. Taken concurrently with FNUTR 872. 2 q.h.

873. *Nutrition and Aging.* Nutritional needs of the elderly as influenced by the aging process and disease states; factors affecting the food availability, food intake and nutritional status of the elderly; nutrition services for the elderly. Prereq.: FNUTR 760. 4 q.h.

874. *Community Nutrition.* Public Health nutrition programs and their services to the community. Special emphasis on needs of at-risk population groups such as the elderly. Prereq.: FNUTR 603. 2 q.h.

*874L. *Community Nutrition Laboratory.* Selected clinical experiences providing opportunities for application of the nutritional care process to individuals in community health care settings. Five hours of clinical experience and one hour of lecture per week. Taken concurrently with FNUTR 874. 2 q.h.

885. *Practicum in Dietetics.* Clinical experiences providing opportunities to integrate content and process principles of management and clinical dietetics into dietetic practice. Emphasis in the classroom is placed on current trends and practice in the field. Two hours of lecture and thirty-five hours of clinical experience per week. Prereq.: 860L, 858L, and Senior Standing. 7 q.h.

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*Additional fee required.

## Merchandising: Fashion & Interiors (MERCH)

*506. *Clothing Selection.* Image enhancement through selection, purchase and care of clothing. Influences on consumer clothing decisions throughout the life span. 3 q.h.

*508. *Clothing Construction.* Use of commercial patterns, basic alterations, fundamental techniques, and skills required for proficiency in construction of simple garments. Two hour lecture and four hours laboratory per week. 4 q.h.

525. *The World of Fashion.* Social, cultural and business aspects of fashion in apparel; career opportunities, current problems, challenges and strategies created by constant changes in retailing products which make up the near environment. Identical with MKTG 525. 3 q.h.

*604. *Advanced Clothing Construction.* Techniques in the construction of couture or tailored garments; the use of special fabrics; fitting and alteration of garments. Two hours of lecture and four hours of laboratory a week. Prereq.: MERCH 508. 4 q.h.

635. *Fashion Experience.* Projecting and maximizing an appropriate professional image consistent with goals and objectives; resources and processes for the analysis and forecasting of fashion trends; emphasis on influential designers; application of fashion theory. Prereq.: MERCH 525, MKTG 625. Identical with MKTG 635. 4 q.h.

*642. *Applied Fabric Design.* The use of dyes and needlework in clothing and home furnishings. One hour lecture and four hours laboratory. 3 q.h.

*702. *Design and Flat Pattern Making.* Developing greater understanding and skill in designing, fitting, and constructing garments. Making a basic pattern and creating new designs by the use of it. Two hours of lectures and four hours of laboratory per week. Prereq.: MERCH 508. 4 q.h.

*705. *Basic Textile Science.* Fundamentals of fibers, yarns, construction and finishes of natural and synthetic fabrics as they relate to selection, serviceability, care and use. Fiber testing, government regulations. Prereq.: CHEM 501 or high school equivalent. 4 q.h.

730. *Social and Psychological Aspects of Clothing.* Interdisciplinary study of clothing within the comprehensive context of its cultural, social, psychological, physical, economic and aesthetic relationships. Prereq.: SOCIO 500, PSYCH 560. 4 q.h.

763. *Technology in the Home.* Household equipment in residential design; includes planning of kitchen, laundry and home computer center. Prereq.: HMEC 550 or ART 502 or HMEC/MKTG 525. 4 q.h.

764. *Family Housing.* Planning the home environment to meet family needs and resources; consumer decisions in selection of residences, floor plans, color schemes and furnishings. Prereq.: PSYCH 560 and SOCIO 500. 4 q.h.

795. *Fashion Tour.* Concentrated on-site study of the fashion industry with tours of laboratories, designer workrooms, showrooms, buying offices and related organizations. Pre-tour orientations and written report of experience will be required. Prereq.: MERCH/MKTG 525 and acceptance of written application. 1-2 q.h.

805. *International Textile and Apparel Economy.* Scope and economic challenges of the global textile and apparel industries; problems, concepts, and theories relating to international trade within the textile complex. Prereq.: MERCH 525; ECON 622 MKTG 703. 4 q.h.

877. *Historic Costume.* The chronological study of costumes, silhouettes, accessories, and fabrics from ancient to modern times and their influences on current fashion with consideration of cultural forces that affected their development. Prereq.: 8 hours of humanities plus 8 hours of social studies and junior standing. 4 q.h.

879. *History of Interiors & Furnishings.* Study of furniture, interiors and decorative arts and designs from ancient times through the 20th century with emphasis on social/cultural factors that affected their development. Prereq.: 8 hours of humanities plus 8 hours of social studies, and junior standing. 4 q.h.

## Hospitality Management (HMGT)

500. *Hospitality Industry.* Overview of the field as a single, interrelated industry encompassing the restaurant business, institutional foodservice, hotel-motel operations, and tourism. Importance of technical skills, management skills, and service orientation. 4 q.h.

575. *Travel and Tourism.* A study of history, growth and future of travel and tourism to include the significance of the economic, social and political impact of travel and tourism; focus on markets, transportation, demographics, trends and financial significance related to the hospitality industry. 4 q.h.

600. *Front Office Procedures.* Operation and supervision of a hotel-motel front office. Computerized property management systems, reservations, registration, checkout, guest accounting, and handling guest needs. Three hours lecture, two hours lab. Prereq.: BIS 514 or BIS 613 or CIS 520. 4 q.h.

612. *Hospitality Fiscal Control 1.* Using the "Uniform System of Accounting for Small Hotels, Motels, and Motor Hotels," this course introduces the unique requirements of hospitality industry recordkeeping. Includes startups, safeguarding assets, and financial disclosure concepts and requirements. Prereq.: ACCTG 602. 4 q.h.

*Additional fee required.

619. *Housekeeping and Maintenance.* Administration and staffing, recordkeeping, forecasting of material needs and the evaluation of products. Emphasis on preventive maintenance, energy conservation and responsibilities of the engineering department. Prereq.: BIS 500 or MGT 511; HMGT 500. 3 q.h.

620. *Hospitality Security.* Security techniques used to enhance safety of persons and property, including loss prevention, administration, organization, emergency planning and liability. Prereq.: MGT 511; HMGT 500. 3 q.h.

625. *Food and Beverage Manangement.* Managerial duties and responsibilities in setting goals; forecasting, controlling quality and costs, and establishing policy in the successful operation of a food and beverage department. Prereq.: FNUTR 609. 3 q.h.

645. *Hospitality Marketing.* The application of basic marketing principles to successful sales of hospitality services. Methods, techniques and services for successful meetings and conventions. Prereq.: MKTG 703; BIS 514 or 613 or CIS 520; HMGT 500, 575. 4 q.h.

690. *Hospitality Internship.* Directed practice in a hospitality operation supervised by management. Written and oral reports required. One hour seminar and 10 hours of directed practice per week. Prereq.: HMGT 600, 619, 625; FNUTR 610, 611, 611L; BIS 514 or BIS 613 or CIS 520. Permit required. 3 q.h.

691. *Hospitality Cooperative Work Experience.* Work experience in which the student is expected to assume supervisory responsibilities within an assigned foodservice or lodging facility. One hour seminar and 20 hours work experience per week. Prereq.: HMGT 690. Permit required. 3 q.h.

## Child and Family (CHFAM)

514. *Prekindergarten Programs.* Each aspect of the preschool/day care program as it interfaces with family relationships and the development of the child. Thirty hours of field experience are required. 3 q.h.

531. *Infant and Toddler Care.* Guiding principles in the care of infants from conception to age two, with special attention to planned infant stimulation. Lecture, demonstrations, and observation. Course will include five hours of field/clinical experience. 3 q.h.

532. *Pre-School Child Care.* Care and guidance of 2-to-5-year-old children in a group setting; emphasis on behavior management. Course will include ten hours of field/clinical experience. 4 q.h.

631. *Parent Involvement.* Planning experiences and activities with and for parents which will provide continuity of child care between the home and the day care center. Course will include six hours of field/clinical experience. Prereq.: ENGL 551. 4 q.h.

632. *Child Health and Safety.* Health care practices applied to child care in group facilities; home nursing skills for non-health personnel. Students receive certification in first aid, communicable disease management and child abuse detection and prevention. Prereq.: HSC 590. 3 q.h.

663. *Professional Laboratory Experience Pre-Kindergarten.* Application of pre-kindergarten methods in community preschool settings. Includes conferences, 2 hour on-campus seminar and 14 hours supervised participation per week. Application for permit must be filed prior to registration. Prereq.: Good standing, completion of high school deficiencies, ENGL 551, EMCE 630, and CHFAM 706. 4 q.h.

664. *Management of Child Care.* The philosophy and organization of a child care center to include planning the environment, people and resources, recordkeeping, and legal and ethical aspects of pre-kindergarten education. Course will include fifteen hours of field/clinical experience. Prereq.: CHFAM 514 and 706. 4 q.h.

672. *Nutrition and the Young Child.* Nutritional needs of the developing child; implementation of quality foodservice in a child care setting; nutrition education of young children for development of desirable food habits. Course will include five hours of field/clinical experience. Prereq.: FNUTR 543 or 502 or 551. 4 q.h.

*706. *Preschool Laboratory.* Participation in the campus early child development laboratory. One hour lecture and 6 hours laboratory per week. Prereq. PSYCH 755; EMCE 630 or FOUND 501. 3 q.h.

716. *Infant Laboratory.* Observation and participation in infant and toddler programs. One hour lecture and six hours Laboratory per week. Prereq.: PSYCH 560; CHFAM 514 and 531. 3 q.h.

731. *Individual and Family Development.* The family ecosystems, dynamics and roles throughout the life span, and the impact of heritage and culture on family systems worldwide. Prereq.: PSYCH 560. 4 q.h.

833. *School-Age Child Care.* Developing and administering extended day and vacation programs for children K-6, in schools and other facilities. Prereq.: CHFAM 731 or EMCE 830. 3 q.h.

859. *Prekindergarten Teaching Methods and Materials.* Methods and techniques used to implement the pre-kindergarten curriculum with emphasis on communication and creative arts, social, emotional and physical development and concept formation. Required for prekindergarten validation of other teaching certificates. Prereq.: CHFAM 731 or equivalent. Identical with EMCE 859. 4 q.h.

866. *Administration of Prekindergarten Programs.* The role of the administrator of an early childhood center in coordination, management, budgeting, curriculum development, research, evaluation, advocacy and public policy formation. Course will include ten hours of field/clinical experience. Prereq.: CHFAM 706 & 664, or EMCE 841, or SEDUC 842. 4 q.h.

*Additional fee required.

## PRE-KINDERGARTEN ASSOCIATE CURRICULUM

### FIRST YEAR

| Courses | Cr. Hrs. |
|---|---|
| CHFAM 514 Pre-Kindergarten Programs | 3 |
| CHFAM 531 Infant and Toddler Care | 3 |
| CHFAM 532 Preschool Child Care | 4 |
| FNUTR 543 Personal Nutrition | 2 |
| HMEC 550 Home Economics Profession | 2 |
| CHFAM 632 Child Health and Safety | 3 |
| ENGL 550 Composition 1 | 4 |
| ENGL 551 Composition 2 | 4 |
| SOCIO 500 Fundamentals of Sociology | 4 |
| BIOL 505 Biology and the Modern World | 4 |
| PSYCH 560 General Psychology | 4 |
| HSC 590 Health Education | 3 |
| HPES 623 Physical Educ for the Preschool Child | 3 |
| Humanities Elective | 3-4 |
| PSYCH 755 Developmental Psych I | 4 |
| **Total Credit Hours** | **50-51** |

### Second Year

| Courses | Cr. Hrs. |
|---|---|
| CHFAM 631 Parent Involvement | 4 |
| CHFAM 663 Professional Lab Experience | 4 |
| CHFAM 664 Management of Child Care | 4 |
| CHFAM 672 Nutrition and the Young Child | 4 |
| CHFAM 706 Preschool Laboratory | 3 |
| CHFAM 716 Infant Laboratory | 3 |
| CHFAM 731 Individual and Family Devel. | 4 |
| EMCE 630 Creative Experiences in the Preschool | 4 |
| SPCH 705 Speech Problems of Children | 3 |
| MUSED 722 Music in Early Childhood | 3 |
| SCWK 726 The Black Family | 4 |
| SPED 731 Education of Young Handicapped Children | 4 |
| ART 761 Art Strategies for Preschool and Kindergarten Teachers | 4 |
| **Total Credit Hours** | **48** |
| **TOTAL CREDIT HOURS** | **98-99** |

## DIETETIC TECHNOLOGY CURRICULUM

### FIRST YEAR

| Courses | Cr. Hrs. |
|---|---|
| ENGL 550 Basic Composition 1 | 4 |
| ENGL 551 Basic Composition 2 | 4 |
| CHEM 505 Chemistry for Allied Health Sciences 1 | 4 |
| HMEC 550 Home Economics Profession | 2 |
| FNUTR 551 Normal Nutrition 1 | 4 |
| FNUTR 551L Nutrition Laboratory | 2 |
| SOCIO 500 Fundamentals | 4 |
| PSYCH 560 General Psychology | 4 |
| HSC 590 Health Education | 3 |
| FNUTR 606 Food Science 1 | 4 |
| FNUTR 606L Food Science 1 Lab | 2 |
| FNUTR 610 Organization and Management | 4 |
| BIOL 551 Anatomy & Physiology | 4 |
| BIOL 552 Anatomy & Physiology 2 | 4 |
| **Total Credit Hours** | **49** |

### Second Year

| Courses | Cr. Hrs. |
|---|---|
| ECON 530 Principles 1 | 4 |
| FNUTR 609 Food Systems 1: Operations | 4 |
| FNUTR 609L Food Systems 1: Laboratory | 2 |
| FNUTR 618 Preclinical Skills | 3 |
| FNUTR 603 Diet Therapy | 4 |
| FNUTR 603L Diet Therapy Lab | 1 |
| FNUTR 613L Nutr. Care Lab | 4 |
| BIOL 604 Food Microbiology | 4 |
| ACCTG 602 Financial Accounting | 4 |
| BIS 613 Microcomputer Applications | 4 |
| FNUTR 611 Food Systems 2: Production | 2 |
| FNUTR 611L Food Systems 2: Lab | 3 |
| FNUTR 628 Practicum | 3 |
| FNUTR 650 Seminar in Dietetic Technology | 1 |
| Electives | 5 |
| **Total Credit Hours** | **47** |
| **TOTAL CREDIT HOURS** | **96** |

## HOSPITALITY MANAGEMENT

### FIRST YEAR

| Courses | Cr. Hrs. |
|---|---|
| HMGT 500 Hospitality Industry | 4 |
| MGT 511 Introduction to Business | 3 |
| CIS 520 Data Processing Concepts | 4 |
| or | |
| BIS 514 Business Computer Systems 1 | 4 |
| FNUTR 543 Personal Nutrition | 2 |
| ENGL 550 Composition 1 | 4 |
| HMEC 550 Home Economic Profession | 2 |
| FNUTR 552 Food Management | 2 |
| FNUTR 552L Food Management Lab | 2 |
| MKTG 703 Fundamentals of Marketing | 5 |
| ACCTG 602 Financial Accounting | 4 |
| MATH Elective | 4 |
| HMGT 575 Travel and Tourism | 4 |
| HMGT 612 Hospitality Fiscal Control 1 | 4 |
| HMGT 600 Front Office Procedures | 4 |
| FNUTR 609 Food Systems 1: Operations | 4 |
| | 53 |

### SECOND YEAR

| Courses | Cr. Hrs. |
|---|---|
| FNUTR 610 Organization and Management | 4 |
| FNUTR 611 Food Systems 2: Production | 2 |
| FNUTR 611L Food Systems 2: Production Lab | 3 |
| HMGT 619 Housekeeping and Maintenance | 3 |
| HMGT 625 Food and Beverage Management | 4 |
| ENGL 551 Composition 2 | 4 |
| HSC 590 Health Education | 3 |
| SPCH 652 Business & Professional Speaking | 4 |

HMGT 645 Hospitality Marketing .....4
HMGT 690 Hospitality Internship .....3
SOCIO 500 Fundamentals of Sociology .....4
or
PSYCH 560 General Psychology .....4
MGT 604 Legal Environment of Business .....4
or
BIS 706 Business Law .....4
HMGT 620 Hospitality Security .....3
HMGT 691 Hospitality Cooperative Work Experience .....3

47

**Total Credit Hours .....99**

## COORDINATED PROGRAM IN DIETETICS (CPD)

### JUNIOR YEAR
### FIRST QUARTER

| Courses | Cr. Hrs |
|---|---|
| FNUTR 750 Orientation to Dietetics | 1 |
| FNUTR 759 Normal Nutrition 2 | 4 |
| FNUTR 759L Normal Nutrition 2 Lab | 3 |
| MGT 725 Fundamentals | 4 |
| HPES Activity | 1 |
| CHEM 705 Nutritional Biochemistry | 4 |
| | 17 |

### SECOND QUARTER

| Courses | Cr. Hrs. |
|---|---|
| FNUTR 760 Clinical Nutrition | 4 |
| FNUTR 760L Clinical Nutrition Lab | 3 |
| MGT 750 Human Behavior in Organizations | 4 |
| FOUND 872 Statistical Methods in Education | 3 |
| HPES Activity | 1 |
| | 15 |

### THIRD QUARTER

| Courses | Cr. Hrs |
|---|---|
| FNUTR 860 Advanced Clinical Nutrition | 4 |
| FNUTR 860L Advanced Clinical Nutrition Lab | 3 |
| FNUTR 810 Exp. Foods | 3 |
| FNUTR 810L Exp. Foods Lab | 1 |
| MGT 804 Human Resource Management 1 | 4 |
| HPES Activity | 1 |
| | 16 |

### FOURTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| HMEC 802 Research Methods | 2 |
| HMEC 802L Research Methods Lab | 2 |
| HUMAN Elective | 4 |
| | 8 |

### SENIOR YEAR
### FIFTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| FNUTR 872 Maternal and Child Nutrition | 4 |
| FNUTR 872L Maternal & Child Nutrition Lab | 2 |
| FNUTR 874 Community Nutrition | 2 |
| FNUTR 874L Community Nutrition Lab | 2 |
| FNUTR 862 Food and Culture | 3 |
| | 13 |

### SIXTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| FNUTR 858 Foodservice Systems Mgt | 6 |
| FNUTR 858L Foodservice Systems Mgt Lab | 6 |
| FNUTR 873 Nutrition and Aging | 4 |
| | 16 |

### SEVENTH QUARTER

| Courses | Cr. Hrs. |
|---|---|
| HMEC 850 Contemporary Issues | 2 |
| FNUTR 885 Practicum in Dietetics | 7 |
| Electives | 6-8 |
| | 15-17 |

## HUMAN PERFORMANCE AND EXERCISE SCIENCE

*Professors Longmuir, Ringer, Whitney and Wright (Chair); Associate Professors Mines and Ramsey; Assistant Professors Duncan, Hemminger, Matanin, Neville, Walker; Instructor Cobb.*

The goals of the Department of Human Performance and Exercise Science are to improve motor performance, develop health related lifetime fitness for the university community, and prepare students for related professions. These goals will be achieved by promoting and integrating scientific research related to Human Performance and Exercise Science as presented through focused programs of study and outreach services.

### Required Courses

Three hours of credit in physical education activity are required for graduation. The following three-hour courses will also fulfill the three hours in physical activities: HPES 630, 631, 632. HPES 589 fulfills two of the three hours in physical activity. The form of activity is chosen by the student, however, it is strongly recommended that students select courses which promote lifetime wellness or the improvement of motor performance. Activity courses are listed in each quarter's *Schedule of Classes*.

It is suggested that students confer with their physicians prior to enrolling in activity classes. Students with physical disabilities are urged to see their physicians or the nurse in the Health Services Office, Beeghly 200, and review activities which might be appropriate. Most activity classes can be adapted to one's personal abilities. Students are encouraged to discuss this with the instructor. If students have questions about how their personal doctor's recommendations may relate to the activity courses, the nurse in the Health Office may be able to make suggestions. Students with disabilities are encouraged to focus on their physical abilities and consider the social and physical benefits

that accrue from physical activity. If a student finds only one appropriate activity class, the student may request permission from the Department Chair (Beeghly 307) to take the same class three times for three credits. Otherwise the student will be expected to take three different courses.

Veterans who have served at least one full year can receive physical education credit for service. This is detailed under the heading "Veterans" in the YSU catalog. The following military science courses may be used to meet the activity requirement: 510 — 1 Hr., 520 — 1 Hr., 530 — 1 Hr., 610 — 1 Hr., or 615 — 1 Hr.

Members of the men's or women's varsity teams may receive physical activity credit through enrollment in HPES 549, varsity competition.

Locker and towel service is available. Students must provide their own clothing for activity classes and this attire must be appropriate to the activity. Most of the other equipment for physical education classes is available for use (a lab fee may be charged). A student wishing to use their own racket, golf clubs, bow, etc. may do so but is advised to consult with the instructor before buying new equipment.

### Physical Examinations

Since the following physical education activity courses may require strenuous physical activity, it is highly recommended that the student consult with a physician prior to enrolling in the course to determine whether they have any physical limitations which might adversely affect their participation.

## Human Performance and Exercise Science

Students interested in majoring or minoring in Human Performance and Exercise Science should consult with an advisor in the Department of Human Performance and Exercise Science.

### Professional Teacher Education Program

Youngstown State University is fully approved by the Ohio State Department of Education for the preparation of physical education teachers for public schools. The degree of Bachelor of Science in Education with a major in Physical Education leads to a Special Provisional Certificate (K-12).

Students interested in taking Physical Education as an additional teaching field must complete 47 quarter hours of specified course work leading to an Ohio High School Provisional Certificate.

Those students seeking teaching certificates in Physical Education must formally apply to the Department of Human Performance and Exercise Science when they have completed 75 hours of credit. Application forms and other information for formal admittance to the Department of Human Performance and Exercise Science may be obtained in the Department Office, Room 307, Beeghly Center.

## PHYSICAL EDUCATION, B.S. IN EDUCATION MAJOR CURRICULUM GUIDE

**Students should average 48 quarter hours per year**

**FIRST YEAR**

| Courses | Cr. Hrs. |
|---|---|
| ENGL 550, 551 | 4 + 4 |
| SCI ELECTIVE | 8 |
| FOUND 501 | 4 |
| Fine Arts Elective | 3-5 |
| SPCH 554 | 4 |
| HSC 590, 601 | 3 + 3 |
| HPES 595 | 2 |
| Gymnastics Activities | 2 |
| Team Sport Activities | 4 |
| Individual & Dual Sports Activities | 2 |
| HPES 589 | 2 |
| HPES 545 | 1 |
| HPES Aquatics | 1 |
| MATH 512 or above | 4-5 |

**SECOND YEAR**

| Courses | Cr. Hrs. |
|---|---|
| Humanities Elective | 4 |
| BIOL 551, 552 | 4 + 4 |
| PSYCH 560, 709 | 4 + 4 |
| PSYCH 755 or 756 | 4 |
| Social Science Elective | 4 |
| HPES 550, 551, 661 | 1 + 1 + 2 |
| HPES 670, 750 | 2 + 2 |
| Activity Elective | 2 |
| Individual & Dual Sports Activities | 3 |

**THIRD YEAR**

| Courses | Cr. Hrs. |
|---|---|
| SEDUC 704, 706, FOUND 708 | 3 + 4 + 4 |
| SEDUC 700, FOUND 702, SPED 730 | 2 + 1 + 2 |
| HPES 766, 795 | 3 + 4 |
| HPES 767 | 3 |
| HSC 680 | 4 |
| HPES 765, 768, 780 | 3 + 2 +2 |
| General Electives | |

**FOURTH YEAR**

| Courses | Cr. Hrs. |
|---|---|
| HPES 855, 860 | 4 + 4 |
| HPES 895, 896 | 3 + 4 |
| HPES 850 | 4 |
| SEDUC 846 | 15 |
| General Electives* | |

## COACHING EFFECTIVENESS MINOR

The coaching minor is available for those students interested in coaching. (Not applicable for physical education majors.) State of Ohio Department of Education Certificate is **not** available for coaches, however, the American Coaching Effectiveness Program (ACEP) does offer certification. Students interested in the coaching minor should consult with an advisor in the Department of Human Performance and Exercise Science.

*Electives should be applied toward minor field.

## BACHELOR OF SCIENCE IN APPLIED SCIENCE

The department of Human Performance and Exercise Science offers a Bachelor of Science in Applied Science Degree with a major in Exercise Science. This program prepares students for certification through the American College of Sports Medicine (ACSM) as Exercise Leaders and/or Health Fitness Instructors. Graduates are employed as personal trainers, corporate fitness directors, clinical exercise specialists, and in other positions which provide exercise and fitness programs.

**FIRST YEAR**

| Courses | Cr. Hrs. |
|---|---|
| ENGL 550, 551 | 4 +4 |
| BIOL 551, 552 | 4 +4 |
| SOCIO 500 | 4 |
| HPES 524 | 1 |
| HPES 555 | 1 |
| HPES 530 | 1 |
| HPES Elective | 1 |
| HPES 595 | 2 |
| HSC 590, 601, 604 | 3 + 3 +1 |
| PSYCH 560 | 4 |
| CHEM 505 | 4 |

**SECOND YEAR**

| Courses | Cr. Hrs. |
|---|---|
| PHYS 506 | 4 |
| MIN/EL Minor/Elective | 7 |
| BIS 613 | 4 |
| HPES 548 | 1 |
| HPES 588 | 1 |
| HPES 589 | 2 |
| HPES 557 | 1 |
| HPES 537 | 1 |
| HPES 795 | 4 |
| SOCIO 745 | 3 |
| HEC 551 | 4 |
| COMM 652 | 4 |
| MIN/EL Minor/Elective | 10 |
| HUMAN Humanities Elective | 4 |

**THIRD YEAR**

| Courses | Cr. Hrs. |
|---|---|
| HPES 616 | 4 |
| HPES 620 | 2 |
| HPES 723 | 4 |
| HUMAN Humanities Elective | 4 |
| MIN/EL Minor/Elective | 26 |
| PHIL 825 | 4 |
| PSYCH 734 | 4 |

**FOURTH YEAR**

| Courses | Cr. Hrs. |
|---|---|
| HPES 803 | 2 |
| MIN/EL Minor/Elective | 6 |
| HPES 805 | 4 |
| PSYCH 807 | 4 |
| HUMAN Humanities Elective | 4 |
| HPES 855 | 4 |
| HPES 860 | 4 |
| HPES 896 | 4 |
| HPES 887 | 12 |

## BACHELOR OF ARTS DEGREE PROGRAM IN PHYSICAL EDUCATION

This program is for students seeking careers in physical education outside the public school setting. The Bachelor of Arts degree program offers a non-teaching degree in Physical Education. Students interested in sports marketing or sports management should consult with an advisor in the Human Performance and Exercise Science Department.

Students seeking an AB degree in Physical Education must complete the following core courses: HSC 601, HPES 595, 618, 670, 765, 795, 851, 852, 855, 860, 895, 896, 898, and 7 activity courses from designated groups. Additional courses are required for each area of specialization. For a specific list please contact the Department of Human Performance and Exercise Science, Room 307, Beeghly Center.

### Activity Classes

*The following activity classes meet the University activity requirement and are scheduled as two contact hours a week for one hour's credit.*

502. *Volleyball 1.* Basic rules and fundamental skills of volleyball including serves, bump, overhead pass, and block. 1 q.h.

503. *Basketball.* Fundamental skills and techniques in basketball. Offensive and defensive team play and strategy. 1 q.h.

507. *Volleyball 2.* Intermediate-to-advanced volleyball skills including diving, rolling, and various team offensive and defensive strategies. Prereq.: HPES 502 or equivalent. 1 q.h.

*510. *Archery.* Techniques of target archery. Selection, care, and repair of equipment. 1 q.h.

*511. *Badminton.* Skills, mechanics, and rules of badminton. 1 q.h.

512. *Bowling 1.* Fundamentals of bowling the straight ball. Equipment selection, correction of errors, and scoring. Classes meet at McGuffey Classic Lanes. A fee is charged. For beginning bowlers. 1 q.h.

513. *Bowling 2.* Intermediate bowling. Refinement of bowling skills and use of the hook delivery. Tournament planning, team strategy, and competition. Classes are at McGuffey Classic Lanes. A fee is charged. Prereq.: HPES 512 or 100 average. 1 q.h.

*514. *Fencing 1.* Fundamentals of foil fencing. Methods of attack and parry, and elementary bouting and judging. 1 q.h.

*515. *Fencing 2.* Intermediate techniques and strategy of foil fencing and bouting. Prereq.: HPES 514 or consent of instructor. 1 q.h.

516. *Gymnastics 1.* Fundamentals and methods of stunts and tumbling with gymnastic conditioning. 1 q.h.

*Additional fee required.

517. *Gymnastics 2.* Fundamental techniques and methods of appropriate gymnastic apparatus and routine composition. Prereq.: HPES 516 or consent of instructor. 1 q.h.

518. *Gymnastics 3.* Techniques of coaching, spotting, and/or performing, with emphasis on methods and advanced skills. Prereq.: HPES 517 or competition experience or consent of instructor. 1 q.h.

*519. *Racquetball.* Racquetball rules and techniques for singles and doubles play. Basic strategy and skill development are emphasized. 1 q.h.

*520. *Golf 1.* Fundamental skills of golf. Includes grip, stance, swing patterns, and putting as well as rules of course play. 1 q.h.

*521. *Golf 2.* Intermediate Golf. Refinement of swing patterns, methods of instruction, and correction of errors. Emphasis on use of various clubs and types of shots. Prereq.: HPES 520 or intermediate skill. 1 q.h.

*524. *Physical Fitness and Exercise Programs.* Discussion of and participation in activities designed to develop and improve the health related aspects of physical fitness including weight and stress control. 1 q.h.

525. *Wrestling Skills for Teachers.* Basic techniques of wrestling. Offensive and defensive maneuvers, rules, officiating and methods of teaching. 1 q.h.

*526. *Marksmanship.* The safety and practice of handling firearms. Target shooting in prone, kneeling, and standing positions. Same as military science 610. 1 q.h.

527. *Handball.* Handball rules and techniques for singles and doubles play. Basic strategy and skill development are emphasized. 1 q.h.

*528. *Advanced Physical Fitness and Exercise Programs.* Discussion of and participation in strenuous activities designed to develop and improve the health and performance related aspects of physical fitness. Prereq.: Men: Run 1.50 miles in less than 13:00; Women: Run 1.25 miles in less than 13:00. 1 q.h.

*529. *Recreational Games.* Fundamentals, skills, techniques, strategy, and rules of racquetball, paddle tennis, table tennis, shuffleboard, and other recreational games. 1 q.h.

530. *Aquatics 1.* Introduction to swimming and survival skills, floating, drownproofing, basic swim strokes (side, elementary back and front crawl), beginning diving, and simple aquatic games. This course is designed for the student who cannot swim; it is not open to swimmers. 1 q.h.

*Additional fee required.

531. *Aquatics 2.* Intermediate Swimming. Introduction to back crawl, breaststroke, and butterfly. Techniques in underwater swimming; use of mask, snorkle, and fins. Elementary lifesaving skills and refinement of basic springboard diving. Prereq.: HPES 530 or its equivalent. 1 q.h.

534. *Synchronized Swimming.* Fundamentals of synchronized swimming, stunts, and aquatic art. Individual and group work on selection and development of swimming and routines. Prereq.: Intermediate swimming ability. 1 q.h.

535. *Diving 1.* Fundamentals of springboard diving, concentrating on the one-meter board. Prereq.: Intermediate swimming ability. 1 q.h.

537. *Aquatic Exercise.* Fitness through aquatic conditioning exercises tailored to the individual needs of the student. Open to swimmers and non-swimmers. 1 q.h.

540. *Modern Dance 1.* Elementary techniques of body movement. Rhythmic fundamentals and improvisation. 1 q.h.

541. *Modern Dance 2.* Intermediate modern dance technique, composition, and improvisation. Prereq.: HPES 540 or consent of instructor. 2 q.h.

542. *Dance Composition.* Basic principles of form and structure to choreography. Prereq.: HPES 541 or consent of instructor. 1 q.h.

544. *Step Aerobics.* Rhythmic exercise and conditioning activities performed to music, utilizing a step platform as the foundation for the workout. Designed to improve cardio-respiratory endurace and flexibility. Emphasis will be placed on understanding the five basic components of fitness and basic principles and techniques involved in step training. 1 q.h.

545. *Folk and Square Dance 1.* European and Mediterranean folk dances. American square dances, and mixers. Beginning materials and practice. 1 q.h.

546. *Folk and Square Dance 2.* Intermediate and advanced folk and country dances, materials, and practice. Prereq.: HPES 545 or consent of instructor. 1 q.h.

547. *Advanced Balkan and Mediterranean Folk Dance.* Traditional dances of the Balkan and Mediterranean countries, with emphasis on style and refinement of skills. Prereq.: HPES 546 or consent of instructor. 1 q.h.

548. *Aerobic Dance.* Rhythmic exercises and conditioning activities performed to music. Designed to improve cardiovascular fitness, flexibility and general muscle tone. 1 q.h.

550. *Children's Dance.* Appropriate dance and rhythmical activities for the elementary school child: exploratory movement, simple locomotive skills, and rhythmical activities using hand apparatus. 1 q.h.

551. *Elementary School Gymnastics.* Gymnastic activities for the elementary school child; exploratory work on mats and apparatus. 1 q.h.

554. *Fitness Walking.* Provides students with information on the benefits of walking for fitness. Such things as health advantages, appropriate conditioning, pace, warm-up and cool-down will be covered. Practical experience in the skills needed to achieve success in developing and adhering to a walking program. 1 q.h.

555. *Jogging.* A holistic approach to the theory and practice of jogging with emphasis on the physiological benefits. 1 q.h.

*556. *Racquetball 2.* Advanced racquetball techniques, strategy, conditioning, and mental preparation for singles, doubles, and tournament play. Emphasis is on use of various advanced shots, positioning and officiating. Prereq.: Racquetball I or intermediate skill level. 1 q.h.

*557. *Weight Training.* Introduction to progressive resistive exercise for men and women. Topics covered include strength training, types of equipment, exercise techniques, circuit training, competitive weightlifting, body building, and injury prevention. 1 q.h.

*561. *Cross-Country Skiing.* The skills of cross-country ski touring and recreational cross-country skiing. A cost will be incurred by those who have to rent equipment. 1 q.h.

565. *Self-Defense.* The defensive techniques of Judo and Aikido signed to counter attacks with a club, knife, gun, or bare fist. Balance, control, safety, and falling are stressed. 1 q.h.

570. *Tap and Jazz 1.* Principles and practices of the basic techniques of tap dance, soft shoe, jazz, and combinations of the fundamental forms of movement. Designed to introduce the student to various forms of dance and movement combinations performed in musical theatre. Prereq.: HPES 540 or consent of instructor. May be applied as 2 q.h. toward the fulfillment of the University HPES activity requirement. This course is identical with SPCH 663. 2 q.h.

571. *Tap and Jazz 2.* Emphasizes basic tap combinations and routines. Continuation of HPES 570. Prereq.: HPES 570 or consent of instructor. May be applied as 2 q.h. toward the fulfillment of the University HPES activity requirement. This course is identical with SPCH 664. 2 q.h.

572. *Ballet 1.* Theory and practice of classical ballet with emphasis on body placement and muscular awareness. Stressing fundamentals of vocabulary, structure, and placement. This course may be applied as 2 q.h. toward the fulfillment of the University activity requirement. Identical with SPCH 568. 2 q.h.

573. *Ballet 2.* Continuation of HPES 572, expanding upon vocabulary and establishing patterns of balletic movement. Prereq.: Ballet I or consent of instructor. This course may be applied as 2 q.h. toward the fulfillment of the University activity requirement. Identical with SPCH 569. 2 q.h.

588. *Selected Activities in Human Performance and Exercise Science.* Knowledge of and practice in a particular area of dance, fitness or sport. Activity will be announced each time the course is offered. May be repeated up to four credit hours with change in topic. 1-3 q.h.

592. *Volleyball Skills for Teachers.* The analysis and practice of volleyball skills for prospective teachers. Includes playing and teaching strategies and progressions. Intended for HPES majors/minors. 1 q.h.

593. *Basketball Skills for Teachers.* The analysis and practice of basketball skills for prospective teachers. Includes playing and teaching strategies and progressions. Intended for HPES majors/minors. 1 q.h.

*615. *Freestyle Orienteering.* Introduction to the sport of orienteering: negotiating unfamiliar terrain by combining compass and map skills with physical fitness. 1 q.h.

622. *Motor Skill Analysis for the Elementary Teacher.* Performance and analysis of locomotor, nonlocomotor, and manipulative skills. Basic movement, movement education, and materials for elementary children. Characteristics of children and their relation to physical education and concept development. Credit can be applied toward University activity requirement. Prereq.: sophomore standing, Elementary Education major, or permission of instructor. 1 q.h.

633. *Water Polo.* Skills, organization, rules, and strategy of water polo. Prereq.: Advanced swimming ability. 1 q.h.

The following activity classes meet the University activity requirement and are scheduled as three contact hours per week for one hour's credit, to allow for travel time and/or weather conditions.

500. *Field Hockey.* Methods and practice of skills, techniques, rules, and strategy of field hockey. 1 q.h.

501. *Soccer.* Skills, techniques, strategy, and rules of soccer. 1 q.h.

504. *Softball.* Skills, techniques, rules, and strategy of softball. 1 q.h.

505. *Touch Football.* Skills, rules, and techniques of touch football. 1 q.h.

506. *Track and Field Skills for Teachers.* Skills, techniques and rules of track and field events. Includes progressions and organizational strategies for teachers. 1 q.h.

*508. *Ice Skating.* Ice skating for the novice or nonskater. Classes at Mill Creek Park Skating Rink. Students must furnish their own skates or rent them there. 1 q.h.

*522. *Tennis 1.* Fundamental skills of tennis including forehand and backhand drives and service. Basic rules, strategy, and methods. 1 q.h.

*Additional fee required.

*523. *Tennis 2.* Theory and practice of intermediate-to-advanced tennis skills and play. Prereq.: HPES 522 or intermediate skill level. 1 q.h.

*580. *Tennis 3.* Theory and practice of advanced skills, strategy and play. Prereq.: Tennis 2 or consent of instructor. 1 q.h.

564. *Bicycling.* Instruction and practice in bicycling skills, techniques, and procedures necessary for intermediate or long trips. Students must provide their own three-, five-, or ten-speed bicycle. 1 q.h.

## Activity Classes (Other)

*The following classes also meet the University activity requirement.*

549. *Varsity Competition.* Credit toward the University Activity requirement may be obtained through competition in varsity athletic programs. Prereq.: Consent of the coach. 1 q.h.

*589. *Scientific Principles of Personal Fitness.* An opportunity to discover the benefits and scientific reasons for life-long participation in fitness-enhancing activities. Individualized to meet the needs of each participant. Scheduled on an arranged basis with 2 hours of exercise in a fitness laboratory and 1 hour of lecture per week. Applicable to the University activity requirement. 2 q.h.

630. *Lifeguard Training.* Water rescue, preventive lifeguarding techniques, emergency procedures, etc. Red Cross certificate granted upon satisfactory completion of all requirements. Prereq.: 500 yd. continuous swim and deep water dive. 3 q.h.

631. *Water Safety Methods for Instructors.* Techniques for teaching and supervising swimming, emergency water safety and basic water safety courses. Introduction to infant and preschool aquatic programs. A water safety instructor's certificate will be granted upon satisfactory completion of certification requirements. Prereq.: Current lifeguard training certificate or emergency water safety certificate. 3 q.h.

*632. *Skin and Scuba Diving.* Basic skin-diving with the use of mask, fins, and snorkle. Scuba diving skills with the use of tank and regulator. Emphasis on diving physics, physiology, lifesaving, first aid, and safety skills related to skin and scuba diving. Two hours of lecture and two hours of lab. Student must furnish mask, fins, and snorkle. Prereq.: 400-yard swim within 15 minutes. 3 q.h.

## Lecture-Laboratory Classes

595. *Introduction and Concepts of Human Performance and Exercise Science.* An introduction to physical education and related professions. The concepts, goals, and objectives upon which various types of programs are based. 2 q.h.

616. *Exercise Leader Practicum.* Introductory exercise testing, exercise programming and exercise analysis of activities. Practical supervised experience in exercise leadership skills will involve at least 8-12 hours per week. This course covers behavioral objectives for Exercise Leaders as advocated by the American College of Sports Medicine. Prereq.: HPES 589. 4 q.h.

618. *Practicum.* A supervised experience in an approved fitness or sports related program (e.g. health spa or racquetball club) under the direction of a qualified individual. This is designed to give the student a controlled field experience with periodic observation by an assigned full-time faculty member. May be repeated for a maximum of 6 hours. This course will involve at least 4-8 hours per week. Prereq.: HPES 595 and 4 activity classes. 2 q.h.

620. *Fitness Equipment Managment.* Students will learn procedures for selection and purchase and gain experience in maintenance and repair of fitness equipment. Prereq.: HPES 616. 2 q.h.

623. *Physical Education for the Pre-School Child.* Methods, materials, equipment, and class management techniques appropriate for pre-school age children, including field experience with pre-school children. Two hours lecture and two hours of lab and/or field experience. 3 q.h.

*635. *Openwater Scuba Diving.* Practical experiences in physiological and psychological stress, underwater navigation, effects of hypothermia, decompression, repetitive diving, and rescue techniques. Students completing this course receive basic scuba certification. Five hours of lecture and 10 hours of laboratory quarterly. Prereq.: HPES 632. 1 q.h.

650. *Techniques of Officiating Soccer.* Analysis and interpretation of rules; theory and practice of officiating soccer. Prereq.: HPES 501. 2 q.h.

651. *Techniques of Officiating Basketball.* Analysis and interpretation of rules; theory and practice of officiating basketball. Prereq.: HPES 503. 2 q.h.

653. *Techniques of Officiating Football.* Analysis and interpretation of rules; theory and practice of officiating football. Prereq.: HPES 505. 2 q.h.

655. *Techniques of Officiating Track and Field.* Analysis and interpretation of rules; theory and practice of officiating track and field. Prereq.: HPES 506. 2 q.h.

656. *Techniques of Officiating Volleyball.* Analysis and interpretation of rules; theory and practice of officiating volleyball. Prereq.: HPES 502. 2 q.h.

658. *Techniques of Officiating Gymnastics.* Analysis and interpretation of rules and skills; theory and practice of judging gymnastics. Prereq.: HPES 517. 2 q.h.

659. *Techniques of Officiating Baseball and Softball.* Analysis and interpretation of rules; theory and practice of officiating baseball and softball. Prereq.: HPES 504. 2 q.h.

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*Additional fee required.

660. *Techniques of Officiating Field Hockey.* Analysis and interpretation of rules; theory and practice of officiating field hockey. Prereq.: HPES 500. 2 q.h.

661. *Games Analysis.* The selection, adaptation and creation of games appropriate for varying developmental levels and environmental situations in K-12 physical education. Large group, coeducational and self-challenging activities are included. Four hours lab. per week. Prereq.: 6 activity classes. 2 q.h.

669. *Principles of Motor Learning.* The study of physiological principles relevant to motor learning. Focus on how motor skills are acquired through practice and/or experiences. One hour lecture and two hours lab per week. Prereq.: HPES 595 and five activities excluding HPES 549. 2 q.h.

670. *Analysis of Movement Patterns.* Designed to help the prospective physical educator critically analyze movement patterns and their relationship to motor learning. Common motor patterns are studied and applications to teaching are made in laboratory sessions. One hour lecture, two hours lab. per week. Prereq.: 10 activity credits. 2 q.h.

*697. *Camping.* The specific skills and problems encountered in camping: shelter, clothing, food, transportation, and site selection. One hour of lecture and two hours of laboratory. 2 q.h.

698. *Survey of Dance.* The role of dance in culture and history, tracing the evolution of various folk, social and concert forms. Structural and stylistic elements important for the appreciation of movement and dance will be examined. 4 q.h.

699. *Sport in American Culture.* Sport in American culture from the colonial period to the present as it relates to such areas as education, literature, film and drama, minorities, politics, professional sport, religion and urbanization. 4 q.h.

716. *Stage Combat.* A specialized approach to armed and unarmed combat for the stage. Safety factors in stage fighting will be stressed. Instruction will be given in armed and unarmed stage combat and the safe use of rapier and dagger. Performance in a public recital will be required. Class is scheduled for six contact hours per week. Two hours lecture, four hours lab. Prereq.: HPES 514 or 515 or SPCH 668 or MUSIC 012 (Theatrical Fencing Unit) or permission of instructor. Also listed as SPCH 766. 4 q.h.

722. *Physical Education in Elementary Grades for the Classroom Teacher.* Principles, methods, materials, and organization of activities for elementary school children. Active participation required, including approximately 15 hours of field work in area schools. Prereq.: HPES 622 and third-quarter sophomore standing. 3 q.h.

723. *Fitness Management Skills Practicum.* Intermediate exercise testing, exercise prescriptions, exercise analysis, and other technical skills for exercise programs. Practical supervised experience in exercise leadership skills will involve at least 8-12 hours per week. This course covers behavioral objectives for Health Fitness Instructor certification as advocated by the American College of Sports Medicine. Prereq.: HPES 720. 4 q.h.

750. *Principles of Coaching.* The scientific, psychosocial, and management aspects of coaching. Includes ethics and legal responsibilities, pesonnel management, community relations, conditioning, and other related topics. Prereq.: 10 quarter hours of activity credits, or junior standing and consent of the instructor. 3 q.h.

751. *Coaching of Baseball.* Theory, methods, organization, and techniques of teaching and coaching baseball. Prereq.: HPES 750. 2 q.h.

752. *Coaching of Basketball.* Theory, methods, organization, and techniques of teaching and coaching basketball. Prereq.: HPES 750. 2 q.h.

753. *Coaching of Football.* Theory, methods, techniques, and organization of coaching football. Prereq.: HPES 750. 2 q.h.

754. *Coaching of Track and Field.* Theory, methods, techniques, and organization of coaching track and field. Prereq.: HPES 750. 2 q.h.

755. *Coaching of Wrestling.* Methods and fundamental techniques of coaching and officiating wrestling; practical application of teaching wrestling maneuvers and interpreting rules. Prereq.: HPES 750. 2 q.h.

756. *Coaching of Individual Sports.* Theory, methods, organization, and techniques of teaching, and coaching individual sports such as golf, tennis, and swimming. Prereq.: HPES 750. 2 q.h.

763. *Internship in Elementary Physical Education.* Supervised elementary school experiences including teaching, video tape evaluations, use of media, team teaching and interdisciplinary approaches. Requires practical experience in elementary schools. Prereq.: HPES 768. 3 q.h.

*765. *Athletic Training 1.* Practical and theoretical aspects of the prevention of athletic injuries. Topics include supplies, taping and wrapping, techniques of conditioning, protective equipment and environmental risks. One hour lecture and 2 hours lab per week. Prereq.: Biol. 551 and 552, HPES 589 and HSC 601. 2 q.h.

766. *Curriculum Development in P.E.* Aims, objectives, procedures, implementation, and evaluation for curriculum development in physical education and movement education (K-12). Criteria for the selection of specific content, for lesson and unit planning are covered with reference to the cognitive, psychomotor and affective domains of learning. Prereq.: Upper division status in the HPES Department, HPES 550 or 551, 595, 661, and 670. 3 q.h.

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*Additional fee required.

767. *Instruction and Teacher Behavior in P. E.* Methods of instruction including direct teaching, guided discovery and problem solving and the development and analysis of teacher behavior. Two hours lecture, two hours lab. per week. Prereq.: HPES 766. 3 q.h.

768. *Field Experience in Physical Education.* Supervised school experiences at both the elementary and secondary levels including planning, teaching and analysis of teaching through video tapes, audio tapes, observations and other techniques. Six hours lab. per week. Prereq.: HPES 767. 3 q.h.

770. *Physical Activity and Aging.* Designed for students who will be working with older adults in exercise-physical activity programs. Emphasis placed upon the physical aspects of aging, physical limitations, modification in programs, and the role of physical activity in the senior population. 15 hours of field work per quarter. Prereq.: HPES 589. 3 q.h.

780. *Methods of Teaching Dance.* Rhythm and movement fundamentals; methods and materials of teaching folk, square, and social dance. Prereq.: Upper division status in the HPES Department and HPES 545. 2 q.h.

785. *Teaching of Modern Dance.* Methods and materials of teaching modern dance. Prereq.: HPES 541. 2 q.h.

795. *Kinesiology and Applied Anatomy.* Muscular structure and function in relation to physical movement; analysis of fundamental movements. Prereq: BIOL 551 and 552. 4 q.h.

803. *Issues and Trends in Exercise Science.* In-depth study of current issues and trends and their impact on Exercise Science and the general public as they relate to the American College of Sports Medicine behavioral objectives for various professional certifications. Two hours lecture. Prereq.: HPES 723. 2 q.h.

805. *Exercise Test Technologist Practicum.* Advanced exercise testing and exercise prescriptions for special populations. Practical supervised experience in health/fitness facilities will involve at least 8-12 hours per week. This course covers behavioral objectives for Exercise Technologists as advocated by the American College of Sports Medicine. Prereq.: HPES 803. 4 q.h.

851. *History and Philosophy of Physical Education and Sport.* A survey of major historical developments and philosophical issues in physical education and sport from ancient times to the present. Prereq.: Junior standing in HPES. 3 q.h.

852. *Psychosocial Aspects of Physical Education and Sport.* A survey of major psychosocial principles, developments and concerns as they relate to the participant in physical activity and sport. Prereq.: Junior standing in HPES. 3 q.h.

855. *Organization and Administration of Human Performance and Exercise Science Programs.* Organizational patterns and administrative methods of activities, including instructional programs, intramurals and recreation. Prereq.: Junior standing in HPES. 4 q.h.

860. *Tests and Measurements.* The various tests in the field of physical education, including uses and interpretation of elementary statistical techniques. Three hours lecture and two hours laboratory per week. Prereq.: Senior standing in HPES. 4 q.h.

*865. *Athletic Training 2.* Advanced techniques of athletic training with emphasis on evaluation, treatment and rehabilitation of athletic injuries. Topics include application of therapeutic modalities, reconditioning programs and the role of the athletic trainer in sports medicine. Two hours lecture and two hours lab per week. Prereq.: HPES 765. 3 q.h.

887. *Internship.* A full-time culminating experience in an approved fitness or sports related setting under the direct supervision of a qualified individual and coordinated by a supervising faculty member. This course will require 40 hours per week. Prereq.: Senior standing and HPES 616 or 618, 795. 12 q.h.

888. *Selected Topics in Human Performance and Exercise Science.* The indepth study of special subject matter within the field of physical education. Topics will be announced each time the course is offered. May be repeated for a maximum of 8 q.h. with change in topic. Prereq.: Senior standing or consent of instructor. 1-4 q.h.

894. *Workshop in Human Performance and Exercise Science.* Concentrated study of a selected topic related to Human Performance and Exercise Science education and/or athletics. The department selects and announces the topic and determines the credit hours based on frequency and duration of workshop meetings. May be repeated for a maximum of eight hours with change in topic. Prereq.: HPES 750, 768, or consent of instructor. 1-4 q.h.

895. *Adapted Physical Activity.* The organization of physical education activities selected to meet the individual needs of exceptional students. Approximately 15 hours of field work required. Prereq.: HPES 795 or HPES 722. 3 q.h.

896. *Physiology of Exercise.* Physiological bases and functions of the body in response to the stress of exercise. Three hours of lecture and two hours laboratory per week. Prereq.: BIOL 552 and HPES 860. 4 q.h.

898. *Seminar: Human Performance and Exercise Science.* Special and current problems in Human Performance and Exercise Science. Prereq.: senior standing. 2 q.h.

## MILITARY SCIENCE

This program is offered under a cross-enrollment agreement with the Kent State University.

Army ROTC (Reserve Officers' Training Corps) provides college-trained officers for the U.S. Army, the Army National Guard, and the U.S. Army Reserve.

*Additional fee required.

ROTC expands a student's educations by providing leadership and management experience. This training helps students develop self-discipline, physical stamina, and poise—qualities basic to success in any worthwhile career. They earn commissions as second lieutenants in the U.S. Army (which includes the Active Army, Army National Guard, and Army Reserve) while earning their college degrees. Through ROTC, the Army gains officers with diverse educational backgrounds and contemporary ideas. At the same time, ROTC graduates have the chance to use their training in positions of leadership, and they enable the Army to relate to the thoughts and feelings of our ever-changing society. At present, over 80 percent of all second lieutenants for the U.S. Army come from ROTC programs nationwide.

Lower division (freshman and sophomore level) courses are *open to all students and incur no military obligation.*

## FOUR-YEAR PROGRAM

The four-year Army ROTC program is divided into two parts: the Basic Course and the Advanced Course.

The Basic Course is usually taken during the freshman and sophomore years. No military commitment is incurred during this time. After completing the Basic Course, students who have demonstrated officer potential and meet physical and scholastic standards are eligible to enroll in the Advanced Course. The Advanced Course is normally taken during the junior and senior years of college.

Advance Course Cadets attend a six week camp during the summer between their MS III and MS VI (junior and senior) years. In this camp students put into practice the leadership and tactical skills they have acquired in the classroom. Cadets are paid for camp attendance.

All students in the Advanced Course receive uniforms, pay for Advanced Camp, and a living allowance of up to $1,500 each school year.

Before entering the Advanced Course, an individual signs a contract that certifies an understanding of the service obligation. This obligation may be fulfilled in a variety of ways depending on the individual's personal preference and the needs of the Army at the time of commissioning.

Scholarship graduates are required to serve one of the following obligations: two years on active duty and four years in an Army Reserve or National Guard unit then two years in the Individual Ready Reserve (IRR); or three years on active duty and five years in the IRR; or four years on active duty and four years in the IRR; or eight years in Army Reserve or National Guard unit.

Nonscholarship graduates are required to serve one of the following obligations: two years on active duty and six years in the IRR; or three years on active duty and five years in the IRR; or four years on active duty and four years in the IRR; or six years in an Army Reserve or National Guard unit and two years in the IRR; or eight years in the IRR.

All commissionees incur a service obligation of eight years with service being either full time active duty or part time in the reserves. The mix of active and reserve duty is determined by the needs of the Army, the cadets performance and the type of contract the cadet signed (scholarship or nonscholarship, guaranteed reserve or simultaneous membership).

## TWO-YEAR PROGRAM

The two-year program permits students who attended a junior college, transfer students, or those who did not take Military Science Basic Courses during their first two years of school, and students entering a two-year post graduate course of study to enter the ROTC Advance Course. Students can take advantage of this opportunity by successfully completing a paid six-week ROTC Basic Camp (MS 604), usually after their sophomore year, and enrolling in the ROTC Advanced Course, normally in their junior year. Except for this camp, the requirements for and obligations incurred in the two- and four-year programs are the same.

## OPPORTUNITIES FOR VETERANS/JUNIOR ROTC GRADUATES

Because military experience may serve as total credit for the ROTC Basic Course, most veterans and students with three years of Junior ROTC (high school) are eligible for the ROTC Advanced Course without further instruction.

## ARMY ROTC/ARMY RESERVE/ARMY NATIONAL GUARD

Students can further broaden their college experience and earn extra income by combining ROTC with service in the Army Reserve or Army National Guard through the two-year Simultaneous Membership Program (SMP). If students qualify, and SMP vacancies are available, they may join the Army Reserve or Army National Guard unit as officer trainees and simultaneously enroll in the Army ROTC Advanced Course. In addition to annual subsistance allowance of up to $1,500 received for Advanced ROTC, SMP participants are paid for their Reserve or Guard drills and summer training sessions.

## ARMY NURSE CORPS

To qualify for appointment in the Army Nurse Corps, the student must complete the ROTC program and obtain a baccalaureate degree in nursing. Students who meet all professional requirements will serve as Army nurses on Active Duty, in the Army National Guard, or in the Army Reserve.

## SCHOLARSHIP PROGRAMS

See ROTC Military Science (Gold Bar) Scholarships and Army ROTC Scholarships in the Financial Aids (Scholarships) section of this Bulletin.

## Lower Division Courses

No Military obligation is incurred by taking lower division courses.

501. *Introduction to Army ROTC.* An overview of Army ROTC. Explores options and training available to the student as well as career opportunities as an Army officer. Organization, branches, and role of the Army, Army Reserve, and National Guard are also addressed. One hour of lecture/discussion per week and a weekly Leadership Laboratory. 1 q.h.

502. *Basic Leadership and Management.* A study of leadership fundamentals, to include the dimensions, traits, and principles of leadership, professionalism, ethics, and counseling techniques. Situational studies and role playing are included. One hour of lecture/discussion per week and a weekly Leadership Laboratory. 1 q.h.

503. *First Aid and Emergency Care.* Personal safety and emergency care practices. Advanced certification will be offered. Two hours lecture and two hours laboratory. Taught by Health Sciences faculty, same as HSC 601. 3 q.h.

504. *Basic Military Skills.* An introduction to basic military tasks and skills. Practical instruction in military radio communications, land navigation and individual tactics. One hour of lecture and one and a half hours of laboratory a week. 1 q.h.

600L. *Leadership Lab.* Practical exercise periods that allow development and application of military skills and essential leadership characteristics. One hour laboratory per week. Must be taken concurrently with MILSC 602, 603. 0 q.h.

601. *American Military History.* A survey of American military history from the origin of the United States Army to the present, with emphasis on how military policies and strategies have been influenced by the domestic and foreign affairs of the United States. Listed also as HIST 601. 4 q.h.

602. *Individual Military Skills.* An overview of individual skills common to all branches of the Army and needed by all officers, including physical readiness; marksmanship; wear, cleaning, and care of uniforms and equipment; drill and ceremonies; and use of map and compass. Two hours of lecture/discussion and a one day (weekend) training exercise. Must be taken concurrently with MILSC 600L. 2 q.h.

603. *Comparative Analysis of U.S. and other Land Forces.* A selective examination of small unit training, tactics, weapons, and organization of the U.S. Army and other Land Forces. Two hours lecture/discussion and a one day (weekend) training exercise required. Must be taken concurrently with MILSC 600L. 2 q.h.

604. *Basic R.O.T.C. Summer Camp.* Six weeks' training at U.S. Army installation during the summer before the student's junior year. Concentrated instruction in the principles of leadership; map and aerial photograph analysis; military customs, courtesies, and traditions; organization of the U.S. Army communications; combat intelligence; and physical fitness training. This course is equivalent to the on-campus basic course. Prereq.: Two years of college-level work. 4 q.h.

605. *Low Intensity Conflict.* An introductory examination of the various aspects of Low Intensity Conflict to include counter-terrorism, foreign internal defense, counter-insurgency, political warfare and peace-keeping operations. Two hours lecture/discussion per week. Must be taken concurrently with MILSC 600L. 2 q.h.

## Upper Division Courses

*701. *Organizational Leadership.* The relationship of individual differences to the leadership process; group dynamics, organizational constraints on the leadership process, and the impact of leader behavior on the leadership process. Two hours of lecture and one hour of leadership laboratory a week, and field training exercises. Prereq.: Permission of department chair. 3 q.h.

*702, *703. *Advanced Leadership and Management 1, 2.* Case studies in leadership and management. Delegation of authority and responsibility, span of control, planning, coordinating, and decision-making. Development of the student's ability to express himself or herself clearly and accurately, evaluate situations, and prepare and deliver logical solutions. Analysis of the leader's role in directing and coordinating the efforts of individuals and small units in the execution of various types of tactical missions. Discussion of the military environment in garrison and in the field. Two hours of lecture, one hour of leadership laboratory, three hours of physical readiness training each week, and two weekend field training exercises. The prerequisite for MILSC 702 is permission of department chair; the prerequisite for MILSC 703 is MILSC 702 and permission of department chair. 3+3 q.h.

704. *Advanced R.O.T.C. Summer Camp.* Six weeks of field training, normally between junior and senior years, conducted at an Army installation. This concentrated practical training provides an opportunity to evaluate the student's application of academic knowledge to daily leadership situations. Prereq.: Permission of department chair. 6 q.h.

705. *Airborne Operations.* Three weeks of intensive field training, normally between the junior and senior years, conducted at an Army installation. Combines the study of airborne military operations, strenuous physical conditioning, and the use of military parachute techniques, and culminates with five parachute jumps from military aircraft and the award of the army parachute qualification badge. Prereq.: Successful completion of airborne physical fitness test, medical examination, and selection by department chair. 1 q.h.

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*Additional fee required.

706. *Airmobile Operations.* Two weeks of intensive field training, normally between the junior and senior years, conducted at an Army installation. Study of Heliborne Military Operations, strenuous physical conditioning, and employment of military helicopters in small unit tactics. Prereq.: Successful completion of physical fitness test, medical examination, and selection by the department chair. 1 q.h.

707. *Winter Warfare Operations.* Three weeks of intensive field training, normally between the junior and senior years, conducted at an Army installation in Alaska. Study of military operations under winter conditions, strenuous physical conditioning, and small-unit leadership in a hostile environment. Prereq.: Selection by department chair. 1 q.h.

725. *Individual Study.* The individual study of specific problem or review of the literature relating to a specific military problem. May be repeated with a different problem for a maximum of 4 hours. Prereq.: 6 hours of Military Science and consent of the instructor. 1-2 q.h.

*801. *The Military Team.* A study of command and staff evaluation, organization, and functions; processes for arriving at sound and timely decisions and translating decisions into plans and combat orders. Duties and responsibilities of company and intelligence; its value, and methods of producing it. Two hours of lecture, one hour of laboratory a week and field training exercises. Prereq.: MILSC 703 and permission of department chair. 3 q.h.

*802, *803. *Seminar in Leadership and Management 1, 2.* Case studies in leadership and management. Delegation of authority and responsibility, span of control, planning, coordinating, and decision-making. Development of the student's ability to express himself or herself clearly and accurately, evaluate situations, and prepare and deliver logical solutions. Analysis of the leader's role in directing and coordinating the efforts of individuals and small units in the execution of various types of tactical missions. Discussion of the military environment in garrison and in the field. Two hours of lecture, one hour of leadership laboratory, three hours of physical readiness training each week, and two weekend field training exercises. Prerequisite for MILSC 802 is MILSC 703 and permission of department chair; the prerequisite for MILSC 803 is MILSC 802 and permission of department chair. 3+3 q.h.

## LEADERSHIP LABORATORY

A practical exercise period for both basic and advanced courses. Provides experience in practical military skills and the development of essential characteristics of leadership through progressive evaluation and counseling, MILSC 600L, MILSC 700L and MILSC 800L.

# NURSING

*Professors Kennedy, McCarthy (Chair); Assistant Professors Ferris, Fitzgerald, Kuite, McDougal, Mosca, Phillips, Schmidt, Schuster, Shipton, and Zehr; Instructors Bosley, Hoyson, Janosik, Serroka, and Wood.*

The Department of Nursing at Youngstown State University offers a Bachelor of Science in Nursing (BSN) degree. The program is approved by the Ohio Board of Nursing and accredited by the National League for Nursing. Generic graduates are eligible to sit for the state licensure exam.

## ADMISSION REQUIREMENTS FOR THE BACHELOR OF SCIENCE IN NURSING PROGRAM

Admission into the Bachelor of Science in Nursing (BSN) degree program is on a restricted basis, since only a limited number of students can be accommodated. Detailed information about admission criteria and procedures is available from the Department of Nursing, College of Health and Human Services and the Admissions Office.

There is one generic and one Registered Nurse (RN) admission yearly. Students are admitted after completion of all pre-nursing course requirements. The current closing date for application and credentials is:

March 15 - For Fall Quarter admission of currently licensed RN students only.

September 1 - For Winter Quarter admission of generic students only.

Applicants for the baccalaureate degree program must meet thefollowing minimum requirements:

1. General University precollege requirements for the Bachelor of Science degree.
2. Nursing precollege requirements.
3. Completion of pre-nursing courses with a "C" or better and an overall GPA of 2.50 in these courses.
4. Cumulative GPA of 2.00 in all college work.
5. Evidence of current CPR certification.
6. Complete a personal data sheet, physical and dental forms, and immunization requirements.

Required pre-nursing courses for generic students include:

Biology 509, 611, 710, 792 and 702 or 787/787L

Chemistry 505 and 506

Psychology 560 and 757

English 550 and 551

Philosophy 530 or 600

Food & Nutrition 551

Sociology 500

Nursing 640 and 641

Admission to the University, meeting minimal program admission requirements, and completion of core pre-nursing courses does not guarantee admission into the nursing program. Advanced placement is provided for RN students.

### Course Enrollment

All 600, 700, and 800 level nursing courses, except NURSG 640 and NURSG 641, are available only to students formally admitted into the BSN program.

Malpractice insurance is required for all clinical nursing experiences and is provided by the University when the student registers for the specified courses.

## ACADEMIC REQUIREMENTS FOR THE BACHELOR OF SCIENCE IN NURSING DEGREE

Students are responsible for adhering to the prescribed BSN curriculum sequence including, but not limited to, course prerequisites and mandated sequencing of nursing courses. It is also the students' responsibility to see that all graduation requirements for the BSN degree are satisfied. It is recommended that students frequently seek guidance from their nursing faculty advisor. A copy of the BSN curriculum is available from the Department of Nursing.

After admission to the program, a grade of "C" or better is mandatory for all nursing theory, clinical, and laboratory courses; required non-nursing support courses; and required elective hours. Only **one** nursing and **one** non-nursing support course may be repeated. A repeated course must be successfully completed with a grade of "A", "B", or "C" and all incompletes must be removed before progressing in the nursing curriculum. Grades of less than "C" in a **second** nursing or required non-nursing course will result in permanent dismissal from the nursing program.

A Bachelor of Science in Nursing degree will be granted to the student who has completed all the required baccalaureate nursing curriculum with a minimum grade point average of 2.00.

The Department of Nursing reserves the right to remove a student from the program when that student's performance in any nursing course is deemed to be unsafe as characterized by dangerous, inappropriate, irresponsible or unethical behavior which actually or potentially places a patient or his/her family in jeopardy. The department reserves the right to dismiss a student who for legal, academic, emotional, or physical reasons cannot be advised to continue in the program.

Current immunizations, and CPR certification are required of all nursing students. Students must adhere to a dress code which includes the wearing of specific nurse's uniform for nursing clinical courses.

### Lower Division Courses

640. *Introduction to Nursing.* An introduction to professional nursing and the health care delivery system from a historical perspective. The philosophy and conceptual framework of the program are also introduced. Open to non-nursing majors. 3 q.h.

641. *Concepts and Theories of Self-Care 1.* Concepts and theories related to Orem's conceptual framework are presented from a health focus of wellness. Open to non-nursing majors. 3 q.h.

*641L. *Concepts and Theories of Self-Care Laboratory.* This course applies the system of nursing care through theoretical and clinical challenges for RN's and advanced placement students. Three hours of challenges per week. Prereq.: NURSG 640, NURSG 641, or permission of instructor. 1 q.h.

642. *Contemporary Nursing for Registered Nurses.* Concepts and theories related to professional nursing from a historical perspective, program philosophy and organizational framework are presented. Prereq.: Must be a registered nurse. 4 q.h.

643. *Therapeutic Self-Care Requisites.* The development of interpersonal communication and psychomotor skills necessary to comprehensively conduct an assessment of the self-care agency. To be taken concurrently with NURSG 643L. Prereq.: Admission to the BSN Program or permission of instructor. 4 q.h.

*643L. *Therapeutic Self-Care Requisites Laboratory.* Practical application of interpersonal and psychomotor skills necessary to conduct a comprehensive assessment of the self-care agency. Seven hours of laboratory each week. To be taken concurrently with NURSG 643. 1 q.h.

645. *Nursing Systems 1.* Fundamental nursing assistive actions and the system of nursing care are studied with adults in a partly compensatory and educative-supportive nursing situation. The health focus is wellness/disease prevention and recovery from illness. To be taken concurrently with 645L. Prereq.: NURSG 643, PSYCH 757. 4 q.h.

*645L. *Nursing Systems 1 Laboratory.* Selected clinical experiences are provided for the application of the system of nursing care with adults in a partly compensatory and educative-supportive nursing situation. The health focus is wellness/disease prevention and recovery from illness. Eleven hours of laboratory each week. To be taken concurrently with NURSG 645. 3 q.h.

646. *Health Deviation Self-Care Requisites.* Knowledge from basic and clinical science is applied to the understanding of biological alterations which affect individuals' ability to perform self-care activities. Prereq.: BIOL 710, 792, 795, and either 702 or 787/787L. 5 q.h.

### Upper Division Courses

740. *Concepts and Theories of Self-Care 2.* Concepts and theories related to Orem's conceptual framework are presented from a health focus of recovery, illness of undetermined and determined origin, and active treatment. Prereq.: NURSG 640, NURSG 641, NURSG 645. 3 q.h.

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*Additional fee required.

741. *Nursing Systems 2.* Fundamental nursing assistive actions and the system of nursing care are studied with adults and families in a partly compensatory and educative-supportive nursing situation. The health foci are recovery and illness of undetermined origin. To be taken concurrently with NURSG 741L. Prereq.: NURSG 645, NURSG 646, PSYCH 756 and PSYCH 757. 4 q.h.

*741L. *Nursing Systems 2 Laboratory.* Selected clinical experiences are provided for the application of the system of nursing care with adults and families in a partly compensatory and educative-supportive nursing situation. The health focus is illness of undetermined origin and recovery. Twelve hours of laboratory each week. To be taken concurrently with NURSG 741. 3 q.h.

742. *Nursing Systems 3.* Nursing assistive actions and the system of nursing care are studied as they apply to acutely ill adults. This course focuses upon health deviation requisites as well as other therapeutic self-care requisites within partly compensatory and educative-supportive situations. To be taken concurrently with NURSG 742L. Prereq.: NURSG 740, NURSG 741 and NURSG 750. 5 q.h.

*742L. *Nursing Systems 3 Laboratory.* Selected clinical experiences provide for the application of the system of nursing care in partly compensatory and educative-supportive nursing situations. The health focus is illness of undetermined origin, treatment, and recovery. Eight hours of laboratory each week. To be taken concurrently with NURSG 742. 2 q.h.

743. *Leadership.* Leadership concepts, theories and roles are explored as they relate to the practice of professional nursing. Prereq.: SPCH 550 and NURSG 741; or admission to RN track. 3 q.h.

744. *Nursing Systems 4.* Nursing assistive actions and the system of nursing are studied as they relate to adult clients experiencing chronic developmental and health-deviation self-care requisites. To be taken concurrently with NURSG 744L. Prereq.: NURSG 742, 743. 4 q.h.

*744L. *Nursing Systems 4 Laboratory.* Selected clinical experiences are provided for the application of the system of nursing care to adult clients experiencing chronic developmental and health-deviation self-care requisites. Eight hours of laboratory each week. To be taken concurrently with NURSG 744. 2 q.h.

749. *Nursing Research.* Concepts, methods and techniques of research in the investigation of nursing problems. Prereq.: PSYCH 613 or equivalent and either BIS 613, CIS 520 or CSCI 520; or consent of instructor. 4 q.h.

750. *Nursing Process and Clinical Pharmacology.* Nursing implications of drug therapy with emphasis on clinical decision making, client education, and self-care. Prereq.: NURSG 646, 645, BIOL 795. 4 q.h.

830. *Nursing Systems 5.* Nursing assistive actions and the system of nursing care. The developmental and health-deviation self-care requisites in the antepartum, intrapartum, and post-partum phases are studied. To be taken concurrently with NURSG 830L. Prereq.: NURSG 742. Prereq. or concurrent: NURSG 744, NURSG 749, PHIL 825. 4 q.h.

*830L. *Nursing Systems 5 Laboratory.* Selected clinical experiences with clients experiencing developmental and health-deviation self-care requisites in the antepartal, intrapartal, and post-partal phases. Eight hours of laboratory each week. To be taken concurrently with NURSG 830. 2 q.h.

831. *Nursing Systems 6.* Nursing assistive actions and the system of nursing care are studied as they relate to children experiencing developmental and health-deviation self-care requisites. To be taken concurrently with NURSG 831L. Prereq.: NURSG 742. Prereq. or concurrent: NURSG 744, NURSG 749, PHIL 825. 4 q.h.

*831L. *Nursing Systems 6 Laboratory.* Selected clinical experiences provide for the application of the system of nursing care with children experiencing developmental and health-deviation self-care requisites. Eight hours of laboratory each week. To be taken concurrently with NURSG 831. 2 q.h.

832. *Concepts, Theories, and Contemporary Issues for Registered Nurses.* Concepts, theories, and contemporary issues related to the evolving roles of professional nursing are analyzed from a health focus of illness, treatment, and recovery. Prereq.: NURSG 642 and must be a registered nurse. 4 q.h.

833. *Self-Care Requisites for RN's.* Knowledge and applications necessary to conduct a comprehensive assessment of self-care agency adapted to meet the unique needs of registered nurses. Prereq.: Must be a registered nurse. 4 q.h.

841. *Nursing Systems 8.* Nursing assistive actions and the system of nursing care are studied as they relate to acutely ill adults. This course focuses upon health deviation requisites as well as other therapeutic self-care requisites in wholly compensatory systems. To be taken concurrently with NURSG 841L. Prereq.: NURSG 742 and 744. 5 q.h.

*841L. *Nursing Systems 8 Laboratory.* Selected clinical experiences provide for the application of the system of nursing care in all three types of nursing situations. The health foci are recovery, illness of determined origin, and active treatment. Eight hours of laboratory each week. To be taken concurrently with NURSG 841. 2 q.h.

842. *Nursing Systems 7.* Nursing assistive actions and the system of nursing care. The therapeutic self-care requisites related to intrapersonal, interpersonal, family and social deficits are studied. To be taken concurrently with NURSG 842L. Prereq.: NURSG 742 and 744. 4 q.h.

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*Additional fee required.

842L. *Nursing Systems 7 Laboratory.* Selected clinical experiences with clients experiencing intrapersonal, interpersonal, family, and social deficits. Eight hours of laboratory each week. To be taken concurrently with NURSG 842. 2 q.h.

844. *Nursing Systems 9.* Nursing assistive actions and the system of nursing care are studied as they apply to communities and clients experiencing therapeutic self-care requisites. To be taken concurrently with NURSG 844L. Prereq.: NURSG 742 and 744. 4 q.h.

*844L. *Nursing Systems 9 Laboratory.* Selected laboratory experiences are provided for the application of the system of nursing care to communities and individuals experiencing therapeutic self-care requisites. Eight hours of laboratory each week. To be taken concurrently with NURSG 844. 2 q.h.

845. *Professional Issues.* Contemporary issues related to the practice of professional nursing and the emerging roles of the nurse. Prereq.: NURSG 742 and NURSG 744 or consent of instructor. 2 q.h.

847. *Nursing Systems Synthesis.* Synthesis of the professional practice of nursing as it relates to clinical practice in a variety of nursing situations. To be taken concurrently with NURSG 847L. Prereq.: Completion of all clinical courses except concurrent clinical courses. 1 q.h.

847L. *Nursing Synthesis Laboratory.* Selected clinical experiences provide for synthesis of the roles of the professional nurse in a variety of nursing situations. Eight hours of clinical laboratory experience each week. To be taken concurrently with NURSG 847. 2 q.h.

## Nursing Electives

746. *Systems of Nursing Care for Elderly Clients.* An in-depth view of the aging person with implications for determining systems of nursing care and for interpreting the impact of current theories of aging upon current nursing practices. Prereq.: NURSG 740. 3 q.h.

747. *Individual Studies.* The study of special problems or a review of the literature relating to specific problems or issues. May be repeated for a maximum of six hours with different problems. Prereq.: Admission to Nursing Program and permission of the Chair. 1-4 q.h.

851. *System of Nursing Care for the Child.* Current trends, issues and approaches in nursing practices with children are considered from a wellness perspective. Emphasis is on prevention of developmental self-care deficits. Nursing roles in child health specialties are explored. Prereq.: NURSG 831 or registered nurse. 4 q.h.

*Additional fee required.

## CURRICULUM LEADING TO THE BACHELOR OF SCIENCE IN NURSING DEGREE

### FRESHMAN YEAR
### FALL QUARTER
### (pre-nursing)

| Courses | Cr. Hrs. |
|---|---|
| BIOL 509/509L Principles of Biology 1 | 4 |
| CHEM 505/505L Chemistry for Allied Health Sci 1 | 4 |
| ENGL 550 Composition 1 | 4 |
| SOCIO 500 Fundamentals of Sociology | 4 |
| | 16 |

### WINTER QUARTER
### (pre-nursing)

| Courses | Cr. Hrs. |
|---|---|
| BIOL 611/611L Principles of Biology 3 | 4 |
| CHEM 506/506L Chemistry for Allied Health Sci 2 | 4 |
| ENGL 551 Composition 2 | 4 |
| HPES Education Activities | 1+1+1 |
| | 15 |

### SPRING QUARTER
### (pre-nursing)

| Courses | Cr. Hrs. |
|---|---|
| BIOL 710 Mammalian Anatomy/Lab | 4 |
| BIOL 702 or 787 Microbiology or Diagnostic Microbiology/ Lab | 4 |
| PSYCH 560 General Psychology | 4 |
| PHIL 600 Introduction to Philosophy OR PHIL 530 Critical Thinking | 4 |
| | 16 |

### SOPHOMORE YEAR
### FALL QUARTER
### (pre-nursing)

| Courses | Cr. Hrs. |
|---|---|
| FNUTR 551 Normal Nutrition 1 | 4 |
| BIOL 792 Human Physiology 1/Lab | 5 |
| PSYCH 757 Developmental Psychology-Adult | 4 |
| NURSG 640 Introduction to Nursing | 3 |
| NURSG 641 Concepts and Theories of Self-Care 1 | 3 |
| | 19 |

### WINTER QUARTER
### (nursing major)

| Courses | Cr. Hrs. |
|---|---|
| PSYCH 756 Develop. Psychology-Adolescent | 4 |
| SPCH 550 Theory and Practice of Public Speaking | 4 |
| NURSG 643 Universal Self-Care Requisites | 4 |
| NURSG 643L Universal Self-Care Requisites Lab | 2 |
| BIOL 793 Human Physiology 2 | 4 |
| | 18 |

**SPRING QUARTER**
**(nursing major)**

| Courses | Cr. Hrs. |
|---|---|
| PSYCH 755 Developmental Psychology-Child | 4 |
| NURSG 646 Health Deviation Self-Care Requisites | 4 |
| NURSG 645 Nursing Systems 1 | 4 |
| NURSG 645L Nursing Systems 1 Laboratory | 3 |
| | 16 |

**JUNIOR YEAR**
**FALL QUARTER**
**(nursing major)**

| Courses | Cr. Hrs. |
|---|---|
| BIS 613 Microcomputer Applications or CSCI 520 or CIS 520 | 4 |
| NURSG 740 Concepts and Theories of Self-Care 2 | 3 |
| NURSG 741 Nursing Systems 2 | 4 |
| NURSG 741L Nursing Systems 2 Laboratory | 3 |
| NURSG 750 Nursing Process and Clinical Pharmacology | 4 |
| | 18 |

**WINTER QUARTER**
**(nursing major)**

| Courses | Cr. Hrs. |
|---|---|
| PSYCH 613 Statistical Methods in Psychology 1 or Equivalent | 3 |
| Electives | 4 |
| NURSG 742 Nursing Systems 3 | 5 |
| NURSG 742L Nursing Systems 3 Laboratory | 2 |
| NURSG 743 Leadership | 3 |
| | 17 |

**SPRING QUARTER**
**(nursing major)**

| Courses | Cr. Hrs. |
|---|---|
| PHIL 825 Biomedical Ethics | 4 |
| NURSG 744 Nursing Systems 4 | 4 |
| NURSG 744L Nursing Systems 4 Laboratory | 2 |
| NURSG 749 Nursing Research | 4 |
| | 14 |

**SENIOR YEAR**
**FALL QUARTER**
**(nursing major)**

| Courses | Cr. Hrs. |
|---|---|
| Elective | 4 |
| NURSG 830 Nursing Systems 5 | 4 |
| NURSG 830L Nursing Systems 5 Laboratory | 2 |
| NURSG 831 Nursing Systems 6 | 4 |
| NURSG 831L Nursing Systems Laboratory | 2 |
| | 16 |

**WINTER QUARTER**
**(nursing major)**

| Courses | Cr. Hrs. |
|---|---|
| Elective | 4 |
| NURSG 842 Nursing Systems 7 | 4 |
| NURSG 842L Nursing Systems 7 Laboratory | 2 |
| NURSG 841 Nursing Systems 8 | 5 |
| NURSG 841L Nursing Systems 8 Laboratory | 2 |
| | 17 |

**SPRING QUARTER**
**(nursing major)**

| Courses | Cr. Hrs. |
|---|---|
| Elective | 4 |
| NURSG 844 Nursing Systems 9 | 4 |
| NURSG 844L Nursing Systems 9 Laboratory | 2 |
| NURSG 845 Professional Issues | 2 |
| NURSG 847 Nursing Synthesis | 1 |
| NURSG 847L Nursing Synthesis Laboratory | 2 |
| | 15 |
| **Total Credit Hours** | **197** |

***RN Track Requirement**

1. Nursing Major Prerequisites — 52 q.h.
   BIOL 509, 611 and 710 or 551 and 552
   BIOL 702 or 787 or 560
   CHEM 505 and 506
   PSYCH 560, 755, and 756
   ENGL 550 and 551
   PHIL 600 or 530
   FNUTR 551
   SOCIO 500
2. Nursing Courses Credit by Exam — 57 q.h.
   645/L, 646, 741/L, 742/L, 744/L, 830/L, 831/L, 841/L, 842/L
3. Required Nursing Courses — 29 q.h.
   NURSG 641L — 1
   NURSG 642 — 4
   NURSG 743 — 3
   NURSG 749 — 4
   NURSG 832 — 4
   NURSG 833 — 4
   NURSG 844/L — 6
   NURSG 847/L — 3
4. Required Support Courses — 52 q.h.
   PSYCH 613 or equivalent — 3
   PSYCH 757 — 4
   BIS 613 or CIS 520 — 4
   PHIL 825 — 4
   COMM 550 — 4
   BIOL 792/L and 793/L — 10
   Electives — 20
   HPES — 3
   **TOTAL CREDIT HOURS — 190**

## SOCIAL WORK

*Professors Cooper, DiGiulio; Associate Professor Slivinske; Assistant Professors Morawski, Mosca.*

The baccalaureate degree with a major in Social Work prepares students for entry into beginning, professional Social Work practice. Social workers are employed in a variety of settings such as public and private welfare agencies, mental health centers, health

*For registered Nurses with Associate or Diploma Degrees.

care settings, educational systems, correctional institutions, and business and industry. The Social Work Program is acredited by the Council on Social Work Education. A baccalaureate degree in social work qualifies a person to apply for licensing in the state of Ohio.*

**ADMISSION POLICY**

Neither admission to the University nor enrollment in the Department of Social Work guarantees full admission to the Social Work Program. Full admission is required to gain access to upper division social work classes. Students who are not formally admitted to the Social Work Program will be unable to obtain a permit to register for Social Work 722 and subsequent social work courses for which Social Work 722 is a prerequisite.

To be admitted to the Program the students must meet the following requirements.:

1. An overall GPA of 2.25 or better.

2. Completion of all university pre-college admission requirements.

3. Successfull completion (C or better beginning Fall 1993) of the following courses according to sequencing: ENGL 550 and 551, BIOL 551 and 552, SOCIO 500, PSYCH 560, SOCWK 620, ANTHR 602, SOCWK 622, SOCIO 700, SOCWK 641, POLIT 601, SOCWK 642, SOCWK 644.

4. Students must also complete and return the Social Work Program Admission Application. This form can be obtained in the Social Work Department. The completed application must be returned to the Social Work Department before the **3rd week** of the quarter preceding the term for which admission is requested.

For more detailed information for admission to the Social Work Program, please refer to the Social Work Program Student Handbook available in the Social Work Department.

A major in Social Work comprises a minimum of 72 quarter hours of professional foundation courses. In lieu of a minor, 32 quarter hours of support courses must also be completed. Majors must take SCWK 620, 622, 641, 642, 644, 718, 722, 736, 737, 750, 760, 820, 822, 825 (14 q.h.), 826 (2-4 q.h.); and one Social Work elective; plus the following support courses: SOCIO 500, 700; ANTHRO 602; BIOL 551, 552; POLIT 601, 720; and PSYCH 560.

# SOCIAL SERVICES TECHNOLOGY

Social Work offers a two-year program in Social Services Technology leading to the degree Associate in Applied Science.

The primary purpose of this program is to provide a formal two-year degree for those currently employed as social worker aides who wish to increase their professional qualifications, and for those who are entering the field of social work in the less complex positions.

*The Social Work Program is acredited by the Council on Social Work Education.

The student must meet the general degree requirements and department course requirements as follows:

**General University Requirements**

| Courses | Cr. Hrs. |
|---|---|
| ENGL 550, 551 Basic Composition 1 & 2 | 8 |
| Humanities Elective | 4 |
| BIOL 551, 552 Anatomy | 8 |
| SOCIO 500, 700 Fundamentals & Minority Groups | 8 |
| PSYCH 560 General Psychology | 4 |
| ANTRH 602 Introduction to Anthropology | 4 |
| POLIT 601 American National Government | 4 |
| HSC 590 Health Education | 3 |
| Electives | 10 |
| | 53 |

**Department Requirements for Social Services Technology**

| Courses | Cr. Hrs. |
|---|---|
| SOCWK 620 Introduction to Social Work (SOCIO 500) | 4 |
| SOCWK 622 Social Work Processes (SCWK 620) | 4 |
| SOCWK 641 American Social Welfare (SCWK 620) | 4 |
| SOCWK 642 Human Behav. & Soc Env. 1 (BIOL 551, SCWK 620, PSYCH 560) | 4 |
| SOCWK 644 Human Behav. & Soc. Env. 2 (SCWK 642) | 4 |
| SOCWK 718 Human Behav. & Soc. Env. 3 (SCWK 644, BIOL 552) | 4 |
| SOCWK 722 Social Work Methods (SCWK 622, SCWK 641, SCWK 644) | 4 |
| SOCWK 736 Social Work Methods 2 (SCWK 722) | 4 |
| SOCWK 695 Applied Social Work | 8 |
| SCWK Electives | 3 |
| | 43 |
| **Total Credit Hours** | **96** |

## Lower Division Courses

620. *Introduction to Social Work.* A general overview of the development, philosophy, and values of the profession of social work from a historical viewpoint, with emphasis on current roles, interventions, trends, and issues. Representative social workers serve as guest lecturers. Prereq.: SOCIO 500. 4 q.h.

622. *Social Work Processes.* Addresses the full range of communication skills in systems of all sizes for professional social work practice. Includes principles of effective communication, functions and purposes of communication and the roles of social workers. Arranged volunteer experience required. Four hours lecture and four hours of field. Prereq.: SOCWK 620. 4 q.h.

641. *American Social Welfare.* Overview of the history and evolution of social welfare programs and services in America. Emphasis on the identification and interrelationship of social values and structures,

political factors, and economic conditions on resource allocation, including meeting the needs of special populations. Prereq.: SOCWK 620. 4 q.h.

642. *Human Behavior and the Social Environment for Social Workers 1.* A general social systems approach as a conceptual framework to the understanding of culture and society, communities, organizations, groups, families, and individuals as they develop over the life span. Application of theory and research to social work. Prereq.: BIOL 551, SOCWK 620, and PSYCH 560. 4 q.h.

644. *Human Behavior and the Social Environment for Social Workers 2.* Continued application of theory and social research to life span development with emphasis on issues of race, gender, and sexual preference. Prereq.: SOCWK 642. 4 q.h.

692. *Human Sexuality.* An interdisciplinary approach to the study of human sexuality. This holistic approach includes problems in sex education, the nature of sexuality, the relationship of sex to personal identity, and sexual mobility. Covers physiological reproduction, contraception, venereal disease, sexual dysfunctions, techniques, and response. Listed also as BIOL 692, HSC 692, and PSYCH 692. Prereq.: HPES 590. Does not count toward University general requirements. 4 q.h.

695. *Applied Social Work.* A practicum in human services agencies for the Social Services Technology major. The student must spend 300 hours in an agency for a total of eight hours credit over one or two quarters and attend a weekly seminar. Prereq.: completion of all courses for the two-year Social Services Technology Program. 4-8 q.h.

## Upper Division Courses

718. *Human Behavior and the Social Environment for Social Workers 3.* The ecological model as applied to client systems of all sizes. Biological, psycho-social and cultural perspectives are integrated for application to practice. Prereq.: SCWK 644 and BIOL 552. 4 q.h.

719. *Health Care Systems.* A sociological analysis of the roles of the physician, the nurse, the social worker, and paramedical personnel in a variety of settings with attention to federal programs as related to local systems. Lectures and field work. Prereq.: SCWK 620, or admission to the NEOUCOM-YSU program. 3 q.h.

722. *Social Work Methods 1.* Overview of problem solving strategies with client systems of varying sizes using the systems perspective. Generalist practice methods and skills are emphasized including exploration and data gathering, differential assessment and planning, goal setting, client-system contracting, interviewing, skills, intervention strategies, and evaluation and termination. Practice issues with women and minorities are also studied. Prereq.: SOCWK 622, 641, and 644. 4 q.h.

726. *The Black Family.* A sociological study of the black family in the Americas: its origins and the factors of class, economics, politics, religion, education, and law that have affected the pattern of its functional and social behavior. Prereq.: BLKST 600 or SOCIO 500. 4 q.h.

727. *The Black Community.* The black community's uniqueness resulting from the black experience in American society. Population, cultural forms, and institutional structures are explored in terms of this uniqueness and in relationship to social and physical survival functions. Analysis of the affects of the dominant social system on the black community. Prereq.: BLKST 600 or SOCIO 500. 4 q.h.

728. *Social Services for Children.* Social welfare agencies and services developed by communities for the care and training of children. Development of a conceptual framework for understanding the issues, problems, and policies in children's services. Prereq.: SOCWK 620. 4 q.h.

730. *Social Services and the Aged.* An empirical and analytical base for understanding the policies, problems, and trends in services for the aged. Prereq.: SOCWK 620. 3 q.h.

731. *Social Services and the Handicapped.* Problems arising from or related to illness and disability; adjustment of handicapped persons. General interventive techniques for working with the handicapped; recent research and treatment innovations. Prereq.: SCWK 620. 3 q.h.

736. *Social Work Methods 2.* In depth analysis of problem solving strategies and skills in working with individuals. Theory and research relating to practice will be examined. Social work purpose, functions, and values are addressed from the systems perspective. Prereq.: SOCWK 722. 4 q.h.

737. *Social Work Methods 3.* In depth analysis of problem solving strategies and skills in working with families and small groups. Theory and research relating to practice will be examined. Social Work purpose, function, and values are addressed from the systems perspective. Prereq.: SOCWK 736. 4 q.h.

740. Cultural Diversity in Social Work Practice. Emphasis is on understanding the experiences, beliefs, and inherent problems of racial and ethnic minority groups. Focuses also on populations distinguished by socioeconomic status, gender, age, sexual orientation, religion, and physical or mental disability. Application of theories, differential assessment, and intervention skills necessary for effective social work practice. Prereq.: SCWK 622. 4 q.h.

750. *Analysis of Social Work Practice Data.* Techniques of data description and introduction to analytical methods used to evaluate service delivery at all levels of social work practice. Prereq.: SCWK 722. 4 q.h.

760. *Research Methods for Social Workers.* Quantitative and qualitative research methodologies for building knowledge for social work practice. Systematic evaluation of outcomes, theoretical bases, relevant technological advances, and ethical standards. Prereq.: SCWK 750. 5 q.h.

820. *Social Policy.* Review of the programs, structure, and functions of social services including historical development and social, political, and economic issues. Application of scientific method to analyze and develop social work policies designed to achieve social work goals and purposes. Prereq.: SOCWK 641 and two required policy courses. 4 q.h.

822. *Social Work Methods 4.* In depth analysis of problem solving strategies and skills in working with organizations and communities. Theory and research relating to practice will be examined. Social work purpose, functions, and values are addressed from the systems perspective. Prereq.: SOCWK 737. 4 q.h.

825. *Field Work in Social Services.* Professionally supervised practice in approved social agencies, to give the student controlled educational experience in social work. The student must spend 225 hours per quarter in an agency for each seven hours credit. May be repeated for a maximum of 14 quarter hours. Concurrent: SCWK 826. Prereq.: Completion of all courses for Social Work major. 7 - 14 q.h.

826. *Integrated Field Work Seminar.* Consolidates learning experiences of the social work student enrolled in field work; provides a synthesis of social work theory and knowledge. May be repeated once for baccalaureate degree. Concurrent: SCWK 825. Prereq.: Completion of all other courses for social work major. 2 q.h.

850. *Interventions With Families.* The analysis of major social work processes applied to family system characteristics, observed in functional and dysfunctional families. Illustrated by family case situations typically seen within various types of social agencies. Will include role-playing and case discussion. Prereq.: SCWK 737. 4 q.h.

851. *Family Theories in Social Work.* A comparison of major conceptual family theories in social work practice. Rationale for the selection and application of a specific theory. Prereq.: SCWK 737. 4 q.h.

860. *Seminar—Special Topics in Social Work.* Study of selected topics in social work theory, methods and research. May be taken for credit three times with different topics. Prereq.: Junior standing or permission of instructor. 4 q.h.

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## FULL SERVICE FACULTY

JEAN E. ABOUL-ELA
Associate Professor of Human Ecology
B.S., Iowa State University, 1950
M.S., Texas Woman's University, 1968
Ph.D., Texas Woman's University, 1976

SHAFFIQ AHMED
Professor of Chemical Engineering
B.E., University of Calcutta, 1954
M.S., University of Illinois, 1958
Ph.D., Case Institute of Technology, 1965
P.E., England

KATHLEEN AKPOM
Assistant Professor, Health Sciences
B.A., Michigan State University, 1970
M.P.H., The University of Michigan, 1974
Ph.D., Michigan State University, 1981

JAVED ALAM
Professor of Civil and Environmental Engineering
B.E., Indian Institute of Technology, 1977
M.E., Asian Institute of Technology, 1979
Ph.D., Case Western Reserve University, 1983

DOMENICO B. ALIBERTI
Professor of Foreign Languages and Literatures
Maturita' Classica, L. Valli University, Italy, 1950
Laurea Di Dottore in Lettere, University of Messina, Italy, 1959

JOSEPH P. ALTINGER
Professor of Mathematics
B.S., University of Dayton, 1956
M.S., University of Pittsburgh, 1961
Ph.D., Case Western Reserve University, 1970

CYNTHIA E. ANDERSON
Associate Professor of Business Information Systems
B.S., Youngstown State University, 1972
M.A., The Ohio State University, 1975
Ph.D., University of Akron, 1990

NANCY ANDREW
Assistant Professor, Dana School of Music
B.F.A., University of New Mexico, 1979
B.M., University of New Mexico, 1979
M.M., State University of New York at Stony Brook, 1981
D.M.A., Johns Hopkins University, 1994

BERNADETTE J. ANGLE
Professor of Special Education
B.S. in Ed., Youngstown State University, 1968
M.Ed., Kent State University, 1971
Ph.D., University of Akron, 1980

JOSEPH ANTENUCCI
Associate Professor, Accounting & Finance
B.A., Harvard University, 1975
M.A., University of New Mexico, 1977
Ph.D., Virginia Polytechnic Institute & State Univ., 1993

FRANCIS A. ARLINGHAUS
Assistant Professor of Mathematics
B.S., University of Detroit, 1983
M.A., Pennsylvania State University, 1989
PH.D., Pennsylvania State University, 1993

PETER ARLOW
Professor of Management
B.S. in B.A, Youngstown State University, 1961
M.B.A., University of Akron, 1968
Ph.D., University of Cincinnati, 1979

RANE RAMON ARROYO
Assistant Professor, English
B.A., Elmhurst College, Elmhurst, Illinois, 1976
M.A., Sangamon State University, Springfield, Illinois, 1991
Ph.D., University of Pittsburgh, 1994

DAVID K. ASCH
Assistant Professor of Biological Sciences
B.S., University of Nebraska-Lincoln, 1981
M.S., Creighton University, 1983
Ph.D., University of Kansas Medical Center, 1991

SALVATORE ATTARDO
Assistant Professor of English
Ph.D., Purdue University, 1991

LOUISE A. AURILIO
Instructor, Nursing
B.S., Youngstown State University, 1982
M.S.N., University of Akron, 1986

STEPHEN W. AUSMANN
Assistant Professor of Music
B.M., Capital University, 1975
M.A., The Ohio State University, 1984
Ph.D., The Ohio State University, 1991

JOSEPH BABISCH
Professor of Art
B.S. in Ed., State University of New York at Buffalo, 1956
M.Ed., Westminster College, 1964

CHRISTOPHER M. BACHE
Professor of Philosophy and Religious Studies
B.A., University of Notre Dame, 1971
M.A., Cambridge University, 1973
Ph.D., Brown University, 1978

DORA L. BAILEY
Associate Professor of Early and Middle Childhood Education
B.S., Youngstown State University, 1969
M.S. in Ed., Youngstown State University, 1980
Ph.D., Kent State University, 1984

JACK D. BAKOS, JR.
Professor of Civil and Environmental Engineering
B.S., University of Akron, 1963
M.S.C.E., West Virginia University, 1965
Ph.D., West Virginia University, 1967
P.E., Ohio, Mississippi

SAMUEL F. BARGER
Professor of Mathematics
B.S., Clarion State College, 1958
M.S., University of Minnesota, 1961
Ph.D., University of Minnesota, 1970

REBECCA A. BARNHOUSE
Assistant Professor, English
B.A., Florida State University, 1983
M.A., University of North Carolina, 1986
Ph.D., The University of North Carolina at Chapel Hill, 1994

WILLIAM O. BARSCH
Professor in School of Technology
B.S., Purdue University, 1965
M.S., Purdue University, 1966
Ph.D., Purdue University, 1970
P.E., Ohio

JANET L. BEARY
Professor of Early and Middle Childhood Education
B.S., Clarion State College, 1971
M.Ed., Clarion State College, 1974
Ph.D., The Ohio State University, 1979

MARY J. BEAUBIEN
Professor of Human Ecology
B.S. in H.E., Siena Heights College, 1955
M.S., Michigan State University, 1962
Ph.D., Pennsylvania State University, 1970

SERVIO T. BECERRA
Associate Professor of Foreign Languages and Literatures
M.A., University of Wisconsin-Milwaukee, 1967
Ph.D., University of Wisconsin-Madison, 1973

PETER A. BECKETT
Professor of Psychology
B.A., State University of New York at Geneseo, 1971
M.A., State University of New York at Geneseo, 1974
Ph.D., Kent State University, 1977

RICHARD H. BEE
Professor of Economics
B.S. in B.A., Pennsylvania State University, 1964
M.A., Pennsylvania State University, 1967
D.B.A., Kent State University, 1976

ROBERT J. BEEBE
Professor of Educational Administration
A.B., Harvard University, 1966
M.Ed., The College of William and Mary, 1971
Ed.D., The College of William and Mary, 1974

GEORGE D. BEELEN
Professor of History
A.B., Youngstown State University, 1958
M.A., Case Western Reserve University, 1962
Ph.D., Kent State University, 1971

RAYMOND EMIL BEIERSDORFER
Assistant Professor, Geology
B.A., Queens College, City University of New York, 1979
M.S., University of California at Davis, 1982
Ph.D., University of California at Davis, 1992

KELLY RENEE BELANGER
Assistant Professor of English
B.A., Michigan State University Honors College, 1986
M.A., The Ohio State University, 1988
Ph.D., The Ohio State University, 1992

RANDALL W. BENNER
Instructor, Allied Health
B.S., Youngstown State University, 1992
M.Educ., Kent State University, 1994

DENNIS D. BENSINGER
Professor of Accounting and Finance
B.S. in B.A., Youngstown State University, 1967
M.Acc., The Ohio State University, 1968
C.P.A., Ohio

MARTIN E. BERGER
Professor of History
B.A., Columbia University, 1964
M.A., University of Pittsburgh, 1965
Ph.D., University of Pittsburgh, 1969

ALICE BETZ
Associate Professor of Allied Health
B.S. in Ed., The Ohio State University, 1979
M.S., Boston University, 1980

WILLIAM C. BINNING
Professor of Political Science and Social Science
B.A., St. Anselm's College, 1966
Ph.D., University of Notre Dame, 1970

EDWIN V. BISHOP
Professor of Physics and Astronomy
B.A., Swarthmore College, 1958
M.S., Yale University, 1960
Ph.D., Yale University, 1966

FREDERICK J. BLUE
Professor of History
B.A., Yale University, 1958
M.S., University of Wisconsin, 1962
Ph.D., University of Wisconsin, 1966

THOMAS A. BODNOVICH
Instructor in Computer and Information Sciences
B.S., Youngstown State University, 1979
M.S., The Ohio State University, 1981

JANET M. BOEHM
Assistant Professor of Allied Health
B.S., Baldwin Wallace College, 1977
M.S., University of Akron, 1982

VIOLET F. BOGGESS
Professor of Computer and Information Sciences
B.S. in Ed., Kent State University, 1957
M.A., The Ohio State University, 1961
Ph.D., The Ohio State University, 1970

THEODORE R. BOSELA
Assistant Professor in School of Technology
B.E., Youngstown State University, 1981
M.S., University of Akron, 1985
Ph.D., University of Pittsburgh, 1993

CHERYL L. BOSLEY
Assistant Professor in Nursing
B.S.N., Kent State University, 1979
M.S.N., Kent State University, 1984

FRANK J. BOSSO
Assistant Professor, Human Performance and Exercise Science
B.S., Slippery Rock University, 1978
M.S., West Virginia University, 1979
Ph.D., NEOUCOM/Kent State University, 1990

BEGE KAYE BOWERS
Professor of English
B.A., Vanderbilt University, 1971
M.A., University of Tennessee, 1973
Ph. D., University of Tennessee, 1984

JOAN BOYD
Associate Professor of Allied Health
B.S. in A.S., Youngstown State University, 1975
M.A., Central Michigan University, 1980
Ph.D., The Union Institute, 1993

PHILIP S. BRADY
Associate Professor of English
B.A., Bucknell University, 1977
M.A., University of Delaware, 1979
M.A., San Francisco State University, 1986
Ph.D., State University of New York, 1990

ALFRED L. BRIGHT
Professor of Art
B.S. in Ed., Youngstown State University, 1964
M.A., Kent State University, 1965

BARBARA H. BROTHERS
Dean and Professor of English
B.A., Youngstown State University, 1958
M.A., Case Western Reserve University, 1962
Ph.D., Kent State University, 1973

DEAN R. BROWN
Professor of Mathematics
B.S., Rose Polytechnic Institute, 1960
M.S., Rensselaer Polytechnic Institute, 1964
M.S., The Ohio State University, 1966
Ph.D., The Ohio State University, 1970

JULIE BROWN
Associate Professor of English
B.S., Oregon State University, 1983
M.F.A., University of Montana, 1987
Ph.D., University of Wisconsin-Milwaukee, 1990

SARAH BROWN-CLARK
Associate Professor of English
B.A., Ohio University, 1971
M.A., Ohio University, 1972

LAURA BUCH
Assistant Professor, Dana School of Music
B.A., Music, Oakland University, Rochester, MI, 1977
B.A., English, Oakland University, Rochester, MI, 1977
M.A., University of Louisville, Kentucky, 1982
Ph.D., Eastman School of Music, Rochester, NY, 1993

WILLIAM R. BUCKLER
Assistant Professor of Geography
B.A., Wayne State University, 1969
M.A., Michigan State University, 1973
Ph.D., Michigan State University, 1981

MARY A. BUDGE
Professor of English
B.A., Drew University, 1962
Ph.D., State University of New York at Buffalo, 1970

JOHN J. BUONI
Professor of Mathematics
B.S., St. Joseph's College, 1965
M.S., University of Pittsburgh, 1968
Ph.D., University of Pittsburgh, 1970

RICHARD L. BURDEN
Professor of Mathematics
B.A., Albion College, 1966
M.S., Case Western Reserve University, 1968
Ph.D., Case Western Reserve University, 1971
M.S., University of Pittsburgh, 1981

DAVID J. BURNS
Associate Professor of Marketing
B.S.B.A., Wright State University, 1979
M.B.A., Cleveland State University, 1981
D.B.A., Kent State University, 1987

ANITA C. BURRIS
Assistant Professor, Mathematics
B.S., Southern Illinois University, Carbondale, IL, 1987
M.S., Texas A & M University, College Station, TX, 1988
Ph.D., Memphis State University, 1993

DEBORAH BYRD
Instructor, Special Education
B.S./Educ., Kent State University, 1974
M./Educ., Kent State University, 1982

MARTIN CALA
Assistant Professor of Industrial and Systems Engineering
B.S., Duke University School of Engineering, 1978
M.S., Thomas J. Watson School of Engineering 1987
Ph.D., State University of New York at Binghamton, 1991

CRAIG S. CAMPBELL
Assistant Professor, Geography
B.A., Indiana University (Purdue University at Indianapolis), 1984
M.A., University of Kentucky, 1987
Ph.D., University of Kansas, 1993

ROBERT C. CAMPBELL
Associate Professor of Human Ecology
B.S., Morehead State University, 1976
M.B.E., Morehead State University, 1978

FRANK A. CASTRONOVO
Professor of Communication and Theater
B.A., Case Western Reserve University, 1965
M.A., University of Arizona, 1970
Ph.D., Kent State University, 1980

JOHN N. CERNICA
Professor of Civil and Environmenatal Engineering
B.E., Youngstown State University, 1954
M.S., Carnegie Institute of Technology, 1955
Ph.D., Carnegie Institute of Technology, 1957

PHILLIP CHAN
Assistant Professor of Art
B.A., University of California at Berkeley, 1971
M.F.A., University of California at Berkeley, 1976

GUANG-HWA (ANDY) CHANG
Assistant Professor, Mathematics
B.S., Nat'l. Taiwan Col. of Marine Sc. & Tech., China, 1981
M.S., Texas Tech University, Lubbock, TX, 1987
Ph.D., Texas Tech University, Lubbock, TX, 1993

HAIYANG CHEN
Associate Professor of Accounting and Finance
B.S., University of International Business and Economics, 1982
M.I.M., American Graduate School of International Management., 1984
M.A., Kent State University, 1987
Ph.D., Kent State University, 1990

THEODORE S. CHROBAK
Professor of Computer and Information Sciences
B.E., Youngstown State University, 1963
M.S., West Virginia University, 1964
M.S.I.S., University of Pittsburgh, 1986

CARL F. CHUEY
Associate Professor of Biological Sciences
B.S. in Ed., Youngstown State University, 1966
M.S., Ohio University, 1969

GREGORY A. CLAYPOOL
Associate Professor of Accounting and Finance
B.A., Kent State University, 1969
A.S., University of Chicago, 1974
M.B.A., Kent State University, 1977
Ph.D., Kent State University, 1988

CHRISTINE COBB
Instructor in Human Performance and Exercise Science
B.S., Illinois State University, 1976
M.A., The Ohio State University, 1989

LESLIE H. COCHRAN
Professor of Educational Administration
B.S., Western Michigan University, 1961
M.A., Western Michigan University, 1962
Ed.D., Wayne State University, 1968

JEFFREY T. COLDREN
Assistant Professor, Psychology
B.A., Albright College, 1983
M.A., University of Kansas, 1988
Ph.D., University of Kansas, 1992

JAMES A. CONSER
Associate Professor, Criminal Justice
A.B., Youngstown State University, 1971
M.S., Michigan State University, East Lansing, MI, 1974
Ph.D., Kent State University, 1980

WILLIAM R. CONVERY
Assistant Professor of Counseling
B.A., New Mexico Western College, 1962
M.A., Western New Mexico University, 1963
Ed.D., University of Wyoming, 1970

SYRETHA F. COOPER
Professor of Social Work
B.A., Youngstown State University, 1952
M.S., Case Western Reserve University, 1954
Ph.D., Case Western Reserve University, 1988

THOMAS A. COPELAND
Professor of English
A.B., Oberlin College, 1966
M.A., Northwestern University, 1967
Ph.D., Northwestern University, 1971

HERVE' M. CORBE'
Assistant Professor of Foreign Languages and Literatuares
Faculte' des Sciences, Universite' de Rennes, 1966
Maitrise d' Anglais, Universite' de Bretagne Occidentale, 1971
C.A.P.E.S. d' Anglais, Universite' de Rennes, 1972
Ph.D., Pennsylvania State University, 1983

MICHAEL ROBERT CRIST
Assistant Professor of Music
B.M., Ithaca College, 1978
M.M., Youngstown State University, 1983

RALPH G. CRUM
Professor in School of Technology
B.S., Carnegie Institute of Technology, 1953
M.S., Carnegie Institute of Technology, 1954
Ph.D., Carnegie Institute of Technology, 1956

LAWRENCE E. CUMMINGS
Professor of Criminal Justice
B.A., University of Texas, 1959
M.A., University of Texas, 1966
Ph.D., University of Georgia, 1974

ROSEMARY D'APOLITO
Assistant Professor of Sociology and Anthropology
B.A., Youngstown State University, 1981
M.A., Kent State University, 1987
Ph.D., Kent State University, 1994

DENISE A. DA ROS
Assistant Professor, Early & Middle Childhood Education
B.S., College of Charleston, SC, 1983
M.E., Citadel, Charleston, SC, 1987
Ph.D., University of South Carolina, 1993

PAUL E. DALBEC
Professor of Physics and Astronomy
B.S., Boston College, 1957
M.S., University of Notre Dame, 1959
Ph.D., Georgetown University, 1967

JAMES H. DALY
Professor of Management
B.S. in B.A., Youngstown State University, 1970
M.B.A., University of Akron, 1972
M.L.H.R., The Ohio State University, 1988

ANTHONY F. DASTOLI
Assistant Professor of Management
B.E., Youngstown State University, 1958
M.B.A., University of Pittsburgh, 1964

LAWRENCE A. DAVIS
Associate Professor of Marketing
B.S. in B.A., Youngstown State University, 1965
M.B.A., Kent State University, 1967

C. SUSAN deBLOIS
Associate Professor of Foundations of Education
B.A., St. Joseph College, 1967
M.A., University of Iowa, 1974
M.S.W., University of Iowa, 1975
Ph.D., University of Iowa, 1984

DAVID R. DECKER
Professor of Marketing
B.A., Grinnell College, 1972
Ph.D., University of Kansas, 1977
M.B.A., University of Pennsylvania, 1983

E. TERRY DEIDERICK
Professor of Marketing
B.S. in B.A., Youngstown State University, 1963
M.S., New York University, 1964
Ed.D., Nova University, 1976

JANET E. DEL BENE
Professor of Chemistry
B.S. in Ed., Youngstown State University, 1963
A.B., Youngstown State University, 1965
Ph.D., University of Cincinnati, 1968

MARIA E. DELOST
Associate Professor of Allied Health
B.S., Youngstown State University, 1979
M.S., University of Akron, 1985

IVANIA DEL POZO
Associate Professor of Foreign Languages and Literatures
B.A., Barry College, 1968
M.A., City University of New York, 1974
Ph.D., City University of New York, 1977

JEFFREY C. DICK
Assistant Professor of Geology
B.S., Kent State University, 1980
M.S., Kent State University, 1982
Ph.D., Kent State University, 1992

JOAN F. DI GIULIO
Professor of Social Work
A.B., College of St.Francis, 1959
M.A., University of Chicago, 1962
Ph.D., Case Western Reserve University, 1986

MARY LOU DIPILLO
Assistant Professor of Early and Middle Childhood Education
B.A., Mercyhurst College, 1971
M.S., Youngstown State University, 1988
Ph.D., The University of Akron, 1994

LAWRENCE A. DIRUSSO
Professor of Counseling
A.B., Youngstown State University, 1954
M.A., Kent State University, 1960
Ed.D., Western Reserve University, 1966

LESLIE S. DOMONKOS
Professor of History
B.A., Youngstown State University, 1959
M.A., Medieval Institute, University of Notre Dame, 1960
M.M.S., Medieval Institute, University of Notre Dame, 1963
D.S.M., Medieval Institute, University of Notre Dame, 1966

JAMES E. DOUGLASS
Professor of Secondary Education
B.E., Youngstown State University, 1960
M.Ed., Westminster College, 1965
Ed.D., University of Akron, 1970

MARIANNE K. DOVE
Assistant Professor, Secondary Education
B.S., Wittenberg University, 1969
M.Ed., Youngstown State University, 1983
Ph.D., Kent State University, 1986

WADE C. DRISCOLL
Professor of Industrial and Systems Engineering
B.S., Pennsylvania State University, 1963
M.S., New York University, 1965
Ph.D., Case Western Reserve University, 1975
P.E., Ohio

KAREN L. DUDA
Professor of Computer Information Sciences
B.S. in Ed., Indiana University of Pennsylvania, 1971
M.Ed., Indiana University of Pennsylvania, 1975
Ph.D., University of Pittsburgh, 1981

HUGH G. EARNHART
Professor of History
A.B., Bowling Green State University, 1960
M.A., University of Maryland, 1963

JOSEPH EDWARDS
Professor of Music
Mus.B., Youngstown State University, 1965
M.M., Michigan State University, 1967

C. WILLIAM EICHENBERGER
Professor of Political Science and Social Science
A.B., Youngstown State University, 1957
M.S. in Ed., Westminster College, 1963
Ph.D., University of Pittsburgh, 1974

JANICE G. ELIAS
Associate Professor of Human Ecology
B.S., Ohio University, 1971
M.S., Ohio University, 1978
Ph.D., The Ohio State University, 1989

STEVE L. ELLYSON
Professor of Psychology
B.A., Washington College, 1970
M.A., University of Delaware, 1973
Ph.D., University of Delaware, 1974

KENT J. ENGELHARDT
Instructor, Dana School of Music
B.M., Youngstown State University, 1986
M.M., Youngstown State University, 1993

DIANA L. FAGAN
Assistant Professor of Biological Sciences
B.S., University of Texas Medical Branch, 1976
Ph.D., University of Texas Southwestern Medical Center, 1986

J. DOUGLAS FAIRES
Professor of Mathematics
B.S., Youngstown State University, 1963
M.S., University of South Carolina, 1965
Ph.D., University of South Carolina, 1970

RENEE L. FALCONER
Assistant Professor, Chemistry
B.S., Grove City College, 1990
Ph.D., The University of South Carolina, 1994

JOYCE A. FEIST-WILLIS
Assistant Professor of Early and Middle Childhood Education
A.B., West Liberty State College, 1971
A.M., West Virginia University, 1974
Ed.D., West Virginia University, 1983

KATHRYN L. FELD
Associate Professor of Allied Health
B.S., Youngstown State University, 1971
M.S., Westminster College, 1975

WILDA S. FERRIS
Assistant Professor in Nursing
B.S.N., Carnegie Mellon University, 1945
M.S.N., University of Pittsburgh, 1983

MICHAEL FINNEY
Associate Professor of English
B.A., Stanford University, 1962
M.A., University of Iowa, 1968
Ph.D., University of Iowa, 1975

DALE W. FISHBECK
Professor of Biological Sciences
B.A., Yankton College, 1957
M.A., University of South Dakota, 1959
Ph.D., University of Minnesota, 1968

MASON L. FISHER
Assistant Professor of Physics and Astronomy
B.S., Lafayette College, 1957
M.S., Lehigh University, 1959

DORCAS FITZGERALD
Associate Professor of Nursing
B.S.N., University of Alabama, 1965
M.S.N., University of Alabama, 1969

STEPHEN R. FLORA
Assistant Professor, Psychology
B.A., University of North Carolina, Chapel Hill, NC, 1985
M.S., University of Georgia, Athens, GA, 1987
Ph.D., University of Georgia, 1990

ELMER FOLDVARY
Professor of Chemistry
B.S., Youngstown State University, 1958
M.S., Texas A&M University, 1961
Ph.D., Texas A&M University, 1964

ROBERT H. FOULKES, JR.
Professor of Electrical Engineering
B.S., Case Western Reserve University, 1966
M.S., University of Southern California, 1968
Ph.D., Case Western Reserve University, 1970

AUBREY R. FOWLER
Associate Professor of Management
B.S., Georgia Institute of Technology, 1970
M.B.A., Georgia State University, 1978
Ph.D., Georgia State University, 1984

SAUL S. FRIEDMAN
Professor of History
B.A., Kent State University, 1959
M.A, The Ohio State University, 1962
Ph.D., The Ohio State University, 1969

GARY F. FRY
Professor of Sociology and Anthropology
B.A., University of Denver, 1965
M.A., University of Utah, 1968
Ph.D., University of Utah, 1970

WILLIAM R. FRY
Professor of Psychology
B.S., Western Illinois University, 1972
M.A., Wayne State University, 1976
Ph.D., Wayne State University, 1979

DARLA FUNK
Professor of Music
B.A., University of Northern Colorado, 1967
M.A., University of Northern Colorado, 1975
Ph.D., Kent State University, 1985

STEPHEN L. GAGE
Assistant Professor, Dana School of Music
B.M., State University of New York, Fredonia, NY, 1978
M.M., Eastman School of Music, Rochester, NY, 1983
Ph.D., University of Illinois at Urbana-Champaign, 1994

STEVEN R. GARDNER
Professor in School of Technology
B.E.E., The Ohio State University, 1965
M.S., The Ohio State University, 1966
Ph.D., The Ohio State University, 1970

JEANETTE M. GARR
Assistant Professor, Chemical Engineering
B.A., State University of New York at Buffalo, 1978
M.A., State University of New York at Buffalo, 1984
Ph.D., State University of New York at Buffalo, 1989

BEVERLY P. GARTLAND
Associate Professor of Sociology and Anthropology
A.B., Youngstown State University, 1964
M.A., The Ohio State University, 1967

RICHARD J. GAYDOS
Assistant Professor of Computer and Information Sciences
B.S., Youngstown State University, 1979
M.S., Youngstown State University, 1980
M.S., Kent State University, 1983

MICHAEL D. GELFAND
Professor of Music
B.M., Indiana University, 1971
M.M., Cleveland Institute of Music, 1974

JULIA M. GERGITS
Associate Professor of English
B.A., DePaul University, 1978
M.A., Penn State University, 1980
Ph.D., University of Minnesota, 1987

JANET GILL-WIGAL
Professor of Counseling
B.A., Hiram College, 1972
M.Ed., Bowling Green State University, 1973
Ph.D., The Ohio State University, 1978

PATRICIA GILMARTIN
Professor of Sociology and Anthropology
B.A., Youngstown State University, 1972
M.A., Ball State University, 1976
Ph.D., Kent State University, 1983

PHILIP E. GINNETTI
Associate Professor of Early and Middle Childhood Education
B.S., Youngstown State University, 1974
M.S., Youngstown State University, 1978
Ph.D., University of Akron, 1989

MARGARET M. GITTIS
Professor of Psychology
B.S., St. Lawrence University, 1969
M.A., The Ohio State University, 1973
Ph.D., The Ohio State University, 1975

ELAINE S. GLASSER
Professor of Art
B.S. in Ed., Youngstown State University, 1960
M.Ed., Kent State University, 1965

RICHARD G. GOLDTHWAIT, JR.
Assistant Professor of Mathematics
B.S., Carnegie Mellon University, 1976
M.S., University of Pittsburgh, 1981
Ph.D., University of Texas at Dallas, 1988

ADORACION F. GONZALEZ
Assistant Professor of Political Science and Social Science
A.B., Adamson University, 1952
M.A., Michigan State University, 1958

RONALD L. GOULD
Professor of Music
B.M., North Central College, 1954
S.M.M., Union Theological Seminary, 1956
S.M.D., Union Theological Seminary, 1970

STEPHEN A. GRAF
Professor of Psychology
A.B., Miami University, 1965
M.A., The Ohio State University, 1968
Ph.D., The Ohio State University, 1971

A. JAMES GRANITO
Associate Professor of Management
B.A., Yale University, 1960
J.D., University of Chicago, 1963
M.A., Washington State University, 1973

BEVERLY ANN GRAY
Associate Professor of Psychology
B.A., Adelphi University, 1971
M.A., Fordham University, 1974
Ph.D., Fordham University, 1986

BETTY T. GREENWAY
Associate Professor of English
B.A., University of Denver, 1973
M.A., University of Warwick, 1975
Ph.D., Tulane University, 1985

WILLIAM H. GREENWAY
Professor of English
B.A., Georgia State University, 1970
M.A., Tulane University, 1977
Ph.D., Tulane University, 1984

STANLEY D. GUZELL, JR.
Professor of Management
B.A., The Ohio State University, 1969
M.P.I.A., University of Pittsburgh, 1973
Ph.D., University of Pittsburgh, 1980

LINWOOD A. HAGIN
Assistant Professor, Communication and Theater
B.A., University of Wisconsin-Superior, 1977
M.A., University of Minnesota-Minneapolis, 1979
Ph.D., The University of Tennessee, 1994

MADELEINE HAGGERTY
Associate Professor of Allied Health
B.S., Youngstown State University, 1961
M.S., Northeastern University, 1966
A. Dental Hyg., Lakeland Community College, 1975
Ph.D., University of Pittsburgh, 1985

LAWRENCE J. HAIMS
Professor of Foundations of Education
B.A., University of Michigan, 1956
M.Ed., University of Pittsburgh, 1970
Ph.D., University of Pittsburgh, 1972

FRANK A. HANKEY
Associate Professor in School of Technology
B.S., St. Lawrence University, 1956
M.S., University of Florida, 1960
M.E., University of Florida, 1965
Ph.D., University of Florida, 1969

KENNETH P. HANKINS
Professor of Accounting and Finance
B.B.A., Lamar University, 1960
M.B.A., University of Arkansas, 1962
Ph.D., University of Arkansas, 1970

STEPHEN HANZELY
Professor of Physics and Astronomy
B.S., Kent State University, 1962
M.S., University of Toledo, 1964
Ph.D., New Mexico State University, 1969

LAURIE S. HARIG
Assistant Professor of Allied Health
A.S., Cuyahoga Community College, 1973
B.S., University of Akron, 1980
M.S., University of Akron, 1982

ANN G. HARRIS
Professor of Geology
B.S., Kent State University, 1956
M.S., Miami University, 1958

LARRY F. HARRIS
Associate Professor of Music
B.M.E., Drake University, 1967
M.M., Drake University, 1968

LOUIS N. HARRIS
Associate Professor of Allied Health
A.A.S., Community College of Allegheny County, 1973
B.S., University of Pittsburgh, 1976
M.S., University of Pittsburgh, 1982
Ed.D., University of Akron, 1991

JEAN T. HASSELL
Associate Professor of Human Ecology
B.S., Syracuse University, 1951
M.S., Kent State University, 1974

VERNON F. HAYNES
Associate Professor of Psychology
B.A., University of Central Florida, 1980
M.S., University of Florida, 1983
Ph.D., University of Florida, 1984

INEZ G. HEAL
Associate Professor of Accounting and Finance
A.B., Syracuse University, 1968
M.B.A., Youngstown State University, 1976

LYN D. HEMMINGER
Assistant Professor in Human Performance and Exercise Science
B.S., Springfield College, 1972
M.S., Indiana State University, 1975
Ph.D., Kent State University, 1987

DENNIS R. HENNEMAN
Professor of Communication and Theater
B.A., North Central College, 1962
M.A., University of Minnesota, 1965
Ph.D., University of Nebraska, 1975

ROBERT A. HOGUE
Instructor in Computer and Information Sciences
B.A., Grove City College, 1969
M.A., Bucknell University, 1970
M.S., Pennsylvania State University, 1983

M. DEAN HOOPS
Associate Professor of Special Education
B.S. in Ed., Kent State University, 1959
M.S., University of Michigan, 1961
Ph.D., University of Michigan, 1969

RANDY L. HOOVER
Professor of Secondary Education
B.A., The Ohio State University, 1969
M.A., Edinboro State University, 1977
Ph.D., The Ohio State University, 1984

JAMES A. HOUCK
Professor of English
B.A., St. John's College, 1964
Ph.D., Duquesne University, 1971

BEVERLY D. HOWSE
Instructor in Human Ecology
B.S., Ohio University, 1968

PATRICIA L. HOYSON
Instructor of Nursing
B.S.N., Pennsylvania State University, 1986
M.S.N., Kent State University, 1991

PEI HUANG
Professor of History
B.A., National Taiwan University, China, 1956
M.A., National Taiwan University, China, 1959
Ph.D., Indiana University, 1963

LAWRENCE W. HUGENBERG
Professor of Communication and Theater
B.S.S.W., The Ohio State University, 1974
M.A., The Ohio State University, 1976
Ph.D., The Ohio State University, 1981

PATRICIA G. HUMBERTSON
Associate Professor of Geography
B.S., University of Pittsburgh, 1971
M.A., University of Pittsburgh, 1973
Ph.D., University of Pittsburgh, 1977

ALLEN D. HUNTER
Associate Professor of Chemistry
B.S., University of British Columbia, Canada, 1981
Ph.D., University of British Columbia, Canada, 1985

SHAKIR HUSAIN
Associate Professor of Civil and Environmental Engineering
B.S., The Aligarh Muslim University, 1974
M.S., The Aligarh Muslim University, 1976
M.S., University of Mississippi, 1984
Ph.D., University of Mississippi, 1987

MEGAN L. ISAAC
Assistant Professor, English
B.A., Lawrence University, Wisconsin, 1988
M.A., University of California, Los Angeles, 1991
Ph.D., University of California, Los Angeles, 1994

JOHN A. JACKSON
Assistant Professor, Chemistry
B.A., University of Minnesota, 1982
Ph.D., University of Iowa, 1990

JALAL JALALI
Associate Professor of Electrical Engineering
B.S., University of Missouri—Columbia, 1979
M.S., University of Missouri—Columbia, 1980
Ph.D., University of Missouri—Columbia, 1984

MADALYN JANOSIK
Instructor in Nursing
B.S.N., The Ohio State University, 1967
M.S.N., Catholic University of America, 1985

WILLIAM D. JENKINS, JR.
Professor of History
B.S., Loyola College, 1963
M.A., Case Western Reserve University, 1964
Ph.D., Case Western Reserve University, 1969

CLARA M. JENNINGS
Dean and Professor, Early and Middle Childhood Education
B.S., Arkansas Agriculture, Mechanical and Normal College, 1964
M.Ed., Wayne State University, 1968
Ph.D., Michigan State University, 1973

QI, JIANG
Assistant Professor, Sociology and Anthropology
Languages, B.A., Second Beijing Inst. of Foreign Beijing, China, 1972
Diploma in English Literature, Carleton University,
Ottawa, Canada, 1977
M.A. in Sociology, University of Pittsburgh, 1986
Ph.D. in Sociology, University of Pittsburgh, 1994

BARBARA L. JONES
Instructor in Computer and Information Sciences
A.A.B., Youngstown State University, 1975
B.S. in B.A., Youngstown State University, 1979
M.B.A., Youngstown State University, 1982

RICHARD W. JONES
Professor of Chemical Engineering
B.S., University of Missouri, 1959
M.S., Rensselaer Polytechnic Institute, 1962
Ph.D., Northwestern University, 1968

JAMES G. KARAS
Associate Professor of Biological Sciences
B.S., University of Illinois, 1956
M.S., Michigan State University, 1958
Ph.D., Michigan State University, 1962

BIRSEN KARPAK
Professor of Management
D.B.A., University of Istanbul, Turkey, 1974

RAM M. R. KASUGANTI
Professor of Management
B.S.M.E., Osmania University, India, 1968
M.S.I.E., Purdue University, 1970
M.B.A., Kent State University, 1974
D.B.A., Kent State University, 1976

PETER J. KASVINSKY
Dean and Professor of Biochemistry
B.S., Bucknell University, 1964
Ph.D., University of Vermont, 1970

LOUIS E. KATZ
Professor of Management
B.A., Kent State University, 1971
J.D., Cleveland State University, 1974
B.S., Illinois State University, 1977

PATRICIA R. KELVIN
Assistant Professor of English
B.S., University of California, Davis, 1966
M.A., Humboldt State University, 1987
Ph.D., The Ohio State University, 1992

STEVEN L. KENT
Associate Professor of Mathematics
B.A., Adelphi University, 1976
M.A., University of Pittsburgh, 1979
Ph.D., University of Pittsburgh, 1982

TAGHI T. KERMANI
Professor of Economics
Licenciate in Law, University of Tehran, 1949
M.A., University of Nebraska, 1953
Ph.D., University of Nebraska, 1959

JANE E. KESTNER
Professor of Psychology
B.S., Ball State University, 1973
M.A., University of Notre Dame, 1975
Ph.D., University of Notre Dame, 1978

IRFAN AHMAD KHAN
Professor of Civil and Environmental Engineering
B.Sc., University of Engineering and Technology, 1967
M.S., University of Hawaii, 1974
Ph.D., Colorado State University, 1977
P.E., Ohio

IKRAM U. KHAWAJA
Professor of Geology
B.S., University of Karachi, Pakistan, 1962
M.S., University of Karachi, Pakistan, 1963
M.S., Southern Illinois University, 1968
PhD., Indiana University, 1969

HONG YUNG KIM
Professor of Early and Middle Childhood Education
B.A., Sung-Kyun-Kwan University, 1964
M.E., Seoul National University, 1969
Ph.D., Ball State University,1974

HYUN W. KIM
Associate Professor of Mechanical Engineering
B.S., Seoul National University, 1968
M.S., University of Michigan, 1975
Ph.D., University of Toledo, 1980
P.E., Ohio

BART KITTLE
Assistant Professor, Marketing
B.S., West Virginia University, 1968
M.B.A., West Virginia University, 1973
Ph.D., University of Alabama, 1989

JAMES M. KOHUT
Associate Professor of Marketing
B.S., Bowling Green State University, 1974
M.B.A., Youngstown State University, 1980
Ed.D, University of Akron, 1988

FRIEDRICH W. KOKNAT
Professor of Chemistry
B.S. (Vordiplom), Justus Liebeg-University of Giessen, West Germany, 1959
Diplom-Chemiker, University of Giessen, Germany, 1963
Doktors Der Naturwissenschaften, University of Giessen, Germany, 1965

GENEVRA A. M. KORNBLUTH
Associate Professor of Art
B.A., Pomona College, 1976
M.A., University of North Carolina, 1979
Ph.D., University of North Carolina, 1986

ANTHONY J. KOS
Instructor in Management
B.S. in B.A., Youngstown State University, 1983
M.B.A., Youngstown State University, 1987

JOSEPH J. KOSS
Professor of Economics
B.S., University of Pittsburgh, 1948
M.A., University of Pittsburgh, 1951
M.S. in Ed., Youngstown State University, 1978
Ed.D., University of Akron, 1987

KATHLEEN M. KOUGL
Professor of Communication and Theater
B.S., Northwestern University, 1967
M.A., Pennsylvania State University, 1972
Ph.D., Pennsylvania State University, 1975

JON KRASNER
Assistant Professor, Art
B.A., Muhlenberg College, Allentown, Pennsylvania, 1987
M.F.A., Pratt Institute, Brooklyn, NY, 1990
M.F.A., Boston University, 1994

RICHARD D. KREUTZER
Professor of Biological Sciences
B.S., University of Illinois, 1963
M.S., University of Illinois, 1965
Ph.D., University of Illinois, 1968

AHALYA KRISHNAN
Professor of Psychology
B.A., Madras University, Madras, India, 1955
M.S., University of Wisconsin-Platteville, 1969
Ph.D., Kent State University, 1975

RAMA KRISHNAN
Professor of Management
B.A., Panjab University, 1958
B.S. in B.A., The American University, 1964
M.B.A., The American University, 1965
Ph.D., The American University, 1967

JOHANNA K. KRONTIRIS-LITOWITZ
Associate Professor of Biological Sciences
B.A., Case Western Reserve University, 1974
M.S., Case Western Reserve University, 1977
Ph.D., Cleveland State University, 1984

CHRISTOPHER KRUMMEL
Instructor, Dana School of Music
B.M., Miami University, Oxford, OH, 1985
M.M., University of Illinois at Urbana-Champaign, 1992

FRANCIS R. KRYGOWSKI
Associate Professor in School of Technology
B.E., Youngstown State University, 1970
M.S., Youngstown State University, 1972

GANESH KUDAV
Associate Professor of Mechanical Engineering
B.S., University of Bombay, 1977
M.S., Mississippi State University, 1981
Ph.D., Texas Tech University, 1988

MARSHA G. KUITE
Assistant Professor in Nursing
B.S.N., University of Akron, 1971
M.S.N., University of Akron, 1987

GEORGE P. KULCHYTSKY
Professor of History
B.S., Kent State University, 1964
M.A., John Carroll University, 1965
Ph.D., Georgetown University, 1970

GLENDA G. KUNAR
Instructor in Computer and Information Sciences
B.S. in Ed., Kent State University, 1962
M.Ed., Kent State University, 1984

JAMES P. LALUMIA
Associate Professor of Communication and Theater
B.S., Youngstown State University, 1967
M.A., Bowling Green State University, 1969
Ph.D., Kent State University, 1982

VIRGIL R. LANG
Associate Professor of Marketing
B.S., John Carroll University, 1950
M.A., Western Reserve University, 1963
Ph.D., St. John's University, New York, 1968

EDWARD J. LARGENT, JR.
Professor of Music
B.S., The Ohio State University, 1960
B.M., The Ohio State University, 1963
M.M., University of Illinois, 1964
Ph.D., The Ohio State University, 1972

A. BARI LATEEF
Professor of Criminal Justice
B.S., Panjab University, 1959
M.S., Panjab University, 1961
Ph.D., University of Newcastle, England, 1966

DAVID B. LAW
Associate Professor, Accounting & Finance
B.A., Youngstown State University, 1975
M.B.A., Youngstown State University, 1985
Ph.D., Cleveland State University, 1994

GLORIANNE M. LECK
Professor of Foundations of Education
B.S., University of Wisconsin, 1963
M.S., University of Wisconsin, 1966
Ph.D., University of Wisconsin, 1968

ROBERT E. LEIPHEIMER
Associate Professor of Biological Sciences
B.A., Thiel College, 1972
M.S., Slippery Rock State College, 1979
Ph.D., The Ohio State University, 1981

SCOTT A. LEONARD
Assistant Professor of English
B.A., Humboldt State University, 1987
M.A., Humboldt State University, 1987
Ph.D., The Ohio State University, 1992

ANTHONY S. LEONARDI
Professor of Music
B.M., Youngstown State University, 1971
M.M., Youngstown State University, 1979

KEITH J. LEPAK
Associate Professor of Political Science and Social Science
B.A., Carroll College, 1976
M.A., University of Virginia, 1980
Ph.D., University of Virginia, 1986

GEORGE E. LETCHWORTH
Professor of Psychology
A.B., Bucknell University, 1956
M.A., University of Pennsylvania, 1958
Ph.D., University of Pennsylvania, 1963

ROBERT A. LEVIN
Assistant Professor, Foundations of Education
B.A., Brandeis University, Waltham, MA, 1972
M.A., Brown University, 1973
Ph.D., Carnegie Mellon University, 1990

SOON-SIK LIM
Professor of Chemical Engineering
B.S., Yonsei University, Korea, 1971
M.S., Wayne State University, 1975
Ph.D., Wayne State University, 1981
P.E., Ohio

SHERRY L. LINKON
Associate Professor of English
B.A., Macalester College, 1980
M.A., University of Denver, 1983
Ph.D., University of Minnesota, 1990

LORETTA M. LIPTAK
Professor in Health Sciences
B.S. in Ed., Youngstown State University, 1957
M.A., The Ohio State University, 1965
Ph.D., The Ohio State University, 1986

YIH-WU LIU
Professor of Economics
B.A., National Taiwan University, 1957
M.B.A., City College of New York, 1963
M.S., Carnegie-Mellon University, 1977
Ph.D., Southern Illinois University, 1968

GORDON E. LONGMUIR
Professor in Human Performance and Exercise Science
B.S. in Ed., University of North Dakota, 1966
M.S., University of North Dakota, 1967
Ed.D., University of New Mexico, 1972

MARY B. LOUD
Associate Professor of Foreign Languages and Literatures
B.A., University of Wisconsin, 1964
M.A., University of North Carolina, 1967
Ph.D., University of Kentucky, 1970

JAMES G. LUCAS
Professor of Art
A.B., Youngstown State University, 1961
M.A., Kent State University, 1963

MARVIN LUKIN
Professor of Chemistry
B.S., Ohio University, 1949
M.S., Case Western Reserve University, 1954
Ph.D., Case Western Reserve University, 1956

DAVID MacLEAN
Professor of Biological Sciences
B.S., Heidelberg College, 1963
M.S., Purdue University, 1965
Ph.D., Purdue University, 1969

RUSSELL A. MADDICK
Professor of Art
B.A., Youngstown State University, 1964
M.F.A., The Ohio State University, 1966

GORDON E. MAPLEY
Professor (Courtesy)
B.A., Oakland University, 1971
M.A., Wayne State University, 1975
Ph.D., Wayne State University, 1975

THOMAS A. MARAFFA
Associate Professor of Geography
B.A., The Ohio State University, 1975
M.A., The Ohio State University, 1977
Ph.D., The Ohio State University, 1980

SCOTT C. MARTIN
Professor of Civil and Environmental Engineering
B.A., Clarkson College of Technology, 1977
M.S., Clarkson College of Technology, 1979
Ph.D., Clarkson College of Technology, 1984

CAROLYN L. MARTINDALE
Professor of English
B.A., Kent State University, 1960
M.A., Kent State University, 1981

SHERRY MARTINEK
Associate Professor of Counseling
B.S., Kent State University, 1965
M.S., University of Akron, 1969
Ph.D., Kent State University, 1985

NDINZI MASAGARA
Assistant Professor of Foreign Languages and Literatures
M.A., University of Southern California, 1986
Ph.D., University of Southern California, 1991

MARK A. MASAKI
Professor of Psychology
A.B., University of California at Los Angeles, 1966
M.A., California State College at Long Beach, 1969
Ph.D., Southern Illinois University, 1971

PAUL M. MASTRANGELO
Assistant Professor, Psychology
B.A., University of Rhode Island, Kingston, RI, 1989
M.S., Ohio University, 1991
Ph.D., Ohio University, 1993

MARCIA MATANIN
Assistant Professor, Human Performance & Exercise Science
B.S., Youngstown State University, 1987
M.E., Kent State University, 1990
Ph.D., Ohio State University, 1993

WALTER T. MATHEWS
Assistant Professor of Communication and Theater
A.B., Oberlin College, 1974
M.S., Case Western Reserve University, 1977
Ph.D., Michigan State University, 1987

R. BRUCE MATTINGLY
Associate Professor of Mathematics
B.S., University of Louisville, 1980
M.E., University of Louisville, 1982
Ph.D., North Carolina University, 1988

CHARLES A. McBRIARTY
Professor (Courtesy)
B.S., Northern Illinois University, 1959
M.S., Indiana University, 1962
Ph.D., Indiana University, 1968

PATRICIA A. McCARTHY
Professor of Nursing
B.S., Mercy College of Detroit, 1964
M.S.N., Wayne State University, 1966
Ph.D., University of Pittsburgh, 1982

ROBERT A. McCOY
Professor of Mechanical Engineering
B.S., The Ohio State University, 1962
M.S., The Ohio State University, 1963
D.E., University of California at Berkeley, 1971
P.E., Ohio

H. THOMAS McCRACKEN
Professor of English
B.S., State University of New York, 1958
M.S., State University of New York, 1962
M.A., Middlebury College, 1965
Ph.D., University of Illinois, 1971

DIANE R. McDOUGAL
Assistant Professor of Nursing
B.S.N., Pennsylvania State University, 1970
MNED, University of Pittsburgh, 1977

RICHARD A. McEWING
Professor
B.S., Northern State College, 1968
M.A.T., Harvard University, 1973
Ed.D., University of Colorado, Boulder, 1978

S. DIANE McFARLAND
Assistant Professor of Communication and Theater
B.A., State University of New York at Buffalo, 1976
M.A., State University of New York at Buffalo, 1982

KEITH McKEAN
Associate Professor of Political Science and Social Science
Ph.B., University of North Dakota, 1956
Diploma, St. Vladimir's Orthodox Theological Seminary, 1959
M.A., Fordham University, 1964
M.A., Case Western Reserve University, 1973
M.A., Kent State University, 1983

ANNE M. McMAHON
Professor of Management
B.A., University of Portland, 1965
M.A., Michigan State University, 1967
Ph.D., Michigan State University, 1970

KENT MCMATH
Associate Professor, Accounting & Finance
B.A., Duke University, Durham, 1961
M.B.A., University of North Carolina, 1963
Ph.D., University of South Carolina, 1985

DONNA J. McNIERNEY
Associate Professor of Secondary Education
B.S., Ball State University, 1967
M.S., Butler University, 1973
M.A., Ball State University, 1981
Ed.D., Ball State University, 1983

JAGDISH C. MEHRA
Professor of Economics
B.A., Rasjasthan University, India, 1955
M.A., Rasjasthan University, India, 1957
Ph.D., State University of New York at Buffalo, 1968

HOJJAT MEHRI
Professor of Industrial and Systems Engineering
B.Sc., Abadan Institute of Technology, 1968
M.S., Illinois Institute of Technology, 1973
Ph.D., Illinois Institute of Technology, 1981

ANTHONY P. MESSURI
Associate Professor in School of Technology
B.E., Youngstown State University, 1977
M.S., Youngstown State University, 1979
Doctor of Engr., Cleveland State University, 1987

HOWARD D. METTEE
Professor of Chemistry
B.A., Middlebury College, 1961
Ph.D., University of Calgary, 1964

CAROLYN K. MIKANOWICZ
Associate Professor in Health Sciences
R.N., Mercy Hospital School of Nursing, 1962
B.S., Mansfield University, 1978
M.S., Pennsylvania State University, 1985
Ph.D., Pennsylvania State University, 1990

JAMES HOWARD MIKE
Associate Professor of Chemistry
B.S., Youngstown State University, 1976
M.S., Youngstown State University, 1980
Ph.D., University of Cincinnati, 1986

DONALD J. MILLEY
Professor of Economics
B.A., State University of New York at Buffalo, 1966
Ph.D., State University of New York at Buffalo, 1974

DARYL W. MINCEY
Professor of Chemistry
B.S., University of Cincinnati, 1972
M.S., University of Cincinnati, 1974
Ph.D., University of Cincinnati, 1979

HELEN E. MINES
Associate Professor in Human Performance and Exercise Science
B.S., Bowling Green State University, 1965
M.A., Central Michigan University, 1970

BRENDAN P. MINOGUE
Professor of Philosophy and Religious Studies
B.A., Cathedral College, 1967
M.A., The Ohio State University, 1970
Ph.D., The Ohio State University, 1974

JOSEPH J. MISTOVICH
Assistant Professor of Allied Health
A.A.S., Youngstown State University, 1982
B.S., Youngstown State University, 1985
M.Ed., Kent State University, 1988

RICHARD C. MITCHELL
Professor of Art
B.F.A., Illinois Wesleyan University, 1962
M.F.A., Ohio University, 1964

VIRGINIA MONSEAU
Professor of English
B.A., Kent State University, 1976
M.A., Youngstown State University, 1982
Ph.D. University of Michigan, 1986

EDWARD MOONEY JR.
Professor of Physics and Astronomy
B.S., Youngstown State University, 1964
M.S., Cornell University, 1966
Ph.D., Virginia Polytechnic Institute, 1971

DENNIS MORAWSKI
Assistant Professor of Social Work
B.S., Lake Superior State College, 1978
M.S.W., Wayne State University, 1980
Ph.D., University of Tennessee, 1990

CLYDE D. MORRIS
Associate Professor of Economics
B.A., The Ohio State University, 1964
M.A., Michigan State University, 1966
Ph.D., Case Western Reserve, 1987

JAMES C. MORRISON
Professor of Psychology
B.A., University of Oregon, 1961
M.A., University of Tennessee, 1964
Ph.D., Michigan State University, 1970

JOSEPH L. MOSCA
Assistant Professor of Social Work
B.S.W., University of Illinois at Chicago, 1980
M.S.W., University of Illinois at Chicago, 1981
Ph.D., University of Pittsburgh, 1992

NANCY W. MOSCA
Assistant Professor of Nursing
B.S.N., University of Illinois, 1977
M.S., University of Illinois, 1982

MICHAEL T. MOSELEY
Associate Professor of Art
B.F.A., Texas Tech University, 1973
M.F.A., Texas Tech University, 1976

ALLAN MOSHER
Assistant Professor of Music
B.A., San Franciso State University, 1974
B.A., University of California at Berkeley, 1977
M.M., Eastman School of Music, 1978
D.M.A., University of Cincinnati, 1986

BILL V. MULLEN
Associate Professor of English
B.A., Occidental College Los Angeles, 1981
Ph.D., The City University of New York, 1990

PAUL M. MULLINS
Associate Professor of Computer and Information Sciences
B.E., Youngstown State University, 1979
M.S., Youngstown State University, 1985
Ph.D., University of Pittsburgh, 1990

PHILIP C. MUNRO
Professor of Electrical Engineering
B.S.E.E., Washington University, 1960
M.S., Washington University, 1964
Ph.D., Purdue University, 1973

JOHN MURPHY
Assistant Professor, Communication & Theater
B.A., The University of Arizona, Tucson, AZ, 1977
M.F.A., The University of Arizona, Tucson, AZ, 1979

CHARLES A. NELSON
Associate Professor of English
B.A., Augustana College, 1967
M.A., University of Wisconsin, 1968
Ph.D., University of Wisconsin, 1974

JOHN NEVILLE, JR.
Assistant Professor in Human Performance and Exercise Science
B.S., Kent State University, 1972
M.Ed., Kent State University, 1975

ROBERT T. NICKELSBURG
Associate Professor of Special Education
A.A., Concordia Junior College, 1955
B.A., Valparaiso University, 1957
M.A., University of Denver, 1961
M.S., University of Denver, 1965
Ed.D., University of Northern Colorado, 1970

STEVE S. NOLAN
Assistant Professor of Communication and Theater
A.A., College of DuPage, 1975
B.S., Illinois State University, 1978
M.S., Illinois State University, 1979

GAIL OKAWA
Assistant Professor, English
B.A., University of Hawaii, 1964
M.A., Duke University, Durham, NC, 1964
Ph.D., Indiana University of Pennsylvania, 1994

CAROLINE OLTMANNS
Instructor, Dana School of Music
Diploma, Greiburg, Germany, 1989
M.M., University of Southern California, Los Angeles, 1991

DANIEL J. O'NEILL
Professor of Communication and Theater
B.A., Wayne State University, 1961
M.A., Bowling Green State University, 1962
Ph.D., Michigan State University, 1969

ALFRED W. OWENS
Professor of Communication and Theater
B.A., Baldwin-Wallace College, 1969
M.A., Kent State University, 1971
Ph.D., Kent State University, 1983

MARTHA PALLANTE
Assistant Professor of History
B.A., Youngstown State University, 1977
M.A., College of William and Mary, 1982
Ph.D., University of Pennsylvania, 1988

GABRIEL PALMER-FERNANDEZ
Assistant Professor of Philosophy and Religious Studies
B.S., Florida International University, 1977
M.A., West Georgia College, 1978
M.T.S., Harvard University, The Divinity School, 1981
A.M., Harvard University, 1988
Ph.D., Harvard University, 1992

SALVATORE R. PANSINO
Professor of Electrical Engineering
B.S., Carnegie Institute of Technology, 1957
M.S., Franklin and Marshall College, 1961
Ph.D., Carnegie-Mellon University, 1968

JOSEPH PARLINK
Associate Professor of Music
Mus.B., Youngstown State University, 1958

PIETRO J. PASCALE
Professor of Foundations of Education
B.A., Seton Hall University, 1960
M.A., Seton Hall University, 1964
Ed.D., Rutgers-The State University, 1971

LOUISE PAVIA
Assistant Professor, Human Ecology
B.A., Carlow College, Pittsburgh, PA, 1971
M.S., University of Pittsburgh, 1974
Ph.D., University of Alabama at Birmingham, 1993

TEDROW L. PERKINS
Associate Professor of Music
B.Mu., California State University at Fullerton, 1975
M.Mu., California State University at Fullerton, 1978
D.M.A., North Texas State University, 1986

GIL PETERSON
Professor (Courtesy)
B.S., Youngstown State University, 1966
M.U.P., University of Washington, 1969
Ph.C., University of Washington, 1970
Ph.D., University of Washington, 1977

PAUL C. PETERSON
Professor of Biological Sciences
B.S., Gustavus Adolphus College, 1962
Ph.D., University of Nebraska, 1968

DENNIS A. PETRUSKA
Associate Professor of Economics
B.A., University of Pittsburgh, 1973
M.A., The Ohio State University, 1975
Ph.D., The Ohio State University, 1984

SHARON L. PHILLIPS
Assistant Professor in Nursing
Diploma, Trumbull Memorial Hospital School of Nursing, 1976
B.S.N., Kent State University, 1983
M.S.N., Kent State University, 1988

VIRGINIA K. PHILLIPS
Professor of Computer and Information Sciences
B.S. in Ed., Youngstown State University, 1967
M.B.A., Kent State University, 1970

CHARLES A. PIERCE
Professor of Criminal Justice
A.A., Bay City Junior College, 1961
B.S., Michigan State University, 1968
M.S., Michigan State University, 1970
Ph.D., Kent State University, 1980

ZBIGNIEW PIOTROWSKI
Associate Professor of Mathematics
B.S., University of Wroclaw, Poland, 1974
M.S., University of Wroclaw, Poland, 1976
Ph.D., University of Wroclaw, Poland, 1979

JAMES P. POGGIONE
Associate Professor of Mathematics
B.S. in Ed., Northern Michigan University, 1965
M.S., Western Reserve University, 1967

DAVID H. POLLACK
Associate Professor of Mathematics
B.S., University of Illinois, 1976
M.S., University of Illinois, 1982
Ph.D., University of Illinois, 1989

DAVID S. PORTER
Associate Professor of Political Science and Social Science
B.S., Grand Valley State College, 1975
M.P.A., Grand Valley State College, 1981
M.A., Michigan State University, 1984
Ph.D., Michigan State University, 1987

TOD PORTER
Associate Professor of Economics
B.A., Syracuse University, 1978
M.A., Syracuse University, 1981
Ph.D., Syracuse University, 1984

CLEMENT C. PSENICKA
Professor of Management
B.S., Dyke College, 1969
M.A., Kent State University, 1972
D.B.A., Kent State University, 1976

HOWARD W. PULLMAN
Professor of Educational Administration
B.A., University of Wisconsin, 1963
M.A., University of Wisconsin, 1964
M.A., Columbia University, 1969
Ph.D., Columbia University, 1972

JAMES D. PUSCH
Associate Professor of Foundations of Education
B.S., State University of New York College at Buffalo, 1973
M.S., Russell Sage College, 1976
Ph.D., University of Virginia, 1988

THOMAS L. RAKESTRAW JR.
Associate Professor of Management
B.S., Florida State University, 1976
M.S., Purdue University, 1980
Ph.D., Purdue University, 1983

JOYCELYN L. RAMSEY
Associate Professor in Human Performance and Exercise Science
A.A., Potomac State Jr. College, 1961
B.S., West Virginia University, 1964
M.S., West Virginia University, 1967

ROBERT A. RANDO
Assistant Professor, Counseling
B.S., Fitchburg State College, 1986
M.A., Boston College, 1988
Ph.D., Ball State University, Muncie, IN, 1993

C. WADE RARIDON
Professor of Music
B.A., University of Iowa, 1956
M.A., University of Iowa, 1957
D.M.A., University of Iowa, 1972

JEFFREY L. RAY
Assistant Professor, Mechanical Engineering
B.S., Tennessee Technological University Cookeville, TN, 1986
M.S., Tennessee Technological University Cookeville, TN, 1989
Ph.D., Vanderbilt University, Nashville, TN, 1993

STEVEN REESE
Associate Professor of English
B.A., Bucknell University, 1981
M.A., University of Delaware, 1983
Ph.D., University of Delaware, 1988

JANE S. REID
Professor of Marketing
B.S. in B.A., Youngstown State University, 1973
M.A., Michigan State University, 1974
Ph.D., University of Pittsburgh, 1984

RONALD J. RICHARDS
Professor of Counseling
B.A., Southern Illinois University, 1962
M.S. in Ed., Southern Illinois University, 1965
Ph.D., Southern Illinois University, 1970

TERESA RILEY
Associate Professor of Economics
B.A., Wittenberg University, 1978
M.A., Syracuse University, 1983
Ph.D., Syracuse University, 1984

LEWIS B. RINGER
Professor in Human Performance and Exercise Science
B.S., Springfield College, 1956
M.S., West Virginia University, 1962
D.P.E., Springfield College, 1966

SUSAN J. RIPPBERGER
Assistant Professor of Foundations of Education
B.A., University of California, Los Angeles, 1973
M.A., University of California, Santa Barbara, 1989
Ph.D., University of Pittsburgh, 1992

NATHAN P. RITCHEY
Associate Professor of Mathematics
B.A., Mansfield University of Pennsylvania, 1984
M.S., Carnegie Mellon University, 1986
Ph.D., Carnegie Mellon University, 1989

JOHN F. RITTER
Professor of Civil and Environmental Engineering
B.E., Youngstown State University, 1962
M.S., Carnegie Institute of Technology, 1964
P.E., Ohio, New York

DAVID J. ROBINSON
Professor of Communication and Theater
B.A., Pepperdine College, 1957
M.A., University of New Mexico, 1960
Ph.D., University of Southern California, 1972

STEPHEN A. RODABAUGH
Professor of Mathematics
B.A., University of Missouri, 1970
M.A., University of Missouri, 1971
Ph.D., University of Missouri, 1974

ROBERT L. ROLLIN
Professor of Music
B.A., City College of New York, 1968
M.F.A., Cornell University, 1971
D.M.A., Cornell University, 1973

RAY L. ROSS
Professor of Accounting and Finance
B.S., Milligan College, 1959
M.B.A., The Ohio State University, 1961
Ph.D., University of Illinois, 1973

DUANE F. ROST
Professor of Electrical Engineering
B.S., Iowa State College, 1962
M.S., Iowa State College, 1967
Ph.D., Iowa State College, 1970
P.E., Ohio

DEAN S. ROUSSOS
Professor of Marketing
B.S.C., University of Iowa, 1958
M.S., University of Iowa, 1960
Ph.D., University of Iowa, 1970

ROMAN V. RUDNYTSKY
Associate Professor of Music
B.S., Juilliard School of Music, 1964
M.S., Julliard School of Music, 1965

CHESTER E. RUFH
Associate Professor of Biological Sciences
B.A., Youngstown State University, 1952
M.S., Florida State University, 1953

DAVID P. RUGGLES
Professor of Educational Administration
A.B., University of Michigan, 1963
A.M., University of Michigan, 1965
Ph.D., Michigan State University, 1971

JOHN B. RUSSO
Professor of Management
B.S., Michigan State University, 1969
M.S., State University of New York at Brockport, 1973
Ed.D., University of Massachusetts, 1977

SUSAN C. RUSSO
Associate Professor of Art
B.F.A., Michigan State University, 1969
M.F.A., Rochester Institute of Technology, 1972

GARY M. SALVNER
Professor of English
B.A., Valparaiso University, 1968
M.Ed., University of Missouri, 1970
Ph.D., University of Michigan, 1977

EUGENE S. SANTOS
Professor of Computer and Information Sciences
B.S.M.E., Mapua Institute of Technology, 1961
M.S., University of the Philippines, 1963
Ph.D., Ohio State University, 1965

JOHN E. SARKISSIAN
Associate Professor of Foreign Languages and Literatures
B.A., Michigan State University, 1971
Ph.D., Duke University, 1977

LOWELL J. SATRE
Professor of History
B.A., Augustana College, 1964
M.A., University of South Carolina, 1967
Ph.D., University of South Carolina, 1968

HELEN M. SAVAGE
Professor of Accounting and Finance
B.S., Boston College, 1965
M.S., University of Akron, 1983
Ph.D., Kent State University, 1989

JAMES J. SCANLON
Professor of English
A.B., Manhattan College, 1966
Ph.D., Brown University, 1970

LEONARD L. SCHAIPER, JR.
Associate Professor of Special Education
B.S., Kent State University, 1968
M.S., Kent State Unversity, 1972
Ed.D., University of Tennessee, 1983

STEVEN M. SCHILDCROUT
Professor of Chemistry
B.S., University of Chicago, 1964
Ph.D., Northwestern University, 1968

JAMES J. SCHRAMER
Associate Professor of English
B.A., University of Washington, 1966
M.A., University of Washington, 1974
Ph.D., University of Minnesota, 1987

LAUREN A. SCHROEDER
Professor of Biological Sciences
B.S., St. Cloud State College, 1960
A.M., University of South Dakota, 1965
Ph.D., University of South Dakota, 1968

KRISS A. SCHUELLER
Associate Professor of Computer and Information Sciences
B.A., Youngstown State University, 1981
M.S., Youngstown State University, 1982
Ph.D., Northwestern University, 1987

PAMELA A. SCHUSTER
Associate Professor of Nursing
B.S.N., The Ohio State University, 1975
M.S.N., Kent State University, 1982
Ph.D., Case Western Reserve University, 1990

MARION R. SCOTT
Assistant Professor in Health Sciences
R.N., St. Elizabeth Hospital Medical Center School of Nursing, 1961
B.S., Youngstown State University, 1982
M.S., Youngstown State University, 1988

AURORA M. SEBASTIANI
Associate Professor of Biological Sciences
B.A., Youngstown State University, 1963
M.S., Tulane University, 1965

JOYCE SEGRETO
Associate Professor of Psychology
B.A., Cleveland State University, 1977
M.A., Cleveland State University, 1979
Ph.D., Ohio University, 1983

EUGENE A. SEKERES
Professor of Marketing
B.A., Geneva College, 1950
M.Litt., University of Pittsburgh, 1957
M.S., Syracuse, 1972

C. LOUISE SELLARO
Professor of Management
B.S., Northeast Missouri State University, 1953
M.B.A., Gannon University, 1979
D.B.A., Kent State University, 1986

MICHAEL A. SERRA
Assistant Professor, Chemistry
B.S./Biology, Adrian College,
Adrian, Michigan, 1984
B.A./Mathematics, Adrian College,
Adrian, Michigan, 1984
Ph.D., Iowa State University, 1990

KIMBERLY A. SERROKA
Instructor in Nursing
B.S.N., Youngstown State University, 1987
M.S.N., Kent State University, 1989

RAYMOND J. SHAFFER
Associate Professor of Accounting and Finance
B.A., Grove City College, 1974
M.B.A., Youngstown State University, 1985
D.B.A., University of Kentucky, 1990

RONALD V. SHAKLEE
Associate Professor of Geography
B.A., University of Kansas, 1975
M.A., University of Kansas, 1979
Ph.D., University of Kansas, 1983

RICHARD A. SHALE
Professor of English
B.A., Ohio Wesleyan University, 1969
M.A., University of Michigan, 1972
Ph.D., University of Michigan, 1976

JANE L. SHANABARGER
Assistant Professor in Communication and Theater
A.B., West Virginia University, 1967
A.M., West Virginia University, 1969

C. JIMMY SHIH
Assistant Professor of Computer and Information Sciences
B.S., Tatung Institute of Technology, 1974
M.S., Texas Tech University, 1984
M.S., Kent State University, 1988
Ph.D., Kent State University, 1991

NANCIE M. SHILLINGTON
Assistant Professor of Early and Middle Childhood Education
B.S. in Ed., The Ohio State University, 1956
M.A., The Ohio State University, 1964
Ph.D., The Ohio State University, 1991

THOMAS A. SHIPKA
Professor of Philosophy and Religious Studies
A.B., John Carroll University, 1966
Ph.D., Boston College, 1969

SHARON P. SHIPTON
Assistant Professor of Nursing
A.S., Community College of Beaver County, 1973
B.S.N., Slippery Rock State College, 1976
M.S.N., Edinboro State College, 1982
Ph.D., University of Pittsburgh, 1994

MARK T. SHUTES
Associate Professor of Sociology and Anthropology,
B.A., Youngstown State University, 1970

CHARLES R. SINGLER
Professor of Geology
B.S., City College of New York, 1963
M.S., University of Nebraska, 1965
Ph.D., University of Nebraska, 1969

SAMUEL J. SKAROTE
Professor of Electrical Engineering
B.E.E., The Ohio State University, 1960
M.Sc., The Ohio State University, 1965

DONALD SLANINA
Instructor in School of Technology
B.E., Youngstown State University, 1967
M.S., University of Pittsburgh, 1968

LEE R. SLIVINSKE
Associate Professor of Social Work
B.A., Ohio University, 1969
M.S.S.A., Case Western Reserve University, 1976
Ph.D., Case Western Reserve University, 1984

WILLIAM B. SLOCUM
Professor of Music
B.F.A., University of New Mexico, 1959
M.M., University of New Mexico, 1965

JEROME K. SMALL
Professor of Psychology
B.A., University of Virginia, 1965
M.A., University of Georgia, 1969
Ph.D., University of Georgia, 1972

JOHN-CHRISTIAN SMITH
Associate Professor of Philosophy and Religious Studies
B.A., University of Utah, 1979
M.A., University of Arizona, 1982
M.A., University of Arizona, 1983
Ph.D., University of Arizona, 1985

MELISSA T. SMITH
Associate Professor of Foreign Languages and Literatures
B.A., Barnard College, Columbia University, 1973
M.A., Middlebury College, Vermont, 1976
Ph.D., University of Pittsburgh, 1984

STEPHEN L. SNIDERMAN
Professor of English
B.A., Michigan State University, 1964
M.A., University of Michigan, 1965
Ph.D., University of Wisconsin, 1970

ANTHONY E. SOBOTA
Professor of Biological Sciences
B.S. in Ed., Indiana University of Pennsylvania, 1960
M.S., University of Pittsburgh, 1963
Ph.D., University of Pittsburgh, 1966

ROBERT J. SOROKACH
Professor of Industrial and Systems Engineering
B.E., Youngstown State University, 1961
M.S. in E., University of Akron, 1964
P.E., Ohio

PAUL A. SRACIC
Assistant Professor of Political Science and Social Science
B.A., Albright College,, 1984
M.A., The State University of New Jersey-Rutgers, 1990
Ph.D., The State University of New Jersey-Rutgers, 1993

GARY L. STANEK
Associate Professor of Mathematics
B.A., Kent State University, 1975
M.A., Kent State University, 1977
Ph.D., Kent State University, 1982

DAVID E. STARKEY
Professor of Music
B.M., Indiana University, 1957
M.M., Indiana University, 1958

SANDRA W. STEPHAN
Associate Professor of English
B.A., Old Dominion University, 1976
M.A., Tulane University, 1979
Ph.D., Tulane University, 1985

DAVID T. STEPHENS
Professor of Geography
A.A., El Reno Junior College, 1962
B.S., Oklahoma State University, 1964
M.A., University of Oklahoma, 1966
Ph.D., University of Nebraska, 1975

CHARLES A. STEVENS
Dean and Professor of Mechanical Engineering
B.S.M.E., Colorado State University, 1958
M.S.E., Worcester Polytechnic Institute, 1960
Ph.D., Worcester Polytechnic Institute, 1972

ANTHONY H. STOCKS
Professor of Economics
B.A., San Jose State College, 1953
M.A., Syracuse University, 1956
Ph.D., State University of New York at Buffalo, 1963

P. ELLIS STOLL
Professor of Marketing
A.B., University of Cincinnati, 1964
M.A., Louisiana State University, 1965
Ph.D., The Ohio State University, 1967

MICHELLE D. STONE
Assistant Professor, Sociology and Anthropology
B.A., Western Michigan University, Kalamazoo, MI, 1977
M.A., Western Michigan University, Kalamazoo, MI, 1986
Ph.D., Western Michigan University, Kalamazoo, MI, 1993

SHARON A. STRINGER
Associate Professor of Psychology
B.S., Georgetown University, 1977
M.S., University of Miami, 1980
Ph.D., University of Miami, 1982

LINDA J. STROM
Assistant Professor of English
B.A., Portland State University, Oregon, 1983
M.A., Portland State University, Oregon, 1986
Ph.D., University of Oregon, 1992

WILLIAM G. STURRUS
Associate Professor of Physics and Astronomy
B.S., Hope College, 1983
Ph.D., University of Notre Dame, 1989

DANIEL H. SUCHORA
Professor of Mechanical Engineering
B.E., Youngstown State University, 1968
M.S., Youngstown State University, 1970
Ph.D., Case Western Reserve University, 1973
P.E., Ohio

JOHN R. SULLINS
Assistant Professor, Computer & Information Sciences
B.S., Massachusetts Institute of Technology, 1983
M.S., University of Rochester, NY, 1985
Ph.D., University of Maryland, 1990

CHRISTOPHER J. SWEENEY
Professor of Psychology
A.B., Boston College, 1964
M.Ed., Northeastern University, 1966
Ph.D., University of Oklahoma, 1968

NANCY SWEENEY
Assistant Professor of Special Education
B.S. in Ed., Wheelock College, 1965
M.S. in Ed., Youngstown State University, 1974
M.S. in Ed., Kent State University, 1980
Ed.S., Kent State University, 1983
Ph.D., Kent State University, 1991

DAVID SWEETKIND
Dean and Professor (Courtesy)
B.M., Yale School of Music, 1954
M.M., Yale School of Music, 1955
Ph.D., Florida State University, 1968

LESLIE V. SZIRMAY
Professor of Chemical Engineering
B.S., Eotvos University, Hungary, 1949
M.S., University of Detroit, 1962
M.E., Iowa State University, 1967
Ph.D., University of Denver, 1969
P.E., Ontario, Ohio

RONALD TABAK
Professor of Physics and Astronomy
B.S., Youngstown State University, 1968
M.S., University of Washington, 1969
Ph.D., The Ohio State University, 1976

JAMES A. TACKETT
Professor of Accounting and Finance
B.S.B.A., Youngstown State University, 1977
M.B.A., Youngstown State University, 1978
Ph.D., The Ohio State University, 1983

FRANK J. TARANTINE
Professor of Mechanical Engineering
B.E., Youngstown State University, 1957
M.S. in E., University of Akron, 1961
Ph.D., Carnegie-Mellon University, 1966
P.E., Ohio

LINDA J. TESSIER
Associate Professor of Philosophy and Religious Studies
B.A., Chapman College, 1982
M.A., Claremont Graduate School, 1985
Ph.D., Claremont Graduate School, 1987

STEPHANIE A. TINGLEY
Associate Professor of English
B.A., Wittenberg University, 1980
M.A., University of Illinois at Urbana-Champaign, 1981
Ph.D., University of Illinois at Urbana-Champaign, 1987

JAMES R. TOEPFER
Professor of Biological Sciences
B.A., Kent State University, 1964
M.A., Kent State University, 1965
Ph.D., Kent State University, 1969

EDWARD B. TOKAR
Professor of Foundations of Education
B.A., University of Akron, 1968
B.S., University of Akron, 1970
M.Ed., Ohio University, 1971
Ph.D., Ohio University, 1973

PAUL A. TORCELLINI
Assistant Professor, Mechanical Engineering
B.S., Worcester Polytechnic Institute, Worcester, MA, 1986
M.S., Purdue University, 1988
Ph.D., Purdue University, 1992

GLORIA D. TRIBBLE
Professor of Early and Middle Childhood Education
B.S. in Ed., Youngstown State University, 1958
M.Ed., Kent State University, 1964
Ph.D., University of Akron, 1973

JOHN R. TURK
Professor of Music
B.M.E., Baldwin-Wallace College, 1967
M.M., Indiana University, 1971

RICHARD A. ULRICH
Assistant Professor of Art
B.S. in Ed., Youngstown State University, 1962
M.A., Kent State University, 1966

JAMES C. UMBLE
Assistant Professor of Music
B.M., Susquehanna University, 1978
M.M., Bowling Green State University, 1984

EBENGE E. USIP
Associate Professor of Economics
B.S., State University of New York at Albany, 1974
M.A., State University of New york at Albany, 1976
Ph.D., University of Connecticut, 1984

JOHN D. USIS
Assistant Professor of Biological Sciences
B.S., University of California, 1971
M.S., Youngstown State University, 1985
Ph.D., Kent State University, 1990

RAJ N. VARMA
Professor of Human Ecology
B.S., Benares Hindu University, 1948
M.S., Benares Hindu University, 1951
M.S., University of California-Davis, 1958
Ph.D., University of California-Davis, 1962

MAUREEN C. VENDEMIA
Associate Professor of Allied Health
B.S. in Ed., The Ohio State University, 1980
M.Ed., Kent State University, 1982

WILLIAM G. VENDEMIA
Assistant Professor of Management
B.S. in B.A., The Ohio State University, 1980
M.B.A., Kent State University, 1981
Ph.D., Kent State University, 1991

CHARLES B. VERGON
Associate Professor of Educational Administration
B.A., Denison University, 1968
J.D., University of Michigan Law School, 1971

FRED W. VIEHE
Associate Professor of History
B.A., Lewis and Clark College, 1971
M.A., University of California at Santa Barbara 1974
Ph.D., University of California at Santa Barbara 1983

L. ALLEN VIEHMEYER
Professor of Foreign Languages and Literatures
B.S. in Ed., Western Illinois University, 1964
A.M., University of Illinois, 1967
Ph.D., University of Illinois, 1971

RONALD P. VOLPE
Professor of Accounting and Finance
B.S. in B.A., Youngstown State University, 1964
M.B.A., Central Michigan University, 1968
Ph.D., University of Pittsburgh, 1975

TIMOTHY R. WAGNER
Assistant Professor of Chemistry
B.S., University of Wisconsin, 1981
Ph.D., Arizona State University, 1986

JOSEPH A. WALDRON
Professor of Criminal Justice
B.A., State University of New York at Buffalo, 1972
M.A., The Ohio State University, 1973
Ph.D., The Ohio State University, 1975

RICHARD L. WALKER
Assistant Professor in Human Performance and Exercise Science
B.A., East Carolina University, 1971
M.Ed., East Carolina University, 1972

BRUCE N. WALLER
Associate Professor of Philosophy and Religious Studies
B.A., Louisiana Tech University, 1968
M.A., University of North Carolina, 1975
Ph.D., University of North Carolina, 1979

MICHAEL J. WALUSIS
Professor of Art
B.F.A., University of Notre Dame, 1964
M.F.A., The Ohio State University, 1967

VICTOR WAN-TATAH
Associate Professor of Philosophy and Religious Studies
M.T.S., Harvard Divinity School, 1979
Th.D., Harvard Divinity School, 1984

HOMER B. WARREN
Associate Professor of Marketing
B.S. in B.A., Youngstown State University, 1973
M.A., Youngstown State University, 1977
D.B.A., Kent State University, 1987

ROBERT R. WEAVER
Associate Professor of Sociology and Anthropology
B.A., State University of New York, 1979
M.A., University of Connecticut, 1981
Ph.D., University of Connecticut, 1988

JOHN R. WHITE
Professor of Sociology and Anthropology
A.A., City College of San Francisco, 1961
B.A., San Francisco State College, 1963
M.A., University of Oregon, 1969
Ph.D., University of Oregon, 1974

NANCY A. WHITE
Associate Professor of Psychology
B.A., State University of New York, 1972
M.A., City University of New York, Queens College, 1975
Ph.D., University of Florida, 1985

L. ANTHONY WHITNEY
Professor in Human Performance and Exercise Science
B.S. in Ed., Youngstown State University, 1962
M.S. in P.E., Springfield College, 1963
Ph.D., The Ohio State University, 1970

JOHN C. WILCOX
Assistant Professor of Music
Mus.B., Florida State University, 1973
Master of Music, Kent State University, 1986

JOHN WILKINSON
Professor of English
B.A., University of Hull, 1964
Ph.D., State University of New York at Buffalo, 1970

JUDITH B. WILKINSON
Associate Professor of Marketing
B.S., Louisiana Polytechnic Institute, 1965
M.B.A., Louisiana Polytechnic Institute, 1966
Ph.D., University of Alabama, 1972

ERIC J. WINGLER
Associate Professor of Mathematics
B.S., Eastern Illinois University, 1974
M.A., Eastern Illinois University, 1975
Ph.D., University of Illinois, 1982

FRAN MARIE WOLF
Associate Professor, Accounting & Finance
B.A., Miami University, Oxford, OH, 1974
M.B.A., Youngstown State University, 1988
Ph.D., Kent State University, 1994

BO KAI WONG
Professor of Management
B.A., State University of New York, 1983
M.B.A., Mississippi State University, 1984
Ph.D., Mississippi State University, 1990

JENNIE M. WOOD
Instructor in Nursing
L.P.N., Salem Vocational School, 1971
A.A.S., Youngstown State University, 1977
B.S.N., Youngstown State University, 1982
M.S.N., Kent State University, 1986

WILLIAM A. WOOD
Assistant Professor in School of Technology
B.S., Cornell University, 1974
M.Eng., Cornell University, 1976
M.B.A., University of Pittsburgh, 1983

BARBARA L. WRIGHT
Professor in Human Performance and Exercise Science
B.S., Kent State University, 1967
M.Ed., Kent State University, 1969
Ph.D., Kent State University, 1980

JOHN J. YEMMA
Dean and Professor of Biological Sciences
B.S. in Ed, Youngstown State University, 1961
M.A., George Peabody College, 1965
Ph.D., Pennsylvania State University, 1971

ANNE-MARIE YORK
Assistant Professor of History
B.A., University of California at Los Angeles, 1974
M.A., University of California at Los Angeles, 1979
Ph.D., University of California at Los Angeles, 1992

WARREN M. YOUNG
Professor of Physics and Astronomy
B.S., Case Western Reserve University, 1960
M.S., The Ohio State University, 1961
Ph.D., The Ohio State University, 1971

STANLEY E. ZAGER
Professor of Chemical Engineering
B.S., Iowa State 1943
Ph.D., Purdue University, 1950
P.E., Indiana, New Jersey

PEARL E. ZEHR
Assistant Professor of Nursing
B.A., Goshen College, 1957
M.Ed., Westminster College, 1976
M.S.N., University of Tennessee, 1980

MANSOUR ZENOUZI
Assistant Professor in School of Technology
B.S.M.E., University of Science and Technology, 1976
M.S.M.E., Tufts University, 1981
Ph.D., Northeastern University, 1990

JEROME E. ZETTS
Professor of Accounting and Finance
B.S. in B.A., Youngstown State University, 1965
M.B.A., Wayne State University, 1967
C.P.A., Ohio

LOUIS A. ZONA
Professor of Art
B.S. in Ed., Youngstown State University, 1966
M.S. in Ed., University of Pittsburgh, 1969
D.A., Carnegie-Mellon University, 1973

JAMES C. ZUPANIC
Associate Professor in School of Technology
B.S.C.E., Case Western Reserve, 1969
M.S.C.E., The Ohio State University, 1976
P.E., Ohio

# EMERITI/EMERITAE OF YOUNGSTOWN STATE UNIVERSITY

GEORGE L. ALMOND
Professor Emeritus of Marketing
B.S. in B.A., The Ohio State University, 1951
M.A., The Ohio State University, 1955
Ph.D., The Ohio State University, 1963
Retired 1980

WILLIAM C. BAKER
Assistant Professor Emeritus of English
A.B., Mount Union College
M.A., University of Pittsburgh
Retired 1975

DAVID M. BEHEN
Professor Emeritus of History
Ph.B., University of Chicago
Ph.D., University of Chicago
Retired 1976

PAULINE E. BOTTY
Professor Emerita of Sociology and Anthropology
B.S. in Ed., New York State University
J.D., Youngstown State University
M.A., Case Western Reserve University
Retired 1971

WILLIAM B. CARSON
Associate Professor Emeritus of Health and Physical Education
B.S. in Ed., Youngstown State University
M.Ed., Westminster College
Retired 1978

KATHERINE H. CRITES
Assistant Professor Emerita of English
A.B., Youngstown State University
M.A., Case Western Reserve University
Retired 1979

ARTHUR R. CURRAN
Professor Emeritus of Management
B.S. in B.A., Boston University, 1948
M.B.A., Air Force Institute of Technology, 1959
Ph.D., University of Georgia, 1970
Retired 1981

JAMES W. DEGARMO, JR.
Associate Professor Emeritus of Criminal Justice
B.S. in B.A., University of Pittsburgh, 1943
J.D., Cleveland-Marshall Law School, 1969
Retired 1980

CHRISTINE R. DYKEMA
Professor Emerita of Foreign Languages
A.B., Barnard College, Columbia University
M.A., Western Reserve University
Retired 1978

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Professor Emeritus of Physics and Astronomy
B.S., Carnegie-Mellon University
M.Ed., University of Pittsburgh
M.S., University of Pittsburgh
Retired 1976

EMILY K. GOLDSTEIN
Assistant Professor Emerita of Mathematics and Computer Sciences
B.S., New York University, 1931
B.A., Columbia University, 1936
Retired 1980

MARIE F. GUBSER
Assistant Professor Emerita of English
B.S. in Ed., Kent State University
M.Ed., Westminster College
Retired 1979

WILBERT M. HAMMACK
Associate Professor Emeritus of Education
B.S. in Ed., Kent State University, 1939
M.Ed., University of Pittsburgh, 1950
Ed.D., University of Akron, 1971
Retired 1980

WILLIAM W. HANKS
Associate Professor Emeritus of Marketing
B.S., Mississippi Delta State Teachers College
M.S., New York University
Retired 1978

LEON LAITMAN
Associate Professor Emeritus of Geography
B.S., Brooklyn College, 1936
Certificate Et. Politiques, University of Grenoble, 1949
Docteur de l'Universite', University of Paris, France, 1953
Retired 1980

EDNA K. McDONALD
Associate Professor Emerita of Sociology, Anthropology, and Social Work
A.B., Youngstown State University
M.Litt., University of Pittsburgh
Retired 1978

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Assistant Professor Emeritus of English
B.A., Hiram College, 1941
M.A., Oberlin College, 1950
Retired 1981

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Assistant Professor Emerita of Speech Communication and Theatre
B.A., Ohio Wesleyan University, 1935
M.A., Ohio Wesleyan University, 1938
Retired 1981

MORRIS SLAVIN
Professor Emeritus of History
B.S. in Ed., The Ohio State University, 1938
M.A., University of Pittsburgh, 1952
Ph.D., Western Reserve University, 1961
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Associate Professor Emerita of Business Education and Secretarial Studies
A.B., Youngstown State University
M.S. in Ed., Westminster College
Retired 1973

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Professor Emeritus of Psychology
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HARRY D. DAMPF, JR.
Director Emeritus
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Professor Emeritus of Mechanical Engineering
Retired 1986

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Professor and Chair Emeritus of Nursing
Retired 1982

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Director Emeritus
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Professor and Chairperson Emeritus
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Professor and Chairperson Emeritus
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Professor Emeritus
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Professor Emeritus
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Professor Emeritus
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Professor Emeritus of Home Economics
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Professor Emeritus of Music
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Vice President Emeritus
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Professor Emeritus of English
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Professor Emeritus of Sociology, Anthropology, and Social Work
Retired 1982

LOYAL B. MOULD
Professor Emeritus of Music
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Professor and Chairperson Emeritus
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Professor Emeritus of Economics
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Administrator Emeritus
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Professor Emeritus
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Dean Emeritus of the College of Applied Science and Technology
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Professor Emeritus of English
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Administrator Emeritus
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Professor and Chair Emeritus of Marketing
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Professor Emeritus of Management
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Professor and Chairperson Emeritus

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Professor Emeritus of History
Retired 1983

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Professor and Chairperson Emeritus
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Professor Emeritus of History
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CHARLES L. SMITH
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Director Emeritus
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Professor Emeritus of Biological Sciences
Retired 1985

JAMES D. STEELE
Professor Emeritus of Elementary Education
Retired 1984

GEORGE E. SUTTON
Dean Emeritus
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WILLIAM O. SWAN
Professor Emeritus
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PIERSON R. SYRING
Administrator Emeritus
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MARY PLACE THOMAS
Administrator Emeritus
Retired 1993

WILMA A. THOMPSON
Professor Emeritus of Health and Physical Education
Retired 1982

SARA THROOP
Professor Emeritus
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Professor Emeritus of Administration & Secondary Education
Retired 1986

PAUL D. VAN ZANDT
Professor and Chairperson Emeritus
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Professor Emeritus
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PETER W. VON OSTWALDEN
Professor Emeritus
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Professor Emeritus of Business Education and Technology
Retired 1985

RICHARD G. WEBER
Administrator Emeritus
Retired 1990

MARY LOU WEDEKIND
Professor Emeritus of Health and Physical Education
Retired 1988

NELL G. WHIPKEY
Professor Emeritus of Mathematical and Computer Sciences
Retired 1986

CHARLES H. WHITMAN
Administrator Emeritus
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RALPH E. YINGST
Professor Emeritus
Retired 1992

BERNARD J. YOZWIAK
Dean Emeritus
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Margarita Mills.....Spanish
Eugene Dodd Scudder.....Chemistry
Bernard James Yozwiak.....Mathematics

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Gus Mavrigian.....Mathematics
Alvin Myerovich.....Music
Edward Thomas Reilly.....Business Organization
Clair L. Worley.....Biology

**1962-1963**

Pauline Esterhay Botty.....Sociology
Frank Angelo D'Isa.....Mechanical Engineering
Francis Kravec.....Biology
Willard L. Webster.....Biology

**1963-1964**

David Marion Behen.....History
Irwin Cohen.....Chemistry
Thaddeus Michael Dillon.....Mathematics
George Henry Schoenhard.....Education

**1964-1965**

Christine Rhoades Dykema.....French
Anthony Michael Land...Philosophy and Religion
Victor Anthony Richley.....Electrical Engineering
Myron James Wisler.....Music

**1965-1966**

Thomas D.Y. Fok.....Civil Engineering
Philip Jerome Hahn.....Economics
Vera Jenkins.....Accounting and Business
Theodore T. Macejko.....Business Administration

**1966-1967**

Jack Donald Foster.....Sociology
Jon Michael Naberezny.....Art
Paul C. Luginbill.....Chemical Engineering
Lois M. Hopkins.....Music

**1967-1968**

Catherine M. Bridgham.....Chemistry
Frank M. Ellis.....Physics
James W. Kiriazis.....Sociology
Bernard J. Vojtko.....Electrical Engineering

**1968-1969**

Ivis Boyer ..... Political Science
Marvin W. Chrisp ..... Education
Esther P. Niemi ..... Economics
William Petrych ..... Accounting

**1969-1970**

Leslie S. Domonkos ..... History
Joseph R. Lucas Philosophy and Religious Studies
Matthew Siman ..... Electrical Engineering
Paul D. Van Zandt ..... Biology

**1970-1971**

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Alfred L. Bright ..... Art
Raymond W. Hurd ..... Mathematics
Inally Mahadeviah ..... Chemistry

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Frederick J. Blue ..... History
Frank A. Fortunato ..... Management
Thelma S. Miner ..... English
Duane Sample ..... Music

**1972-1973**

Dwight V. Beede ..... Biology
Ronald L. Gould ..... Music
Renee D. Linkhorn ..... Foreign Languages
Margaret I. Pfau ..... English

**1973-1974**

Barbara H. Brothers ..... English
E. Terry Deiderick ..... Marketing

**1974-1975**

Esotto Pellegrini ..... Music
James P. Rhonda ..... History

**1975-1976**

Larry E. Esterly ..... Political Science

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Frank J. Seibold ..... Advertising and Public Relations
John H. Yemma ..... Allied Health

**1980-1981**

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James C. Morrison ..... Psychology
Virginia K. Phillips ..... Business Education and Technology

**1981-1982**

George D. Beelen ..... History
Lewis B. Ringer .. Health and Physical Education

**1982-1983**

Jack D. Bakos ..... Civil Engineering
Warren M. Young ..... Physics and Astronomy

**1983-1984**

Mary J. Beaubien ..... Home Economics
Barbara H. Brothers ..... English

**1984-1985**

Frank A. D'Isa ..... Mechanical Engineering
Richard C. Mitchell ..... Art

**1985-1986**

Barbara Brothers ..... English
John Yemma ..... Allied Health

**1986-1987**

Richard L. Burden .....Mathematics

**1987-1988**

Barbara H. Brothers .....English
Lawrence E. Cummings .....Criminal Justice

**1988-1989**

William O. Barsch .....Engineering Technology

**1989-1990**

Alfred W. Owens II .....Speech Communication and Theatre
L. Allen Viehmeyer .....Foreign Languages

**1990-1991**

Thomas A. Shipka .....Philosophy and Religious Studies

**1991-1992**

Peter A. Baldino, Jr. ....Foundations of Education

**1992-1993**

Robert J. Beebe .....Educational Administration
Thomas N. Dobbelstein .....Chemistry

**1993-94**

Madeleine Haggerty .....Allied Health
Ikram Khawaja .....Geology

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# COURSE AREA ABBREVIATIONS

A&S ..... Arts and Sciences
ACCTG ..... Accounting
ADVER ..... Advertising & Public Relations
AHLTH ..... Allied Health
AMER ..... American Studies
ANTHR ..... Anthropology
ART ..... Art
ASL ..... American Sign Language
ASTRO ..... Astronomy
BASSN ..... Bassoon
BHORN ..... Baritone Horn
BIOL ..... Biology
BIS ..... Business Information Systems
BLKST ..... Black Studies
BUTEC ..... Business Technology
CEEGR ..... Civil and Environmental Engineering
CELLO ..... Cello
CET ..... Civil Engineering Technology
CHEGR ..... Chemical Engineering
CHEM ..... Chemistry
CHFAM ..... Child and Family
CIS ..... Computer Information Systems
CLAR ..... Clarinet
CLASS ..... Classical Studies
CMEGR ... Chemical & Metallurgical Engineering
COMM ..... Speech Communication
COMP ..... Composition
COUNS ..... Counseling
CRJUS ..... Criminal Justice
CSCI ..... Computer Science
DDT ..... Drafting and Design Technology
DENHY ..... Dental Hygiene
ECON ..... Economics
EDADM ..... Educational Administration
EET ..... Electrical Engineering Technology
ELCTV ..... Elective
ELEGR ..... Electrical Engineering
EMCE .... Early and Middle Childhood Education
EMTEC ..... Emergency Medical Technology
ENGL ..... English
ENGR ..... Engineering
ENST ..... Environmental Studies
FHORN ..... French Horn
FIN ..... Finance
FLUTE ..... Flute
FNLG ..... Foreign Language
FNUTR ..... Food and Nutrition
FOUND ..... Foundations of Education
FRNCH ..... French
GEOG ..... Geography
GEOL ..... Geology
GERMN ..... German
GREEK ..... Greek
GUITR ..... Guitar
HARPS ..... Harpsichord
HIST ..... History
HMEC ..... Human Ecology
HMGT ..... Hospitality Management
HONOR ..... Honors
HPES .. Human Performance and Exercise Science
HSC ..... Health Sciences
HUMAN ..... Humanities
ISEGR ..... Industrial and Systems Engineering
ITALN ..... Italian
JOURN ..... Journalism
LATIN ..... Latin
LING ..... Linguistics
LREL ..... Labor Relations
LSTEC ..... Labor Studies Technology
MATEC ..... Medical Assisting Technology
MATH ..... Mathematics
MECH ..... Mechanical Engineering
MERCH ..... Merchandising: Fashion & Interiors
MET ..... Mechanical Engineering Technology
MGT ..... Management
MILSC ..... Military Science
MKTG ..... Marketing
MLTEC ..... Medical Laboratory Technology
MTEGR ..... Materials Engineering
MUSAC ..... Music - Applied Classes
MUSCO ..... Music - Conducting
MUSED ..... Music Education
MUSEN ..... Music - Ensembles
MUSHL ..... Music - History & Literature
MUSIC ..... Music
MUSTC ..... Music - Theory and Composition
NATSC ..... Natural Science
NURSG ..... Nursing
OBOE ..... Oboe
ORGAN ..... Organ
OSA ..... Office Services and Administration
PERC ..... Percussion
PHIL ..... Philosophy
PHYS ..... Physics
PHYTH ..... Physical Therapy
PIANO ..... Piano
POLIT ..... Political Science
PREFO ..... Pre-Forestry
PREL ..... Public Relations
PSYCH ..... Psychology
RELIG ..... Religious Studies
RESPC ..... Respiratory Therapy Technology
RUSSN ..... Russian
SAX ..... Saxaphone
SBASS ..... String Bass
SCI ..... Science
SCWK ..... Social Work
SEDUC ..... Secondary Education
SOCIO ..... Sociology
SOCSC ..... Social Science
SOCST ..... Social Studies
SPAN ..... Spanish
SPED ..... Special Education
STECH ..... School of Technology
TCOMM ..... Telecommunications
THERY ..... Theory
THTR ..... Theater
TROMB ..... Trombone
TRUMP ..... Trumpet
TUBA ..... Tuba
VIOLA ..... Viola
VIOLN ..... Violin
VOICE ..... Voice
WM ST ..... Women Studies

# DEPARTMENTAL PHONE DIRECTORY

(When calling from a telephone from off-campus, add the prefix (216) 742.)

Accounting & Finance Dept., WH 602 .....3084
Allied Health Dept,. CH 1074 .....3327
Art Dept., BH 4001 .....3627
Arts & Sciences, College of, DH 104 .....3409
Biological Sciences Dept., WB 4037 .....3601
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**Alcohol and Drug Abuse Prevention Program**

Youngstown State University is committed to a campus free of unlawful drug and alcohol abuse. This information outlines YSU's Alcohol and Drug Abuse Prevention Program. It is being distributed to all YSU students and employees, as required by the Federal Drug-Free Schools and Communities Act Amendments of 1989.

On September 14, 1990, the YSU Board of Trustees adopted a policy in accordance with the requirements of Title V of the Federal Anti-Drug Abuse Act of 1988 and the Drug-Free Schools and Community Act Amendments of 1989. The policy is printed here, along with a summary of the educational guidelines of the Acts. Also included are information tables listing the federal trafficking penalties for commonly-abused drugs.

The University provides counseling and referral services at no cost to all students, faculty and staff who are seeking help with a drug or alcohol problem or are concerned about the drug or alcohol problem of a friend, colleague or family member. Among the offices providing these services are: Health Enhancement Services, B-101 Tod Hall, 742-3322; Counseling Services, 3046 Jones Hall, 742-3056; or Employee Assistance, 314 Tod Hall, 742-3060. Referral to the appropriate community or regional treatment centers will be made when additional treatment is necessary.

If you have any questions or concerns about any aspect of the policy or the program, please contact the above-named consultation and referral services.

YSU Board of Trustees Policy

33.1 The University recognizes that illegal drug use and alcohol abuse pose health and safety hazards to employees, students, and to the community at large and accordingly prohibits the possession or use of illegal drugs and abuse of alcohol by employees and students on all University property and at other locations where employees are conducting University business.

33.2 Employees or students manufacturing, distributing, dispensing, possessing or using illegal drugs or abusing alcohol on University property and at other locations during the conducting of University business may be subject to disciplinary sanctions. Employees' rights respecting discipline imposed under this policy are governed by the appropriate collective bargaining agreement, if the employee is a member of a bargaining unit covered by a negotiated bargaining agreement. For employees not covered by a collective bargaining agreement, sanctions may be imposed in accordance with existing policy and procedures. Students' rights respecting discipline imposed under this policy are outlined in The Code.

33.3 The University will establish and maintain a drug and alcohol abuse-free awareness program which will address the following topics:

a. Health and safety concerns arising from drug and alcohol abuse.
b. Availability of drug and alcohol counseling and rehabilitation services.
c. Sanctions that may be imposed upon employees and students for drug and alcohol abuse violations.

Youngstown State University Education Guidelines—Drug-Free Schools and Campuses Act

Selected Effects of Occasional and Extended Use

**Alcohol**

Impaired motor abilities; reduced judgment; sleepiness; increased sexual desire but reduced ability to perform; nausea, vomiting; liver disorders: alcoholic hepatitis, alcoholic cirrhosis; cancer of the tongue, mouth, throat, esophagus, liver, breast; fetal alcohol syndrome (most common symptom is mental retardation).

**Cannabis, Marijuana, Hash/Has Oil, THC**

Diminished short-term memory, motivation, cognition, coordination, concentration, oral communication, reaction time; anxiety/panic reactions; Carcinogenic elements in smoke; damaged lungs and respiratory system.

**Cocaine (includes Crack Cocaine)**

Increased likelihood of risk-taking; seizures; sleeplessness; paranoia; irregular heartbeats; can cause sudden death by stroke or heart failure, even in young users; Cocaine psychosis (paranoia and hallucinations); ulceration of nucous membranes in nose; sexual dysfunction; during pregnancy: severe physical and emotional problems in babies.

**Depressants, Tranquilizers, Barbiturates, Methaqualone**

Dangerous effects when mixed with alcohol; calmness and relaxed muscles; slurred speech; staggering gait; loss of motor coordination; altered perceptions; respiratory depression which can result in coma or death; disruption of normal sleep cycle; During pregnancy: birth defects, brain tumors in children, tolerance develops severe withdrawal symptoms; physical and psychological dependence.

**Other Stimulants (excluding Cocaine), Amphetamines, Methamphetamines**

Increased heart and respiratory rates; elevated blood pressure; decreased appetite; headache; blurred vision; dizziness; sleeplessness; anxiety; amphetamine psychosis: violent behavior, hallucinations, delusions, paranoia; drug tolerance and dependency; mood swings; ulcers; mental confusion.

**Psychedelics, LSD, Mescaline, Psilocybin, Phencyclidine (PCP), MDMA (Ecstacy) MDA**

Distorted sense of distance, space and time; blockage of pain sensations, raised temperature and blood pressure; nausea, vomiting, diarrhea; greater suggestibility and feeling of invulnerability; unpredictable reactions if drugs are cut with impurities; bad trips—severe mood disorders, panic, depression, anxiety; tolerance after 3-4 daily doses (higher doses are required to produce same effects).

**Narcotics, Opium, Morphine, Codeine, Thebaine, Heroin, Demerol, Methadone, Darvon**

Feeling of euphoria, then drowsiness; nausea and vomiting; respiratory depression; central nervous

system depression; using of unsterile needles promotes: AIDS, hepatitis B, endocardities (infection of heart); women dependent on opiates have multiple pregnancy complications: spontaneous abortions, still births, anemia, diabetes.

**Consultation Referral Sources**

Youngstown State University provides assistance at no cost to students, faculty and staff. The offices providing services include: Health Enhancement Services, B-101 Tod Hall, 742-3322; Counseling Services, 3046 Jones Hall, 742-3056; and Employee Assistance, 314 Tod Hall, 742-3360. Referral to the appropriate community or regional treatment centers will be made when additional treatment is necessary.

**Examples of Federal Sanctions**

**Federal Trafficking Penalties—Marijuana**

1,000 kilograms or more; or 1,000 or more plants of marijuana (mixture containing detectable quantity [includes hashish and hashish oil]). First offense: note less than 10 years, not more than life. If death or serious injury, not less than 20 years, not more than life. Fine not more than $4 million individual, $10 million other than individual. Second Offense: Not less than 20 years, not more than life. If death or serious injury, not less than life. Fine not more than $8 million individual. $20 million other than individual.

100 kilograms to 1,000 kilograms; or 100—999 plants of marijuana (mixture containing detectable quantity [includes hashish and hashish oil]). First offense: Not less than 5 years, not more than 40 years. If death or serious injury, not less than 20 years, not more than life. Fine not more than $2 million individual. $5 million other than individual. Second offense: Not less than 10 years, not more than life. If death or serious injury, not less than life. Fine not more than $4 million individual. $10 million other than individual.

50 to 100 kilograms of marijuana; 10 to 100 kilograms of hashish; 1 to 100 kilograms hashish oil; 50-99 marijuana plants. First offense: Not more than 20 years. If death or serious injury, not less than 20 years, not more than life. Fine $1 million individual. $5 million other than individual. Second offense: Not more than 30 years. If death or serious injury, life. Fine $2 million individual. $10 million other than individual.

Less than 50 kilograms of marijuana; less than 10 kilograms of hashish; less than 1 kilogram of hashish oil. First offense: Not more than 5 years. Fine not more than $250,000. $1 million other than individual. Second offense: Not more than 10 years. Fine $500,000 individual. $2 million other than individual.

Federal Trafficking Penalties—all other controlled substances

Under Controlled Substances Act I and II

Methamphetamine—10-99 grams or 100-999 gram mixture; heroin—100-999 grams mixture; cocaine—500-4,999 gram mixture; cocaine base—5-49 gram mixture; PCP—10-99 grams or 100-999 gram mixture; LSD—1-10 gram mixture; fentanyl—40-399 gram mixture; fentanyl analogue—10-99 gram mixture.
First Offense: Not less than 5 years; not more than 40 years. If death or serious injury, not less than 20 years; not more than life. Fine of not more than $2 million individual; $5 million other than individual.
Second Offense: Not less than 10 years; not more than life. If death or serious injury, not less than life. Fine of not more than $4 million individual; $10 million other than individual.

Methamphetamine—100 grams or more than 1 kilogram (Law as originally enacted states 100 grams. Congress requested to make technical correction to 1 kilogram.); heroin—1 kilogram or more mixture; cocaine—5 kilograms or more mixture; cocaine base—50 grams or more mixture; PCP—100 grams or more or 1 kilogram or more mixture; LSD—10 grams or more mixture; fentanyl—400 grams or more mixture; fentanyl analogue—100 grams or more mixture.
First Offense: Not less than 10 years; not more than life. If death or serious injury, not less than 20 years; not more than life. Fine of not more than $4 million individual; $10 million other than individual.
Second Offense: Not less than 20 years; not more than life. If death or serious injury, not less than life. Fine of not more than $8 million individual; $20 million other than individual.

Other drugs, not including marijuana, hashish or hashish oil (see above) or any quantity.
First Offense: Not more than 20 years. If death or serious injury, not less than 20 years, not more than life. Fine $1 million individual; $5 million not individual.
Second Offense: Not more than 30 years. If death or serious injury, life. Fine $2 million individual; $10 million not individual.

Under Controlled Substances Act III

All drugs of any quantity.
First Offense: Not more than 5 years. Fine not more than $250,000 individual; $1 million not individual.
Second Offense: Not more than 10 years. Fine not more than $500,000 individual; $2 million not individual.

Under Controlled Substances Act IV

All drugs of any quantity.
First Offense: Not more than 3 years. Fine not more than $250,000 individual; $1 million not individual.
Second Offense: Not more than 6 years. Fine not more than $500,000 individual; $2 million not individual.

Under Controlled Substances Act V

All drugs of any quantity.
First Offense: Not more than 1 year. Fine not more than $100,000 individual; $250,000 not individual.
Second Offense: Not more than 2 years. Fine not more than $200,000 individual; $500,000 not individual.

Examples of State/Local Criminal Sanctions

Information on criminal sanctions is given for first offense only. Repeat offenses carry progressively greater sanctions. Trafficking (selling) any of the above drugs, excluding alcohol, are all felonies. Amount and type

of drug possessed for sale will determine penalty. This information is presented for educational puposes and should not be viewed as legal advice or determinative of the elements of a criminal offense.

**Alcohol**
Underage consumption—misdemeanor, 1-6 months, $1,000 fine; open contained or intoxication; liquor in public place (minor)—misdemeanor, $100 fine; consumption of beer or intoxicating liquor in motor vehicle—6 months, $1,000 fine.

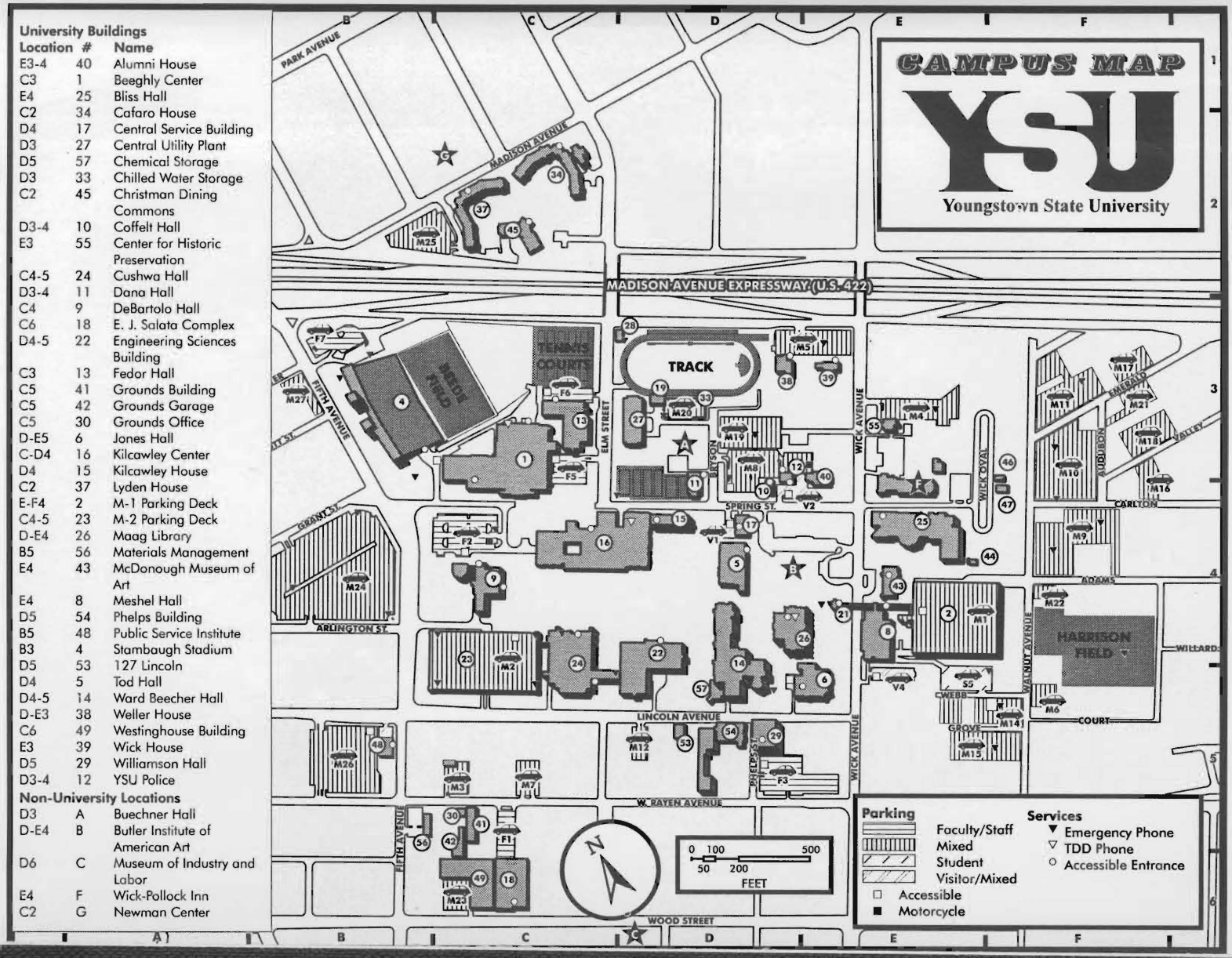
**Marijuana**
3 1/2 ounces or less—$100 fine; 3 1/2 to 7 ounces—$250 and/or 30 days; over 7 ounces marijuana, 10 grams hash or 2 grams of hash oil are felonies; amount possessed will determine penalty—6 months (minimum), 10 years (maximum); $5,000 fine.

**All Other Drugs Listed Above**
Felony; amount possessed will determine penalty; 6 months (minimum), 15 years (maximum); $7,50 fine.

**Examples of University Sanctions**
Actual penalties and sanctions imposed, pursuant to applicable due process requirements, will be determined by the facts relating to each individual. University sanctions are independent of any criminal sanctions which may be imposed.

**Alcohol**
Students: may not use, possess or distribute on University premises except as expressly permitted by law and University regulations. Violation of these regulations may result in sanctions which include warning, probation, suspension or explusion.
Employees: may not use, possess or distribute on University premises except as expressly permitted by law and University regulations. Violation of these regulations may result in sanctions which include warning, reprimand, suspension or removal.

**All Other Drugs Listed Above**
Students: regulations prohibit possession, use or sale; sanctions range from warning to expulsion. Violation of theses regulations may result in sanctions which include warning, probation, suspension or expulsion.
Employees: regulations prohibit possession, use of sale. Violation of these regulations may result in sanctions which include warning, reprimand, suspension or removal.




**University Buildings**

| Location | # | Name |
|---|---|---|
| E3-4 | 40 | Alumni House |
| C3 | 1 | Beeghly Center |
| E4 | 25 | Bliss Hall |
| C2 | 34 | Cafaro House |
| D4 | 17 | Central Service Building |
| D3 | 27 | Central Utility Plant |
| D5 | 57 | Chemical Storage |
| D3 | 33 | Chilled Water Storage |
| C2 | 45 | Christman Dining Commons |
| D3-4 | 10 | Coffelt Hall |
| E3 | 55 | Center for Historic Preservation |
| C4-5 | 24 | Cushwa Hall |
| D3-4 | 11 | Dana Hall |
| C4 | 9 | DeBartolo Hall |
| C6 | 18 | E. J. Salata Complex |
| D4-5 | 22 | Engineering Sciences Building |
| C3 | 13 | Fedor Hall |
| C5 | 41 | Grounds Building |
| C5 | 42 | Grounds Garage |
| C5 | 30 | Grounds Office |
| D-E5 | 6 | Jones Hall |
| C-D4 | 16 | Kilcawley Center |
| D4 | 15 | Kilcawley House |
| C2 | 37 | Lyden House |
| E-F4 | 2 | M-1 Parking Deck |
| C4-5 | 23 | M-2 Parking Deck |
| D-E4 | 26 | Maag Library |
| B5 | 56 | Materials Management |
| E4 | 43 | McDonough Museum of Art |
| E4 | 8 | Meshel Hall |
| D5 | 54 | Phelps Building |
| B5 | 48 | Public Service Institute |
| B3 | 4 | Stambaugh Stadium |
| D5 | 53 | 127 Lincoln |
| D4 | 5 | Tod Hall |
| D4-5 | 14 | Ward Beecher Hall |
| D-E3 | 38 | Weller House |
| C6 | 49 | Westinghouse Building |
| E3 | 39 | Wick House |
| D5 | 29 | Williamson Hall |
| D3-4 | 12 | YSU Police |

**Non-University Locations**

| | | |
|---|---|---|
| D3 | A | Buechner Hall |
| D-E4 | B | Butler Institute of American Art |
| D6 | C | Museum of Industry and Labor |
| E4 | F | Wick-Pollock Inn |
| C2 | G | Newman Center |

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